

**WHITE PAPER ON LAND,
INFRASTRUCTURE, TRANSPORT
AND TOURISM IN JAPAN, 2017**



**Ministry of Land, Infrastructure,
Transport and Tourism**

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※ Maps used in this white paper may not necessarily indicate Japanese territory comprehensively.

Introduction

The total population of Japan has decreased since reaching a peak of 128.08 million people in 2008. The population is expected to decrease to 88.08 million people by 2065; depopulation will continue to progress everywhere except in Greater Tokyo and some other regions. In 2016, the average lifespan for Japanese men was 80.98 years, while that for Japanese women was 87.14 years; Japanese people are some of the world's longest lived, and we may be on the threshold of an age in which life as we know it lasts 100 years.

In light of these circumstances, the Japanese government aims not to extend the existing social system predicated on population growth and life expectancy, but rather to promote efforts such as “Work Style Reform” in order to realize the “Dynamic Engagement of All Citizens.” For its part, the Ministry of Land, Infrastructure, Transport and Tourism will also promote a “Productivity Revolution” in an effort to improve productivity.

In this day and age, the time-tested concepts of work-life balance and purpose in life—though never inconsequential—have assumed a more fundamental place in people's worldviews. As these concepts grow in importance, they should substantially change the way people live. “Work Style Reform” will change how Japanese people work. In the future, it appears that we will need “Lifestyle Reform” as well to fundamentally change the way we live. It is not an exaggeration to say that we are currently at the critical point of this change.

The administration of national land and transportation is intimately related to infrastructure, transportation and every other aspect of each and every person's lifestyle, and plays a major role in changing the way they live their lives. Thus, in an effort to achieve a society where everyone can shine, we must continue to consistently implement the administration of national land and infrastructure by working strategically and systematically while promoting stable, sustainable public investment.

In light of this background and our awareness of issues, and under the theme “National Land and Transportation Administration for Dramatically Changing Lifestyles: Aiming for a Society where Everyone Can Shine,” Part I of the MLIT White Paper for FY 2017 explains the present state and issues of Japan and presents analyses of the results of national attitude surveys from four perspectives—“work”, “leisure”, “housing”, and “mobility”—and also introduces our efforts in national land and transportation sectors in response to those issues and results.

Part II reports trends in various sectors of national land and transportation administration for FY 2017 for each policy issue.

Part I

**National Land and
Transportation Administration
for Dramatically Changing
Lifestyles: Aiming for a Society
where Everyone Can Shine**

Chapter 1 The Changing State of Japan

Based on the premises of discussions to follow in Chapter 2 and later sections, this chapter presents overviews of changes in the form of Japanese society, land and other areas—including characteristics of the lifestyles of each generation—and also introduces new signs in Japan and government initiatives.

“Section 1: Changes in the Form of Japanese Society” touches upon the demographic problems Japan faces—namely, a declining birthrate, an aging population and depopulation—in addition to the true state of labor and leisure for Japanese citizens. This section also examines the lifestyles of each generation.

“Section 2: Changes in the Form of Japanese Land” describes changes in the land that underlies Japanese society. This section also presents an overview of the characteristics of the demographics and lifestyles of urban and regional areas, and sets out various issues related to life in the future.

“Section 3: New Signs in Japan” presents new signals of things that Japan can rely on to help solve the various problems that it faces.

Finally, “Section 4: Government Initiatives” is an overview of efforts by the national government and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) toward promoting the dynamic engagement of all citizens.

Section 1 Changes in the Form of Japanese Society

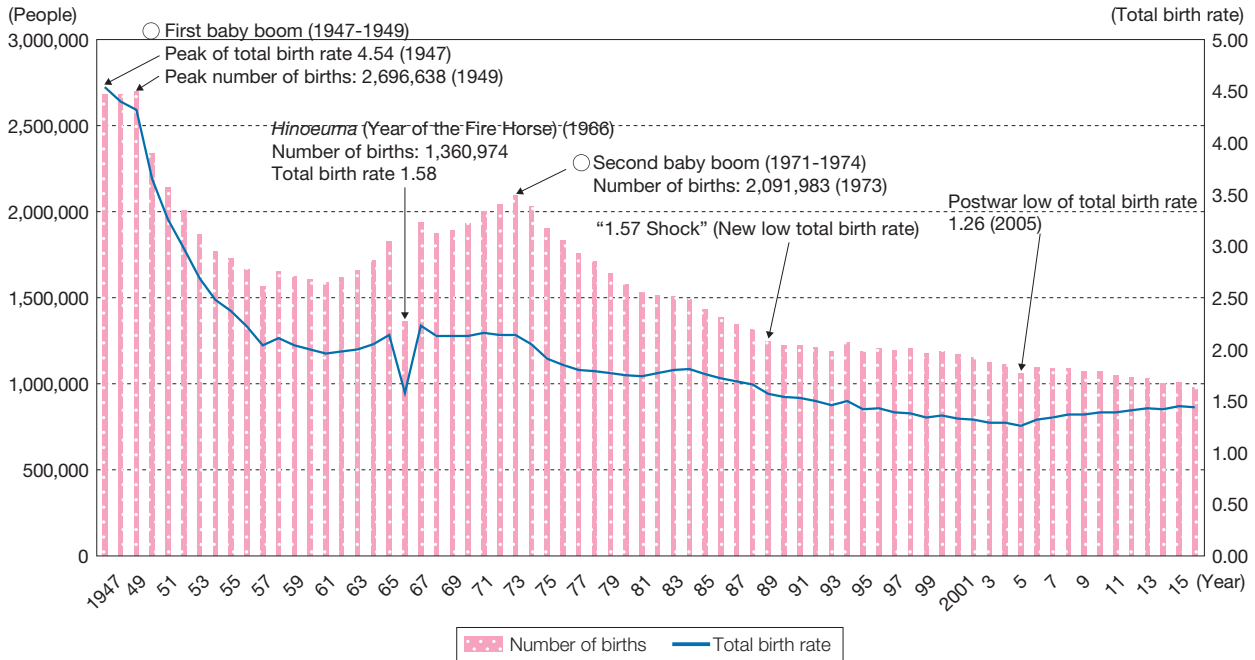
1 Socioeconomic Trends

(1) Japan's Socioeconomic Situation

(Progression of declining birthrate, aging population and depopulation)

Japan's total birth rate increased slightly from a postwar low of 1.26 in 2005 to 1.44 in 2016, but the roughly 980,000 births that year is a record low (Figure 1-1-1).

Figure 1-1-1 Number of Births and Total Birth Rate

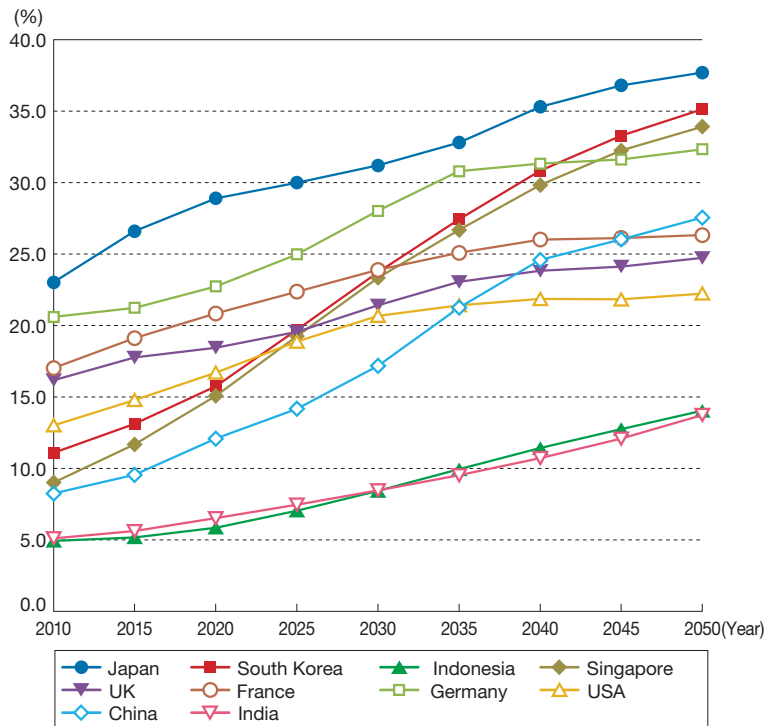


Note: Okinawa Prefecture is not included in figures prior to 1972. Figures are final through 2016, and are estimates from 2017. Source) "Vital Statistics" (MHLW)

In 2017, people aged 65 or older accounted for 27.7% of the population, a record high^{Note 1} and a higher ratio than in any other country in the world (Figure 1-1-2). Japan's population aging rate^{Note 2} is projected to exceed 30% by 2025 and approach 40% by 2050; by then, Japan will be a super-aging society like none before.

The progression of this declining birth-rate and aging population has driven the total population and working-age population (people aged 15 to 64) of Japan down from their respective peaks in 2008 and 1995. By 2065, the total and working-age populations of Japan will decrease to 88.08 million and 45.29 million, respectively, according to population estimates (estimated mean birth rates (mean death rates)) by the National Institute of Population and Social Security Research (Figure 1-1-3).

Figure 1-1-2 Population Aging Rates by Country

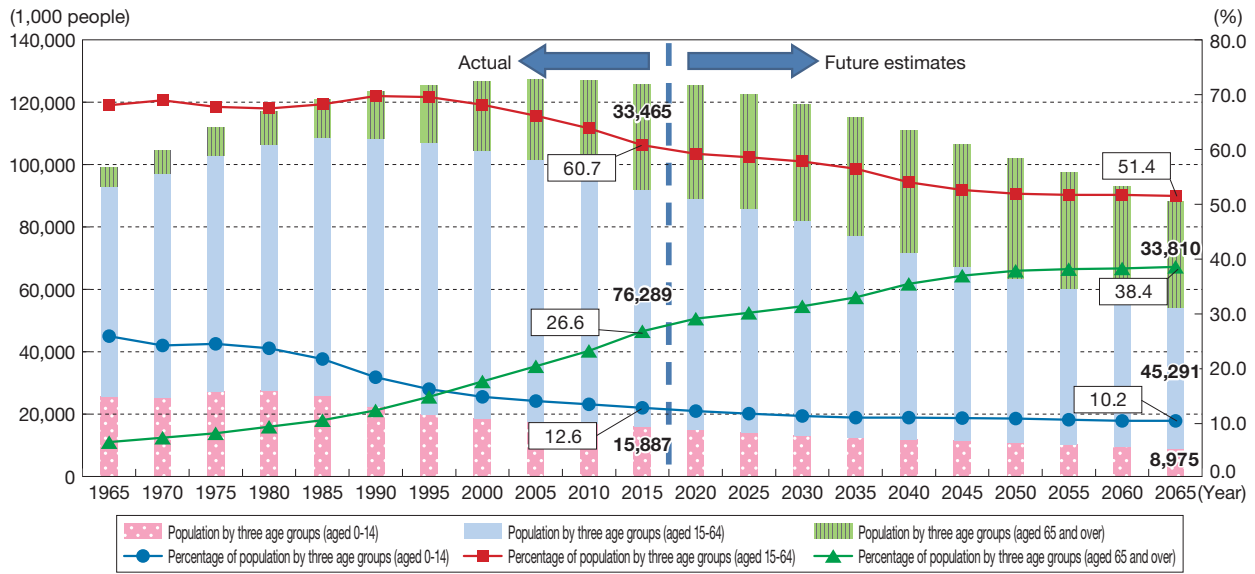


Note: All figures for 2010 are actual figures. Figures for 2011 and beyond are median estimates. Sources) Prepared by the MLIT based on "Population Projections for Japan (2017)" (National Institute of Population and Social Security Research) and "World Population Prospects: The 2015 Revision" (United Nations) for other countries.

Note 1 The percentage of the population of elderly people (people aged 65 and older) of the total population

Note 2 "Population Projections" by the MIC (as of October 1, 2017)

Figure 1-1-3 Trend in Japan's Population

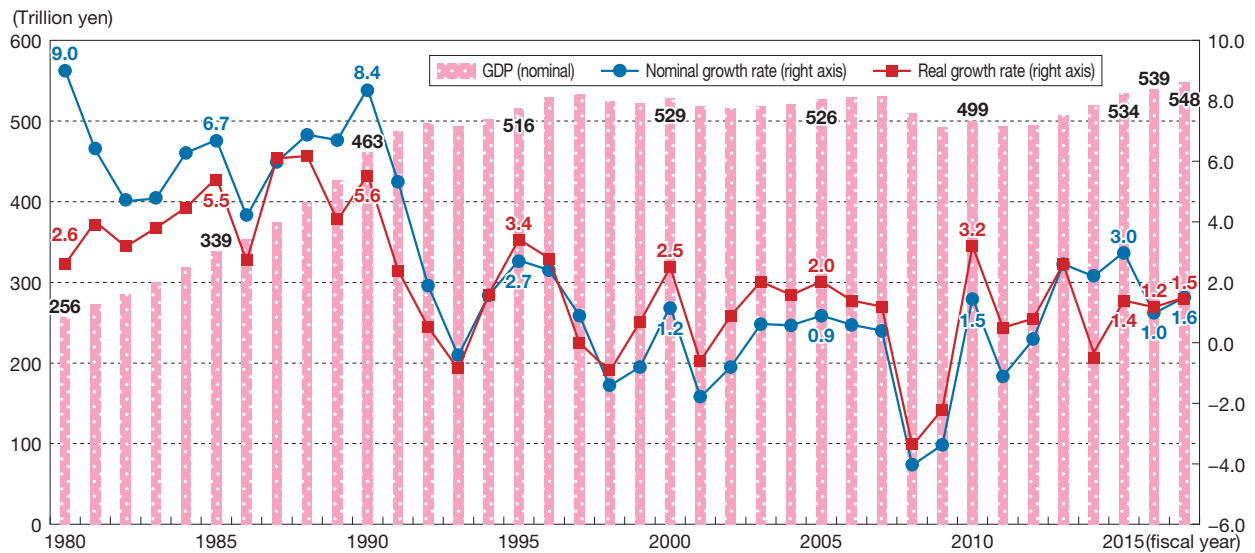


(Note) Okinawa Prefecture is not included for dates up to 1970.
 Source) "National Census Report" by the Statistics Bureau of the Ministry of Internal Affairs and Communications (MIC) for dates up to 2010, "Basic Complete Tabulation on Population and Households of the 2015 Population Census" by Statistics Bureau of MIC for 2015 data; estimates are calculated by the MLIT from the median estimates of birth (median estimates of death) in "Japan's future population estimates" (estimates from 2017) by the National Institute of Population and Social Security Research (IPSS).

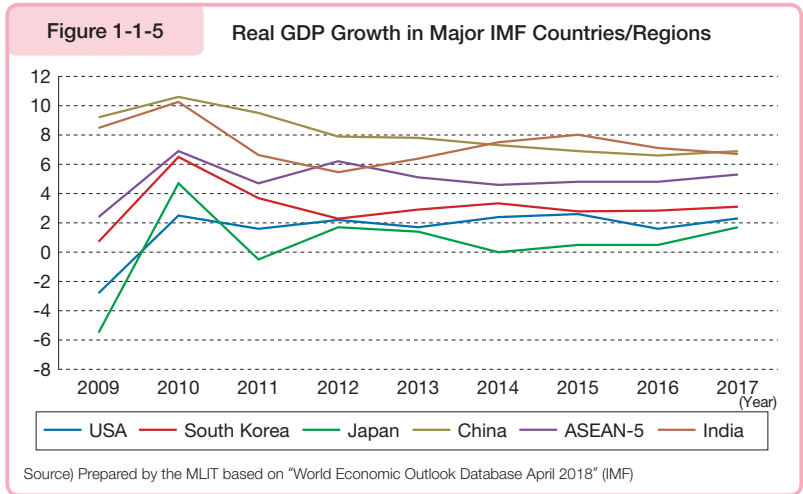
(Japan's economic situation)

Japan's GDP growth rate in recent years is lower than its rate in the 1980s (Figure 1-1-4), and its real GDP growth is lower than that of other countries and regions around the world (Figure 1-1-5).

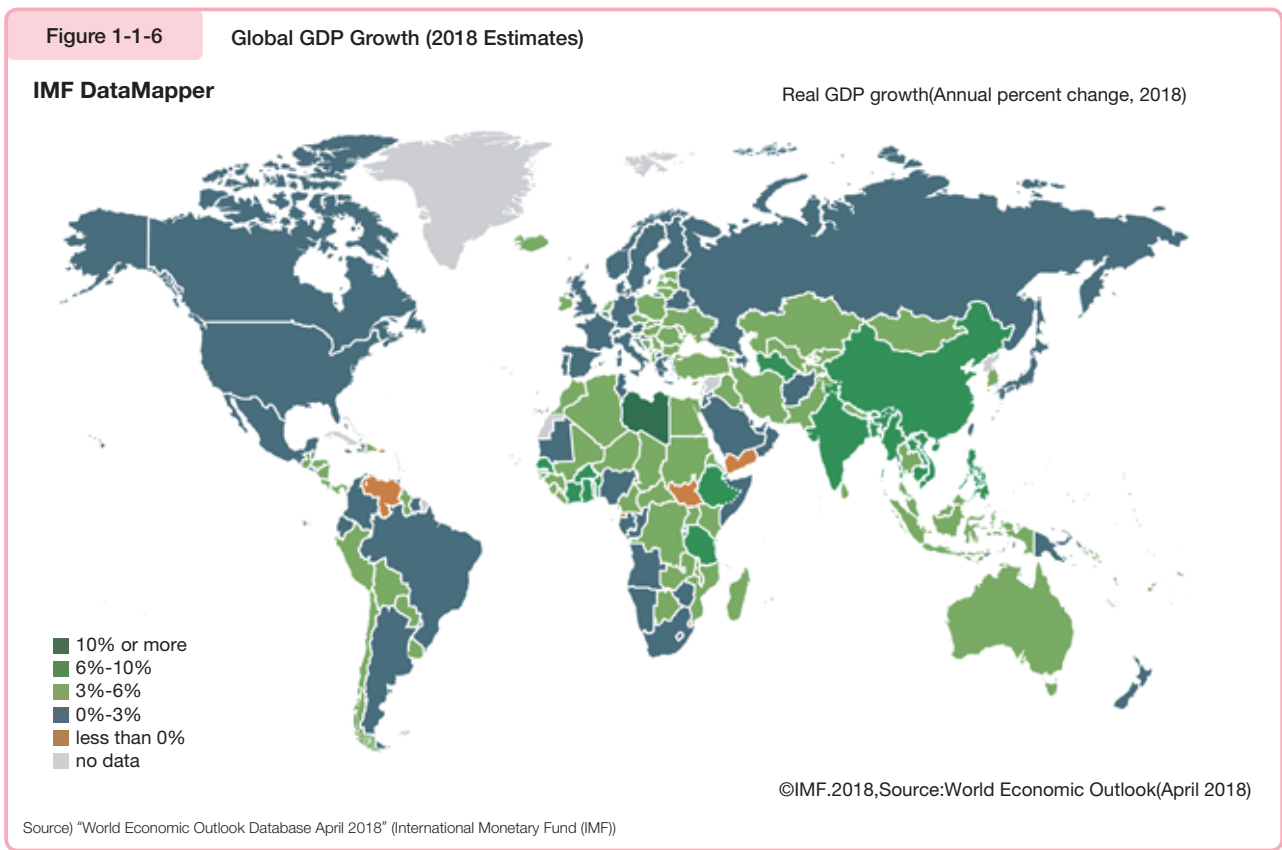
Figure 1-1-4 Trend in Japan's GDP



Note) Figures for gross domestic product from FY 1980 to FY 1993 (previous-year comparisons from FY 1981 to FY 1994) were taken from "FY 2011 Standard Expenditure Approach GDP System Simple Retrospective (2011 basis, 08SNA)," and for FY 1994 (previous-year comparison from FY 1995) and onward were taken from "Quarterly Estimates of GDP for January - March 2017 (First Preliminary Estimates) (2011 basis, 08SNA)".
 Source) Prepared by the MLIT based on the "Annual Report on the Japanese Economy and Public Finance FY2016 (Long-term Economic Statistics, National Accounts of Japan (1/5))" by the Cabinet Office and "National Accounts of Japan (GDP Statistics)" by the Cabinet Office.



In contrast, China, the ASEAN-5 countries, India and other Asian nations are enjoying remarkable growth, and the region is expected to drive the global economy as it grows even further (Figure 1-1-6). It is important for Japan to maintain and build positive relationships with these countries, and to make efforts toward the vitality of the region.



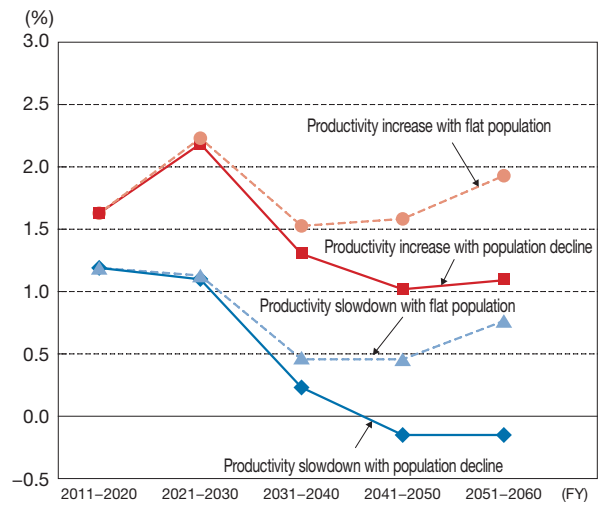
(Projections for the Japanese economy)

A Council on Economic and Fiscal Policy report projected real GDP growth rates in the second half of the 21st century in two scenarios. In the first, which assumes that productivity stagnates because depopulation continues at its current rate, the report projects average annual real GDP growth of -0.2%; in the other scenario, which assumes that the population stabilizes around 100 million people and that productivity improves due to increased participation in the workforce by women and elderly people, the report projects a rate of 2.0% (Figure 1-1-7).

Given these scenarios, we must use technological innovations and other advancements to improve labor productivity, and continue to proactively encourage the employment of women and elderly people and make other efforts to increase the number of people engaged in work in order to maintain and reinvigorate the sluggish Japanese economy.

Figure 1-1-7

Estimates of Future Population and Real GDP Growth Rate



(Note) Scenario assumptions
 Flat population: (i) Total fertility rate increases to 2.07 in FY2030 and is maintained at the same level thereafter; (ii) population in 50 years' time is maintained at around 100 million
 Population decline: (i) Total fertility rate declines to 1.33 by FY2024 and is maintained at about 1.35 thereafter; (ii) population in 50 years' time decreases to about 85 million
 Productivity increase: TFP^{Note 3} increases to around 1.8% by the beginning of the 2020s
 Productivity slowdown: TFP increases only around 1.0% at the beginning of the 2020s
 (Source) Prepared by the MLIT based on the "Growth and Development Working Group Report" by the Council on Economic and Fiscal Policy, Expert Panel, Committee for Japan's Future

(2) The State of Labor in Japan

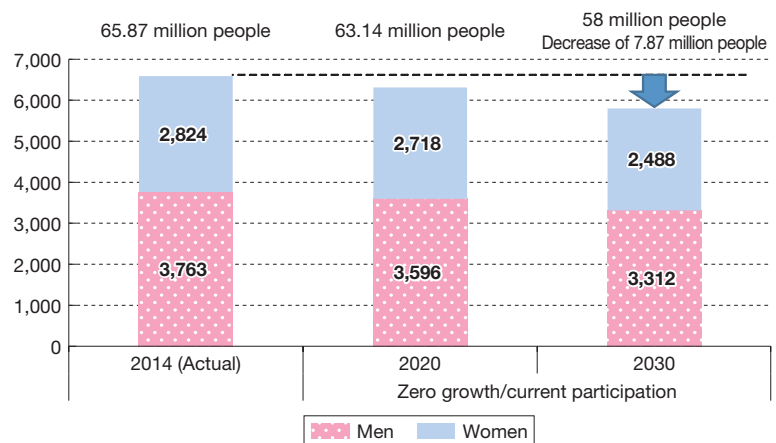
(The state of the working population)

The Japanese workforce numbered 65.87 million people as of 2014, but is expected to shrink by 7.87 million people by 2030 if labor market participation fails to improve in a near zero-growth economy (Figure 1-1-8).

In addition, roughly 3 million women, elderly people and others who desire employment are presently not a part of the workforce (Figure 1-1-9).

Figure 1-1-8

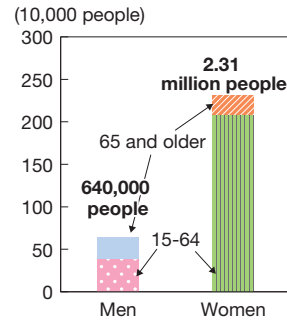
Outlook for Workforce Population



*Figures for 2014 are actual values from "Labour Force Survey" (MIC Statistics Bureau), and figures for 2020 and 2030 are estimates by The Japan Institute for Labour Policy and Training.
 **"Zero growth/current participation" is a projection of a near zero-growth economy with labor participation rates by gender and age the same as they were in 2014.
 *Figures in the chart are rounded to the nearest 10,000; the breakdowns may not add up to the overall figures for each year.
 (Source) Prepared by the MLIT based on materials from a presentation by the authors of "Labor Demand Projections: Estimates by Prefecture in Light of New National Estimates (2015)" (The Japan Institute for Labour Policy and Training)

Note 3 Total factor productivity (TFP) refers to qualitative factors of economic growth (GDP growth) other than the quantitative productivity factors of capital and labor. Technological progress and the streamlining of manufacturing fall under TFP.

Figure 1-1-9 Population of Non-Workers Who Desire Employment



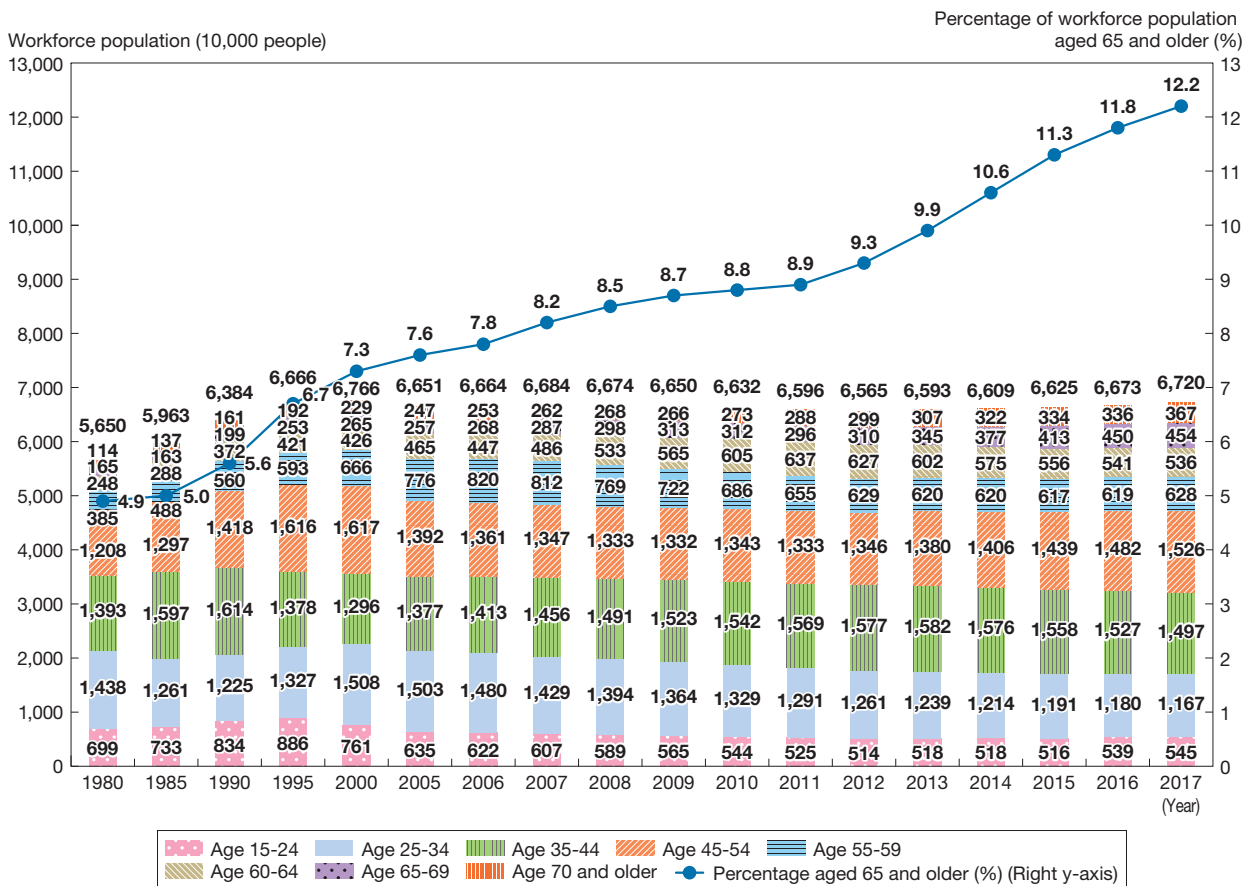
Note 1 : Prepared based on "Labour Force Survey (Detailed Summary) (October-December 2017)" (MIC).
 Note 2 : The population of non-workers excludes 15- to 24-year-olds who are currently enrolled in school.

Source) "Materials from Ministerial Council on the Monthly Economic Report and Other Relative Issues (February 2018)" (Cabinet Office)

■ Elderly people

Of the 67.2 million people in the Japanese workforce in 2017, 8.22 million were aged 65 or older (4.54 million were aged 65 to 69, and 3.67 million were aged 70 or older). This segment represents 12.2% of the total workforce, and is continuing to increase (Figure 1-1-10).

Figure 1-1-10 Workforce Population



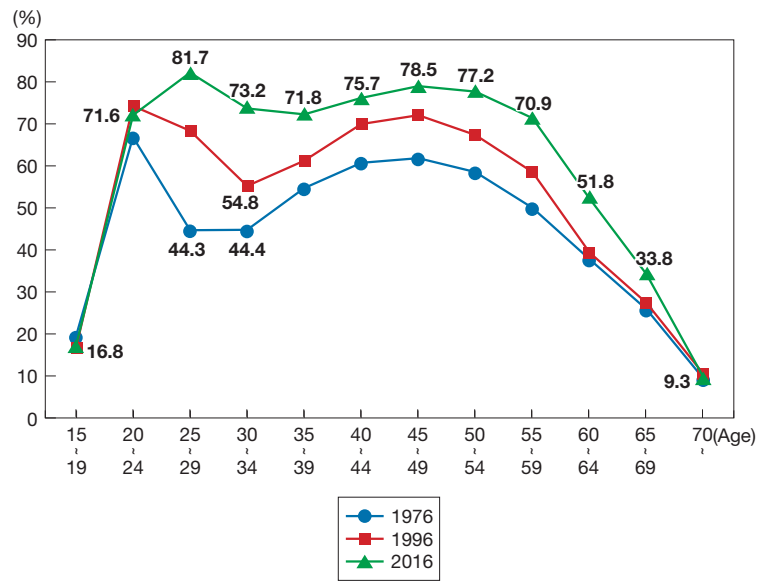
Note 1: "Workforce population" is the total number of people aged 15 years and older who are employed or who are unemployed and seeking employment.
 Note 2: Due to the difficulty of conducting surveys in Iwate, Miyagi and Fukushima Prefectures in 2011, figures for that year are extrapolations.
 Source) Prepared by the MLIT based on "Labour Force Survey (Workforce Population and Percentages by Age Group)" (MIC)

■ Women

A graph of women’s labor participation by age is shaped like an M; labor participation decreases temporarily during the typical age ranges for marriage and child-bearing, and increases again after childcare responsibilities wane. However, the prevalence of maternity leave and other factors have increased women’s labor participation in the marriage and childbearing age ranges, which has had the effect of smoothing out the M (Figure 1-1-11).

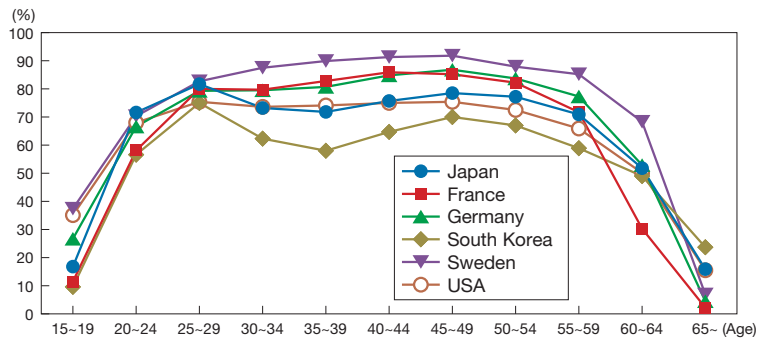
In contrast, while South Korea also exhibits an M-shaped curve, Western countries do not (Figure 1-1-12).

Figure 1-1-11 Women’s Labor Participation Rates by Age Group



Note 1: Prepared by the Cabinet Office based on “Labour Force Survey (Basic Summary)” (General Affairs Bureau).
 Note 2: Labor participation rates are percentages derived from the following formula: Workforce population (total number of people who are employed and people who are unemployed and seeking employment) / Population of people aged 15 and older.
 Source) “White Paper on Gender Equality 2017” (Cabinet Office)

Figure 1-1-12 Women’s Labor Participation Rates by Age Group in Major Countries



Note 1: Figures for Japan are based on “Labour Force Survey (Basic Summary) (2016)” (MIC). Figures for other countries are based on “ILOSTAT” (ILO). All figures are from 2016.
 Note 2: Labor participation rates are percentages derived from the following formula: Workforce population (total number of people who are employed and people who are unemployed and seeking employment) / Population of people aged 15 and older.
 Note 3: Figures for people aged 15-19 in the United States are actually for people aged 16-19.
 Source) “White Paper on Gender Equality 2017” (Cabinet Office)

Column

Efforts of Hiroshima Electric Railway Co., Ltd.

Hiroshima Electric Railway is involved in railway and bus operations and the real estate business mainly in Hiroshima City. On September 16, 2017, the company instituted a reduced-hours system that allows regular employees to choose and even reduce their working hours to accommodate their lifestyles without losing their status as regular employees (Figure 1-1-13). In addition, the company expanded its senior employee system, which originally allowed employees to work until the age of 66, to allow employees to work until the age of 70.

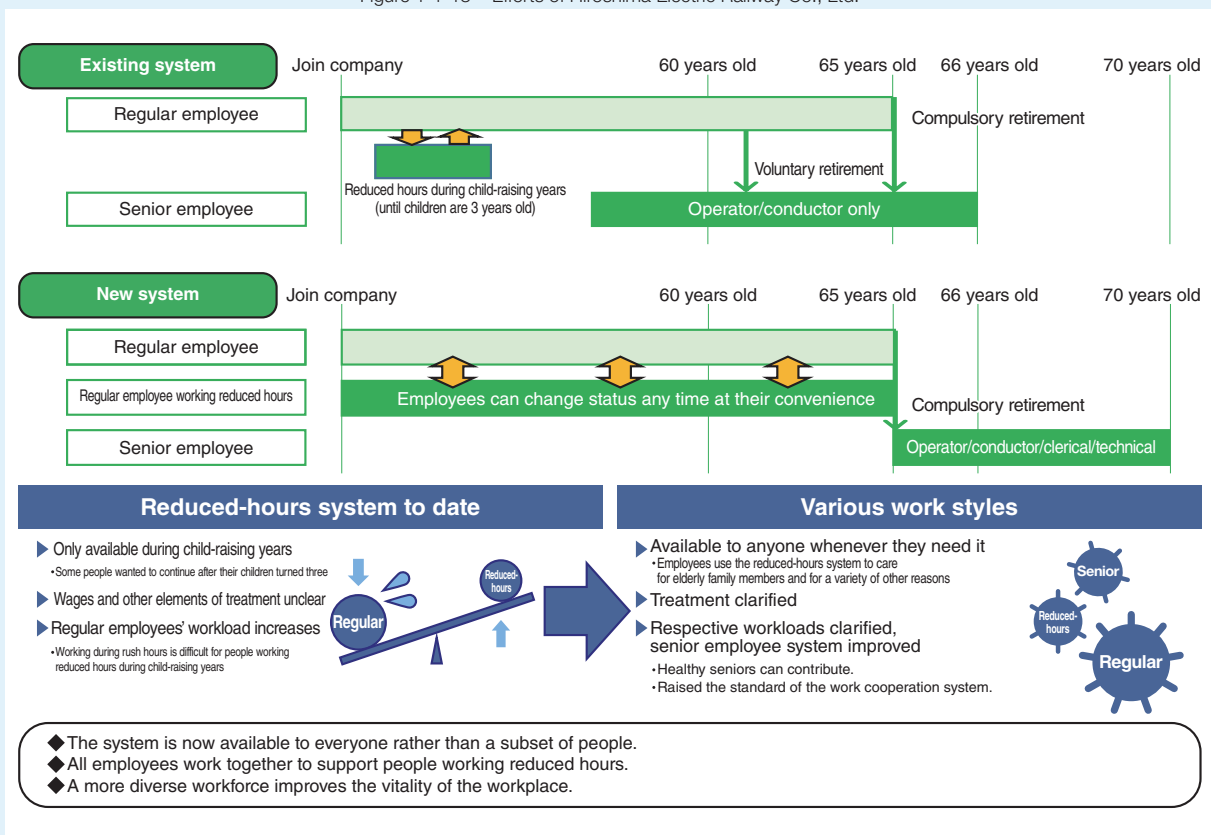
The company developed these systems for several purposes: to transition from a reduced-hours system for some employees to a system for all employees, to become an organization in which employees can help each other during times of trouble, and to diversify their team and prevent departures from the workforce due to child raising and elderly caregiving by hiring new regular employees on the reduced-hours system.

The reduced-hours system enables regular employees to set their own working hours for a defined period of their choosing lasting at least three months. There are no restrictions in terms of reasons for changing working hours or the number of times that regular employees can use this system, and, as a rule, job duties do not change. However, salaries and extraordinary pay are reduced in line with the reduced working hours. As of March 2018, 11 regular employees are using the reduced-hours system.

The company's senior employee system allows employees to work until age 70, and job duties are not limited to driver or conductor as before; senior employees are able to do technical and clerical work as well.

These efforts by Hiroshima Electric Railway have helped create a workplace where people can work regardless of their gender, age or other life circumstances, and appear to be effective toward countering labor shortages due to the declining birthrate and aging population that already plague Japan.

Figure 1-1-13 Efforts of Hiroshima Electric Railway Co., Ltd.

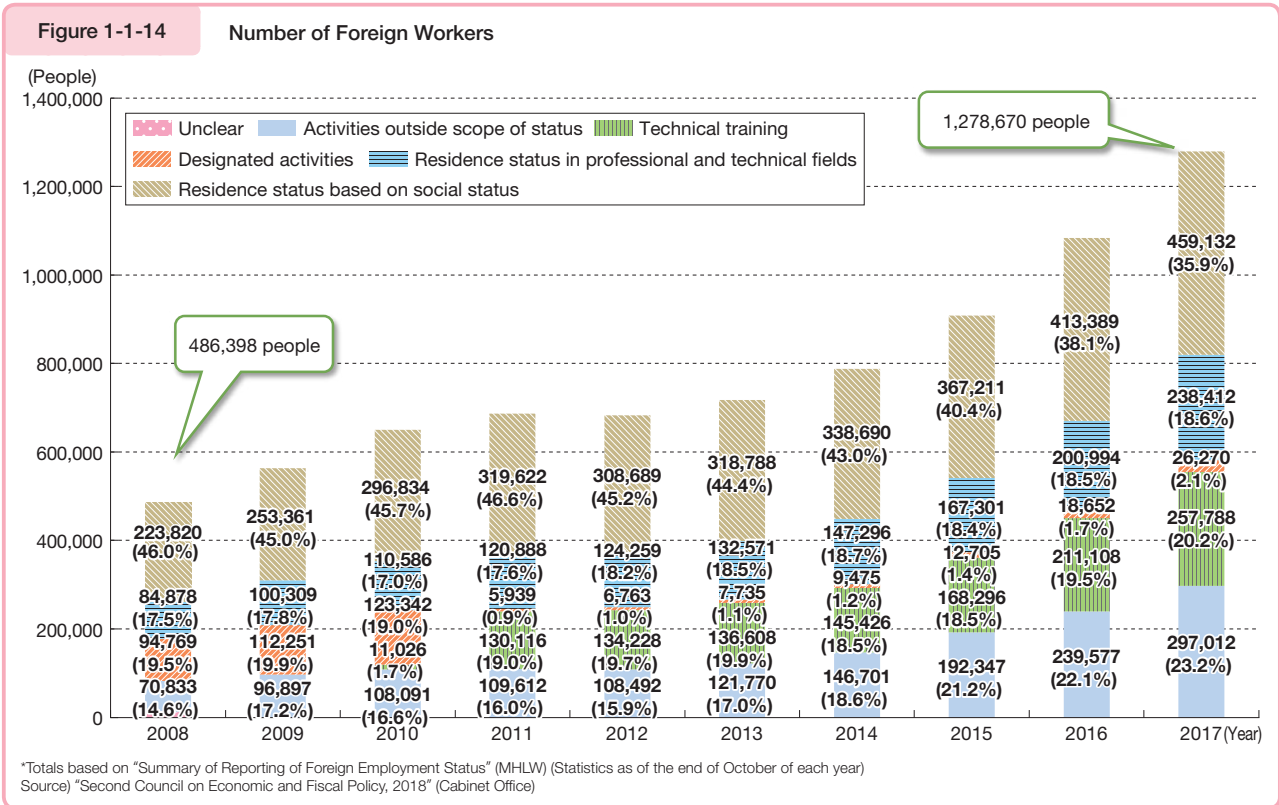


Source) Hiroshima Electric Railway Co., Ltd.

■ Foreigners

As of the end of October 2017, 1.28 million foreigners were working in Japan (Figure 1-1-14), and another 28.69 million foreigners traveled to Japan to visit. Both figures are record highs that illustrate the accelerating globalization of Japan.

Presently, Japan is proactively accepting foreigners with residence status in professional and technical fields. As for other foreigners, in the “Investments for the Future Strategy 2017” (June 9, 2017 Cabinet decision), the government pledges to continue to “comprehensively and specifically consider the best ways to accept foreign human resources into Japan while focusing on fields of true need in order to ensure the sustainability of Japanese economic and social infrastructure.”



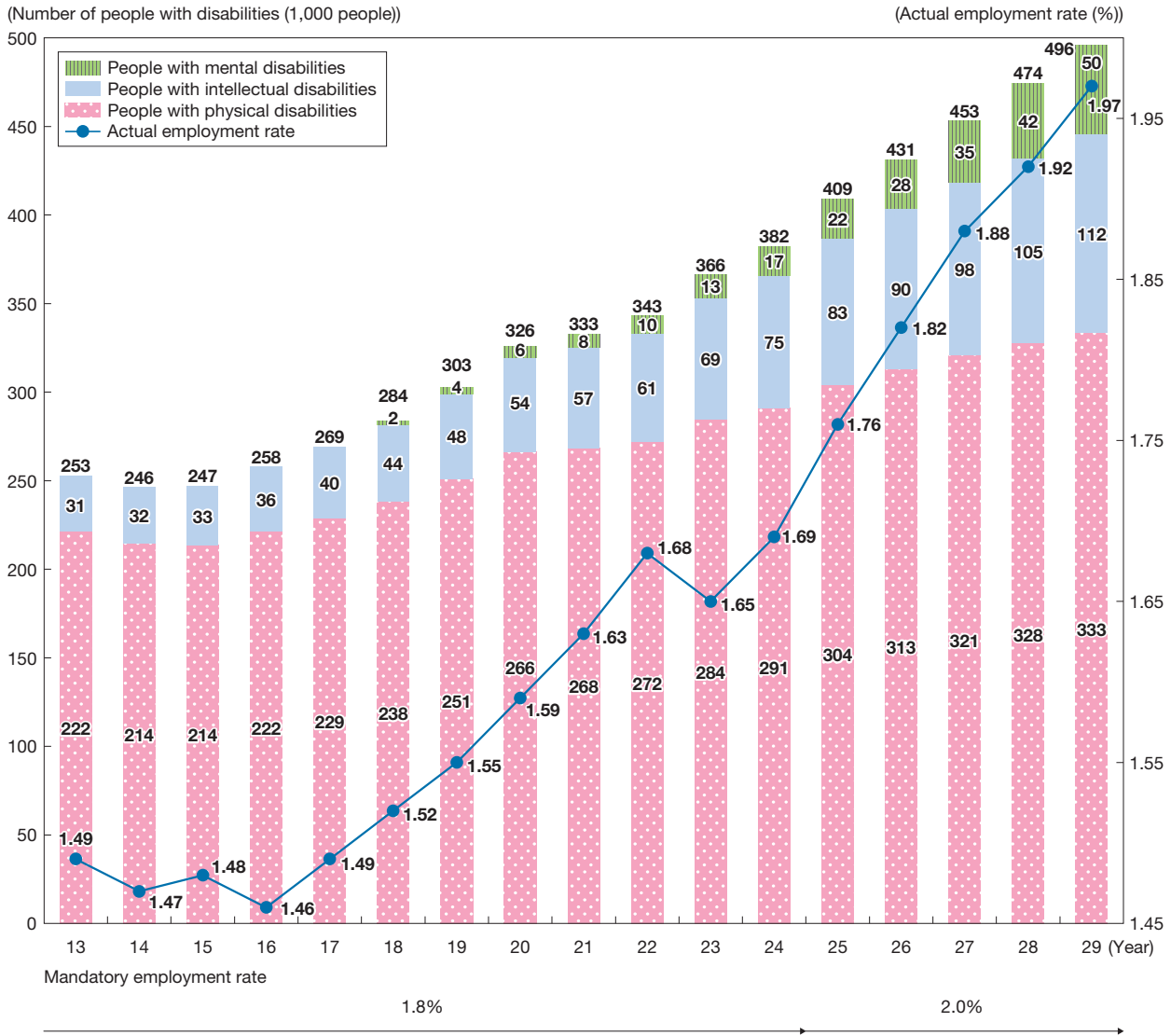
■ People with disabilities

As of June 1, 2017, 495,795.0 people^{Note 4} with disabilities were employed by private corporations^{Note 5}, an improvement from 474,374.0 people on the same day in the previous year, and a new record high for the 14th consecutive year (Figure 1-1-15).

Note 4 By law, when counting the number of employees with disabilities, each person with severe physical or intellectual disabilities counts as two people, and each reduced-hours worker with non-severe physical, intellectual or mental disabilities counts as 0.5 people.

Note 5 Private companies with 50 or more regular employees. Companies in this category are obligated to employ at least one person with a physical or intellectual disability, and must report the status of the employment of people with disabilities to the Ministry of Health, Labour and Welfare.

Figure 1-1-15 Employment Status of People with Disabilities and Private Corporations



Note 1: These are totals for corporations obligated by law to employ people with disabilities (prior to 2013, corporations with 56 or more employees; since 2013, corporations with 50 or more employees).
 Note 2: The number of people with disabilities is a total number of the following people:

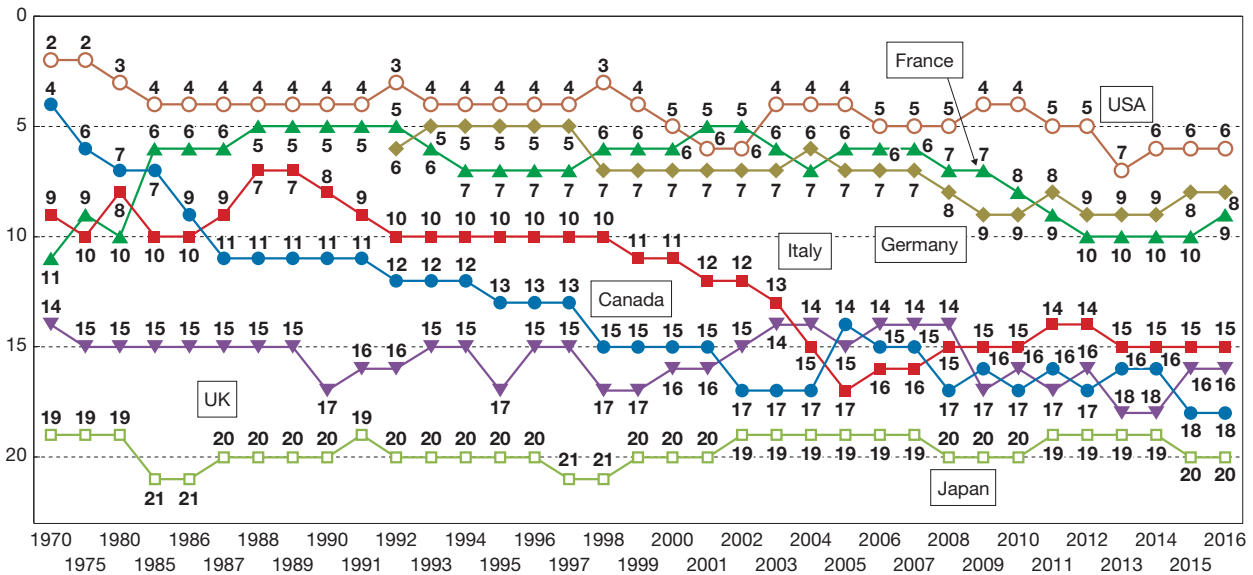
- | | | |
|--|-------------------|---|
| <p>Before 2006</p> <ul style="list-style-type: none"> People with physical disabilities (each person with severe physical disabilities counts as two people) People with intellectual disabilities (each person with severe intellectual disabilities counts as two people) Reduced-hours workers with severe physical disabilities Reduced-hours workers with severe intellectual disabilities | <p>Since 2011</p> | <ul style="list-style-type: none"> People with physical disabilities (each person with severe physical disabilities counts as two people) People with intellectual disabilities (each person with severe intellectual disabilities counts as two people) Reduced-hours workers with severe physical disabilities Reduced-hours workers with severe intellectual disabilities People with mental disabilities Reduced-hours workers with physical disabilities (each reduced-hours worker with physical disabilities counts as 0.5 people) Reduced-hours workers with intellectual disabilities (each reduced-hours worker with intellectual disabilities counts as 0.5 people) Reduced-hours workers with mental disabilities (each reduced-hours worker with mental disabilities counts as 0.5 people) |
| <p>From 2006 to 2010</p> <ul style="list-style-type: none"> People with physical disabilities (each person with severe physical disabilities counts as two people) People with intellectual disabilities (each person with severe intellectual disabilities counts as two people) Reduced-hours workers with severe physical disabilities Reduced-hours workers with severe intellectual disabilities People with mental disabilities Reduced-hours workers with mental disabilities (each reduced-hours worker with mental disabilities counts as 0.5 people) | | |

Note 3: Prior to 2013, the mandatory employment rate was 1.8%; the mandatory employment rate has been 2.0% since April 2013.
 Source) "Summary of Employment Status of People with Disabilities" (MHLW)

(The state of labor productivity)

The quality of labor in Japan is generally regarded as high, but labor productivity is actually low in global terms; Japan's productivity with respect to time^{Note 6} is 20th of the 35 OECD member countries and continues to lag behind each of the other G7 nations (Figure 1-1-16).

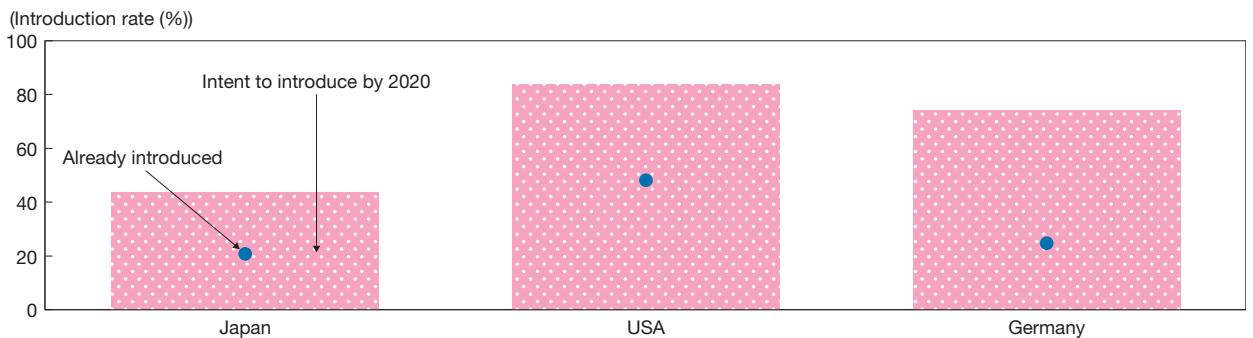
Figure 1-1-16 Labor Productivity Per Unit of Time in G7 Nations



Source) "International Comparison of Labor Productivity 2017" (Japan Productivity Center)

Innovation driven by the effective use of big data, artificial intelligence (AI) and other elements of the Fourth Industrial Revolution^{Note 7} are vital toward improving productivity, but Japanese corporations are slower than those of other countries to incorporate IoT and make other efforts toward that end (Figure 1-1-17).

Figure 1-1-17 State of IoT Introduction: Present (2015) and Future (2020)



Note: The "Survey of Global Companies Regarding Economic Contributions to ICT within Japan and Efforts toward IoT in Japan and Other Countries" was administered to corporations with at least 100 employees at their headquarters in Japan, the United States, Germany, the United Kingdom, China or South Korea (Respondents: Japan: 620; USA: 135; Germany: 126; UK, China, South Korea: 125).
Source) Prepared by the Cabinet Office based on the "Survey of Global Companies Regarding Economic Contributions to ICT within Japan and Efforts toward IoT in Japan and Other Countries"

Note 6 The following formula, which is based on value added (equivalent to GDP on the national level), is used to calculate labor productivity for comparison with other countries.

$$\text{Labor productivity} = \text{GDP (after purchasing power parity (PPP) conversion)} / (\text{Number of employees} \times \text{Hours of labor})$$

Note that purchasing power parity is the expression of real purchasing power (including consideration of commodity price levels and other factors) in various countries' currencies as an exchange rate.

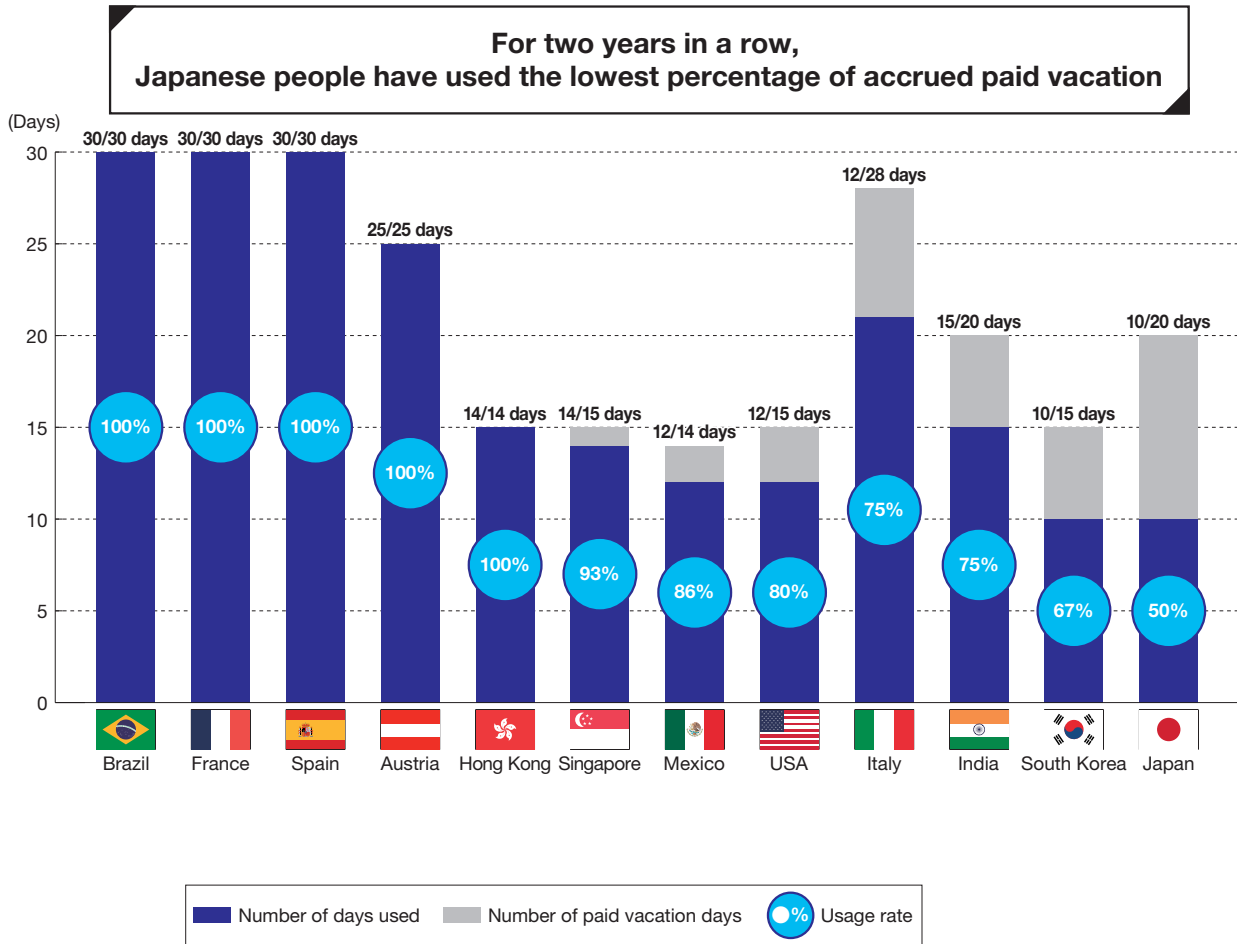
Note 7 The Fourth Industrial Revolution refers to innovations with the following core elements: (1) IoT and big data (the digitization of various information from the operating condition of factory machinery to transportation, climate and the health status of individuals, connected and organized over a network for analysis and application), and (2) AI (Computers are now able to learn and make decisions to an extent without being prompted by humans with all elements required for analysis. Conventional robot technology is also capable of handling more complicated tasks, and the development of 3D printing technology has made it possible to manufacture complicated articles in smaller spaces.)

(3) The State of Leisure in Japan

(How Japanese people acquire and spend leisure time)

Despite recommendations toward proactively granting paid vacation time under work style reform, Japan still ranks last in the world in the actual usage of that time (Figure 1-1-18).

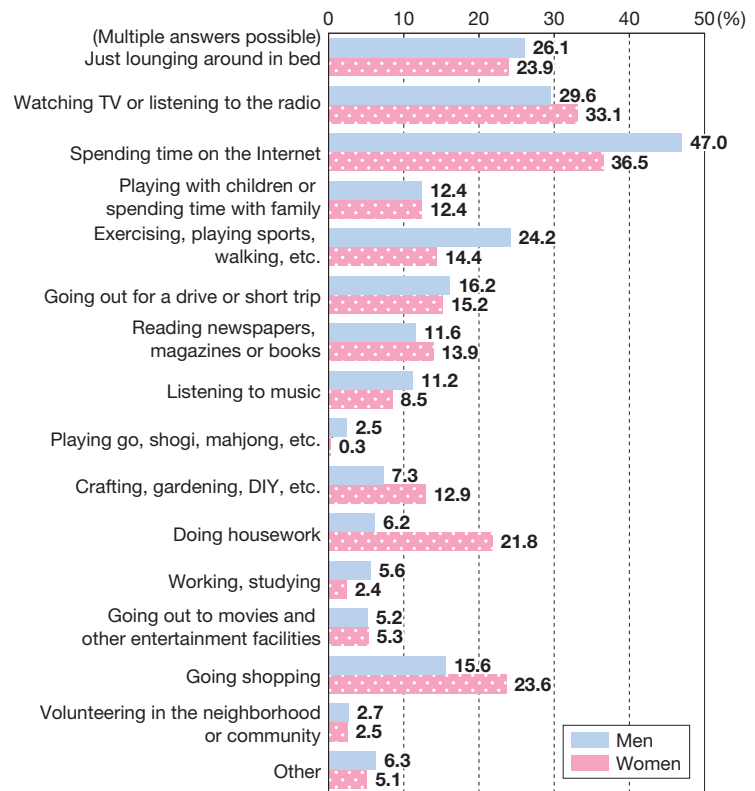
Figure 1-1-18 International Comparison of Rates of Taking Paid Vacation



Source) "2017 Vacation Deprivation Study" (Expedia)

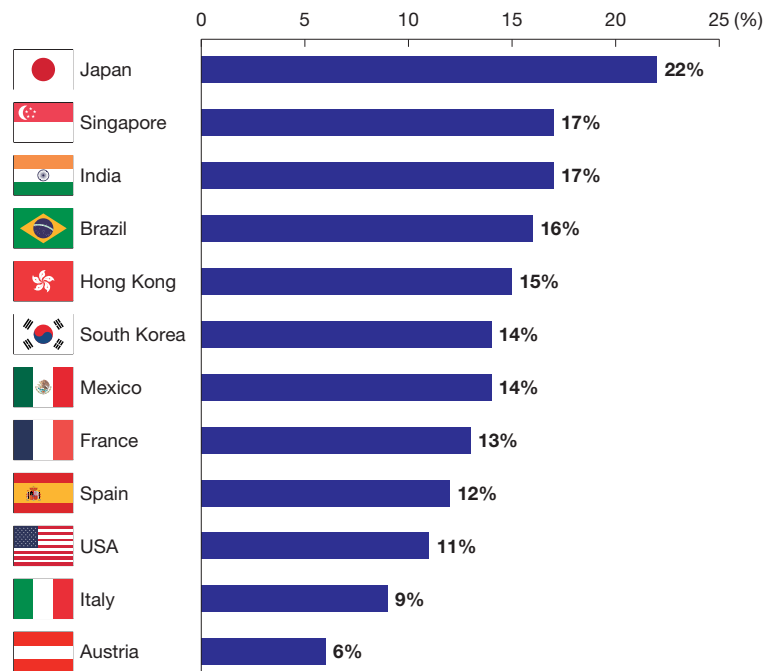
In addition, the fact that many Japanese people use their vacation time to rest at home (Figure 1-1-19) and still check work-related emails during that time (Figure 1-1-20) suggests that they are not using their vacation time to the fullest.

Figure 1-1-19 How People Actually Spend Vacation Days



Source) "2014 Annual Health, Labour and Welfare Report" (MHLW)

Figure 1-1-20 Percentage of People Who Answer Work-Related Emails Even on Vacation



Source) "2017 Vacation Deprivation Study" (Expedia)

2 Lifestyle Trends in Japan

In this section, we consider the socioeconomic situation explained previously as we analyze the characteristics of the lifestyles of three groups: elderly people (people aged 60 or older), the working generation (people aged 30 to 59), and young people (people aged 18 to 29).

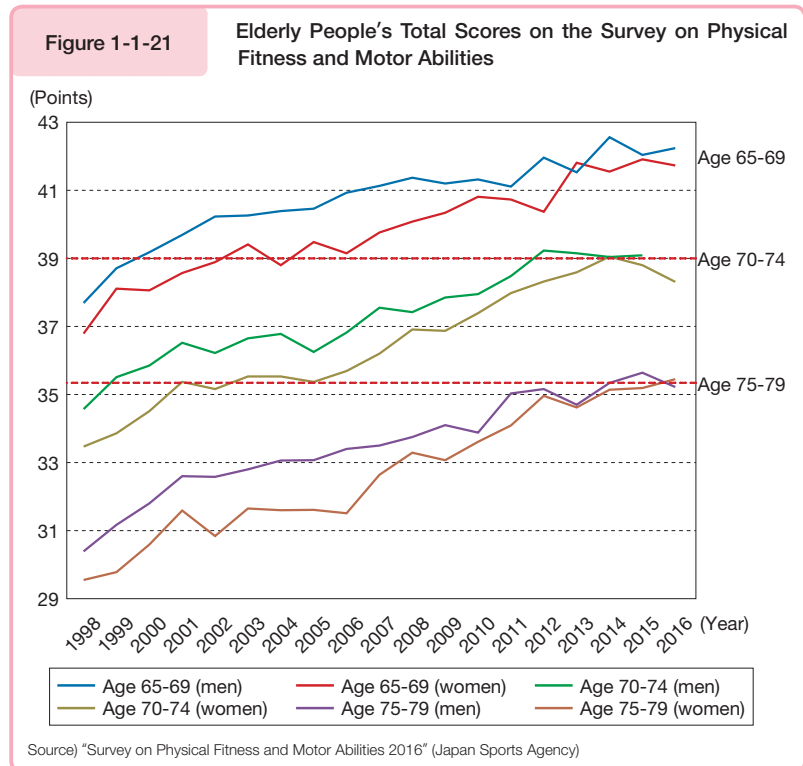
(1) Characteristics of Lifestyles of Elderly People

(Longer lives and increased motivation)

The average lifespan of Japanese people increased rapidly after World War II due to improvements in the living environment and advancements in the medical field. In 2016, the average lifespan for Japanese men was 80.98 years, while that for Japanese women was 87.14 years; Japanese people live some of the world's longest lives. Healthy life expectancy^{Note 8} has also increased, from 69.40 years for Japanese men and 72.65 years for Japanese women in 2001 to 72.14 and 74.79 years, respectively, in 2016.

In addition, the Japan Sports Agency's "Survey on Physical Fitness and Motor Abilities"^{Note 9} reports a five- to 10-year delay in the deterioration of handgrip strength and other physical faculties due to aging compared to 10 to 20 years ago, which suggests a rejuvenation of physical faculties among Japanese people (Figure 1-1-21).

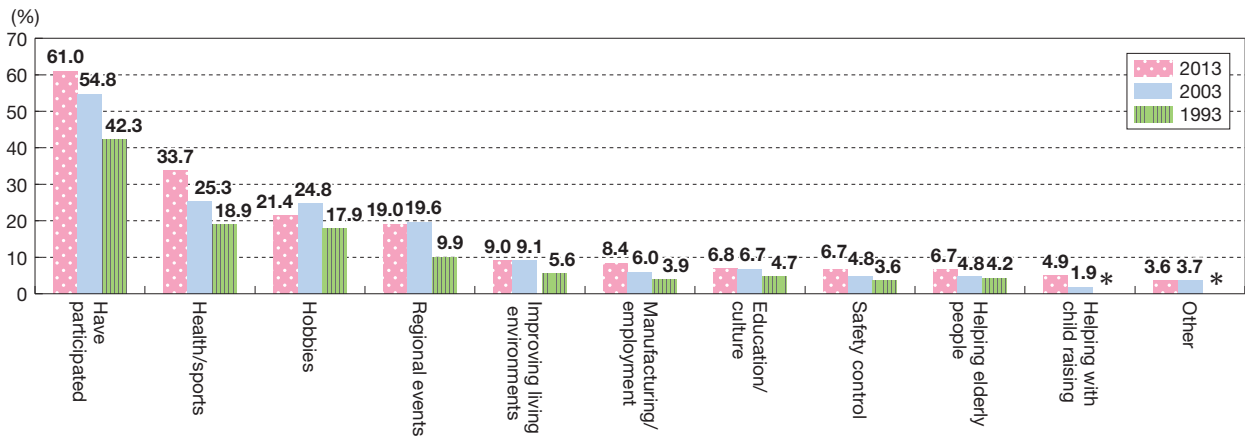
Substantially increased participation in group activities by elderly people (Figure 1-1-22) and other positive trends under these circumstances demonstrate an increased desire by elderly people to participate in activities that benefit society.



Note 8 The average period free of restrictions in everyday life (from documents from the 11th promotion committee for Health Japan 21 (the second term)).

Note 9 Physical fitness and motor abilities are measured based on total scores for six items: handgrip strength, sit-ups, sitting and reaching, balancing on one leg with eyes open, walking over obstacles for 10 m, and walking for six minutes.

Figure 1-1-22 Elderly People's Participation in Group Activities



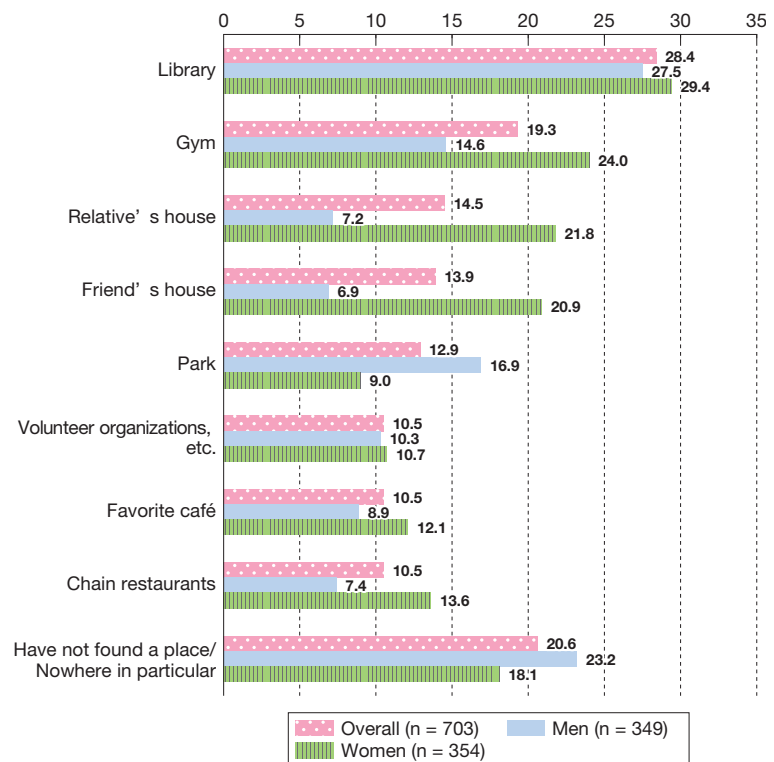
Note 1: For this survey, men and women throughout the country aged 60 or older were asked about their activities in the past year.
 Note 2: Asterisks indicate that data does not exist due to factors such as lack of options on the survey.
 Source) "Annual Report on the Aging Society 2017" (Cabinet Office)

(The need to create opportunities for engagement for elderly people)

Elderly people's motivation is increasing as explained previously, but a survey asking where they feel a sense of belonging outside the home after retirement revealed that roughly 20% had not found a place or did not feel that there was a particular place for them, and roughly 30% feel that that place is the library (Figure 1-1-23). These results suggest that we are not making full use of elderly people's motivation.

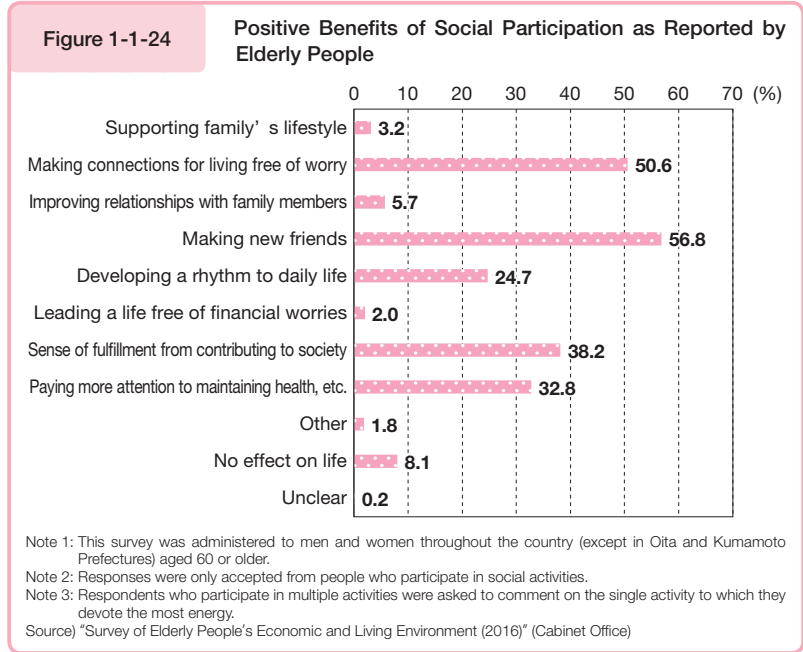
Figure 1-1-23

Survey of Where Elderly People Living in the Capital Region Feel They Belong Outside the Home after Retirement (Multiple answers possible/top nine answers other than "Other")



Source) "The Real Picture of a Super-Aging Society," an investigative report from September 2014 (Nikkei Research Institute of Industry and Regional Economy)

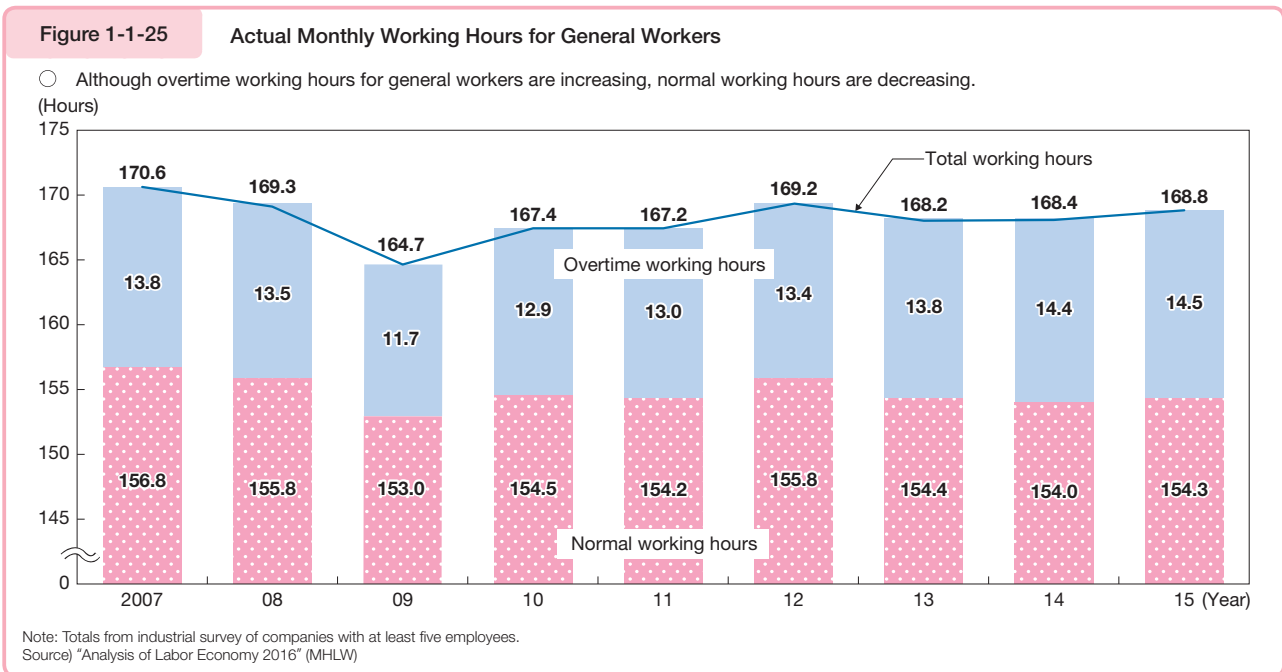
One way to make better use of elderly people’s motivation is through community activities, volunteer activities and other activities that benefit society^{Note 10}; elderly people who participate in these types of activities report making friends and connections through them (Figure 1-1-24).



(2) Characteristics of Lifestyles of the Working Generation

(The unchanging lifestyles of the working generation)

Although working hours for all workers are decreasing, the negative effects of factors such as labor shortages in this quietly recovering economy have caused an increase in overtime hours among general workers (not including part-time workers) (Figure 1-1-25). In addition, as explained previously, Japan ranks last in the world in the usage of accrued paid vacation.

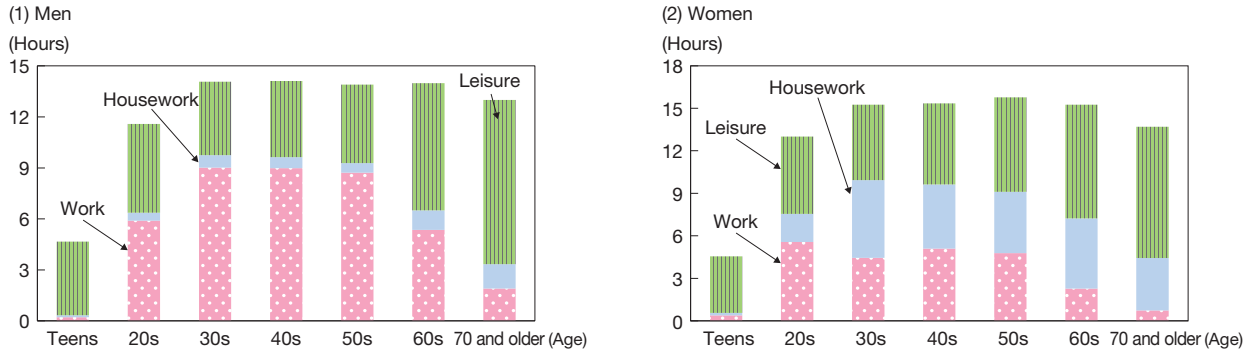


Note 10 Here, “community activities, volunteer activities and other activities that benefit society” refer to a wide range of activities performed voluntarily and for the purpose of local communities and other people rather than for remuneration. Specific examples include beautifying and greening local areas, disaster relief, nature conservation, passing down traditional culture, and supporting the lifestyles of people with disabilities, elderly people and others.

In Japan, married men aged 20 to 54 who are employed spend an average of less than one hour per weekday on household chores and child raising, which is a low figure (Figure 1-1-26). In addition, among married men with children younger than six years of age, Japanese men spend roughly half the time that men in major Western countries do on household chores and child raising (Figure 1-1-27).

Despite an increase in the rate of Japanese men taking paternity leave and other efforts that are part of a movement to change the way Japanese men work, these figures suggest that they are still working long hours and spending little time contributing to household chores.

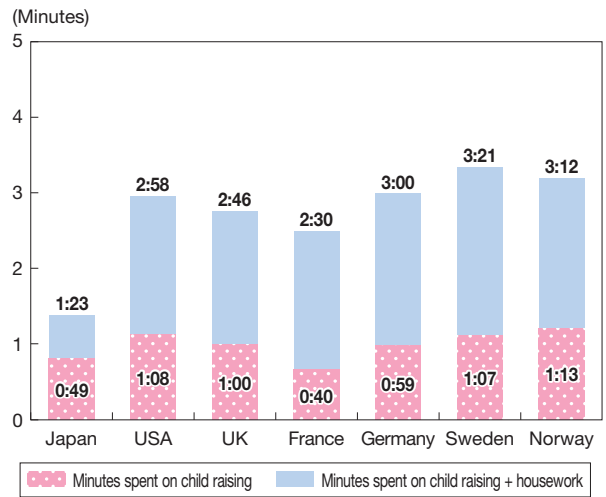
Figure 1-1-26 Hours Spent on Work, Housework and Leisure by Gender



Note 1: Prepared based on "2015 Report on National Time Use Survey" (NHK Broadcasting Culture Research Institute)
 Note 2: "Work" is the total number of hours spent on work, "Housework" is the total number of hours spent on housework, and "Leisure" is the total number of hours spent on social participation, conversation, social interactions, leisure activities, mass media consumption and rest (overall average hours on weekdays).
 Source) "FY 2017 Annual Report on the Japanese Economy and Public Finance" (Cabinet Office)

Figure 1-1-27

Global Comparison of Hours Per Day Spent on Housework/Child Raising by Married Men with Children Younger than Six Years of Age

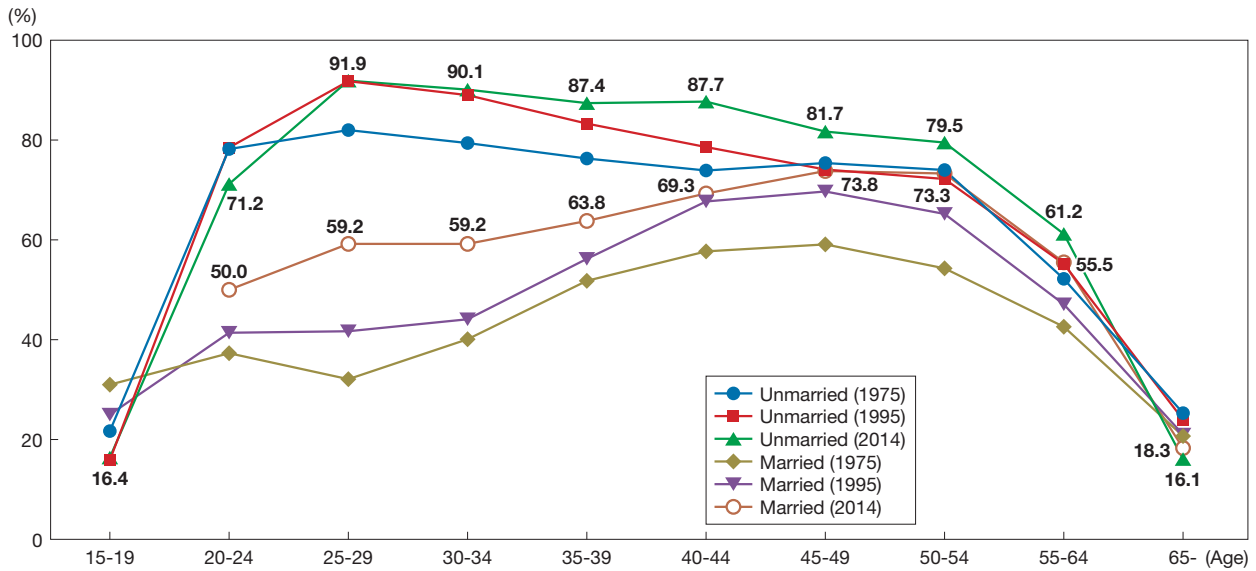


Note: The values for Japan are the total number of minutes per day that married men who live at home with their wives and children spend on housework, nursing care, child raising and shopping (overall weekly average).
 Sources) Prepared by the MLIT based on "Basic Survey of Social Life 2016" (MIC), "American Time Use Survey (2014)" (Bureau of Labor Statistics of the US), and "How Europeans Spend Their Time Everyday Life of Women and Men (2004)" (Eurostat)

Under these circumstances, labor participation by married Japanese women is improving as explained previously, but is still lower than that of unmarried women (Figure 1-1-28).

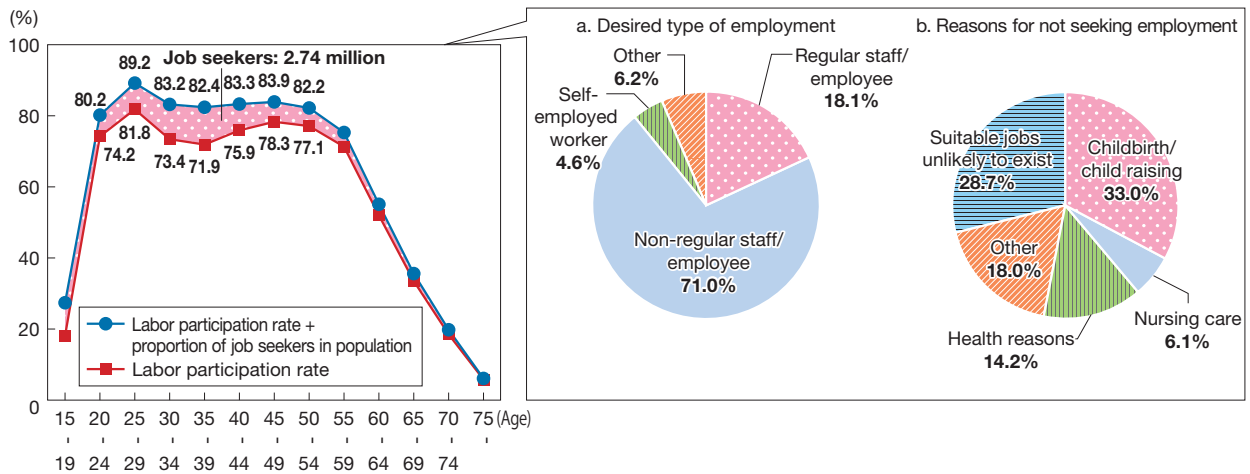
In addition, 33.0% of the 2.74 million women who desired employment in 2016 indicated that childbirth and child raising were their reasons for not seeking work; this was the most common reason given (Figure 1-1-29).

Figure 1-1-28 Women's Labor Participation Rates by Marital Status/Age Group



Note 1: Prepared based on "Labour Force Survey (Basic Summary)" (MIC).
 Note 2: The labor participation rate is the proportion of the workforce population (the total number of people who are employed and people who are unemployed and seeking employment) among people aged 15 and older.
 Note 3: No values are shown for married women aged 15-19 in 2014 because no data exists.
 Source) "White Paper on Gender Equality 2015" (Cabinet Office)

Figure 1-1-29 Breakdown of Female Job Seekers (2016)



Note 1: Prepared based on "Labour Force Survey (Detailed Summary) (2016)" (MIC).
 Note 2: "Labor participation rate + proportion of job seekers in population" is a percentage derived from the following formula: (Workforce population + job seekers) / People aged 15 and older.
 Note 3: "Self-employed workers" includes contractors and others who work at home.
 Note 4: The percentages are the totals of the breakdowns of desired type of employment and reasons for not seeking employment.
 Source) "White Paper on Gender Equality 2017" (Cabinet Office)

(3) Characteristics of Lifestyles of Young People
(Young people and the internet)

The “Basic Survey of Consumer Awareness” conducted by the Consumer Affairs Agency in FY 2016 revealed that 82.4% of people aged 15 to 19, 83.2% of people aged 20 to 24 and 85.6% of people aged 25 to 29 feel that mobile phones and smartphones are vital for their lifestyles (Figure 1-1-30).

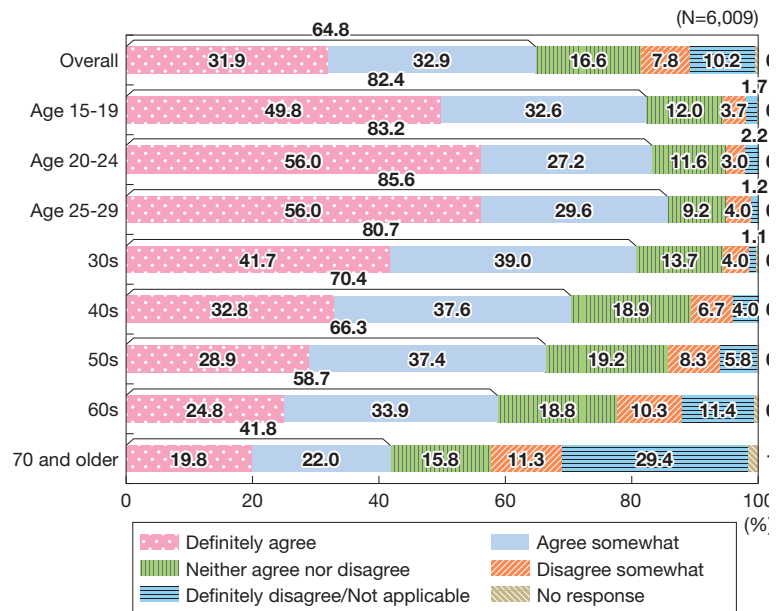
(The search for connection and a sense of belonging)

The Cabinet Office’s “White Paper on Children and Young People 2017” found that young people feel more fulfilled with their lives the greater the number of places they feel they belong—including the Internet ^{Note 11}(Figure 1-1-31). The paper also revealed that many young people feel it is difficult to communicate their own feelings and understand the feelings of others over the internet and worry that others will misuse their personal information, which shows that young people feel unsure of and dissatisfied with the quality of communication with others online (Figure 1-1-32).

These findings suggest that young people are searching for places where they belong offline as well as online.

Figure 1-1-30

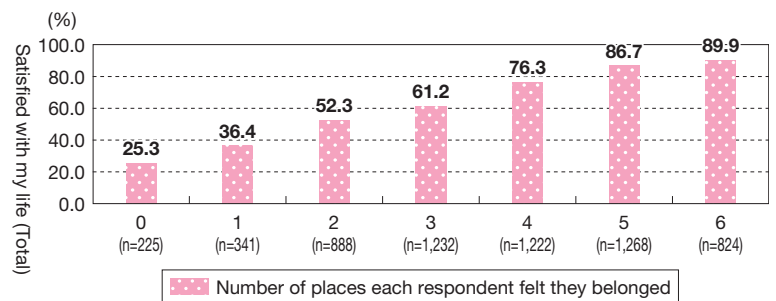
Percentage of People Who Feel that Mobile Phones and Smartphones are Vital for Life



Note 1: These are responses to the following question: “To what extent do you agree that mobile phones or smartphones are vital for your life?”
 Note 2: Totals may not add up to 100 due to rounding.
 Source) Prepared by the MLIT based on “Basic Survey of Consumer Awareness (FY 2016)” (Consumer Affairs Agency)

Figure 1-1-31

Belonging and Life Fulfillment



Note: Each respondent was asked whether they feel they belong in each of six places, and whether they are satisfied with their life. They are categorized by the number of places to which they responded “Yes” or “Somewhat,” and the percentages show the number of respondents in each of those categories who answered “Yes” or “Somewhat” to the question about fulfillment.
 Source) “White Paper on Children and Young People 2017” (Cabinet Office)

Note 11 Here, “places they feel they belong” refers to a person’s own bedroom, home, school, workplace, community, or the Internet.

Figure 1-1-32

The Internet and Interacting with Others

(Unit: %)

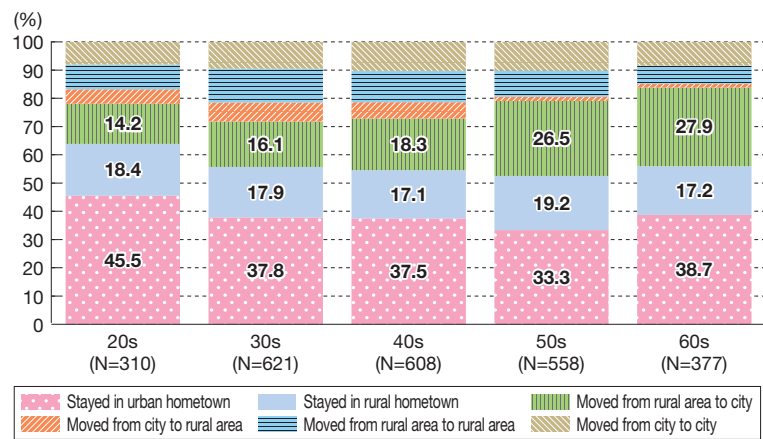
	Agree (Total)	Disagree (Total)
It is convenient because I can speak openly.	61.3	38.7
It is difficult to communicate my own feelings and understand the feelings of others.	68.8	31.3
You can participate without getting too involved.	67.7	32.3
There is little unity or empathy between participants.	48.3	51.7
You can participate no matter where you are.	71.9	28.1
I fear that others will misuse my personal information.	62.8	37.2
The Internet is a good way to share and gather information.	70.7	29.3

Note 1: "Agree (Total)" includes responses of "Agree" and "Agree somewhat."
 Note 2: "Disagree (Total)" includes responses of "Disagree" and "Disagree somewhat."
 Note 3: Shaded boxes indicate rates of 60% or higher. Pink-shaded boxes indicate a positive attitude toward the Internet, and blue-shaded boxes indicate a negative attitude.
 Source) "White Paper on Children and Young People 2017" (Cabinet Office)

In addition, the percentage of young people who want to enroll in local universities and otherwise stay in their hometowns is higher than that of other age groups (Figure 1-1-33). One reason for this could be the connections they have cultivated through many years of living in their hometowns.

Figure 1-1-33

Migration by Generation

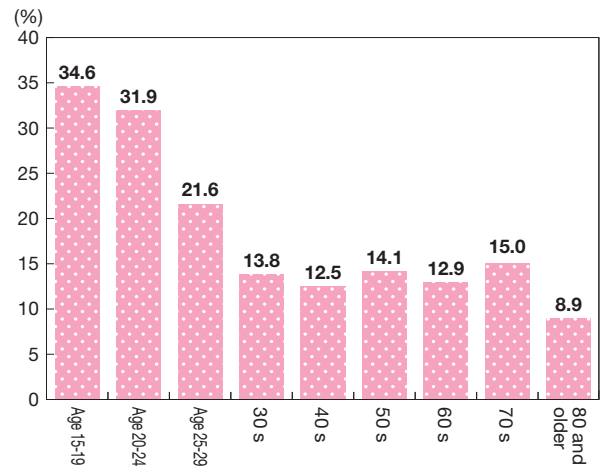


Source) "Long-Term Trends and Matching Changes in Youth Migration" (The Japan Institute for Labour Policy and Training)

Furthermore, the “Basic Survey of Consumer Awareness” conducted by the Consumer Affairs Agency in FY 2016 shows that a high percentage of people aged 24 and younger spent money on sporting events, movies and concerts (Figure 1-1-34). The survey also reported that 45.2% of people in their 20s spent money on social interactions (including eating and drinking), a significantly higher proportion than the overall average of 29.0% (Figure 1-1-35). These findings suggest that young people are more interested in spending money on experiences than on things, and emphasize connecting with others.

Figure 1-1-34

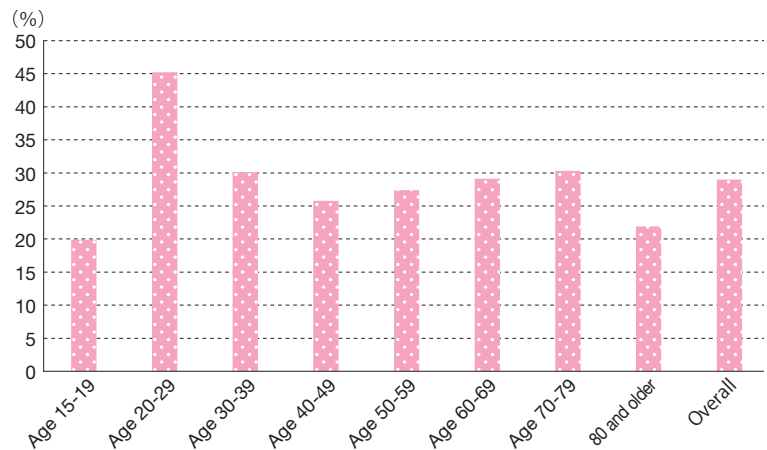
Percentage of People Who Spend Money on Sporting Events, Movies and Concerts



Note: These are responses to the following survey question: “Indicate each of the following things you spend money on.”
 Source) Prepared by the MLIT based on “Basic Survey of Consumer Awareness (FY 2016)” (Consumer Affairs Agency)

Figure 1-1-35

Percentage of People Who Spend Money on Social Interactions (Including Eating and Drinking)



Source) Prepared by the MLIT based on “Basic Survey of Consumer Awareness (FY 2016)” (Consumer Affairs Agency)

Section 2 Changes in the Form of Japanese Land

1 Changes in the Form of Japanese Land

(1) Land Improvement and Its Effects

The rapid progression of infrastructure development in Japan after World War II has caused the form of Japanese land to change. Although the growth of infrastructure stock (net capital stock) has leveled off in recent years, it has increased substantially from its level of 30 trillion yen in FY 1953 to 638 trillion yen in FY 2014 (Figure 1-2-1). In addition, as infrastructure stock has increased, the gap in per capita income between prefectures has decreased on the whole. One specific example of the positive effects of this infrastructure improvement is the dramatic increase in the round-trip distance that can be traveled by rail from Tokyo Station in a single day compared to 1947 (Figure 1-2-2).

In light of the above, the way we have changed the form of Japanese land has reinvigorated the movement of people and goods and improved living environments among other things, thereby contributing to the development of the Japanese economy and enriching the lives of each of its citizens.

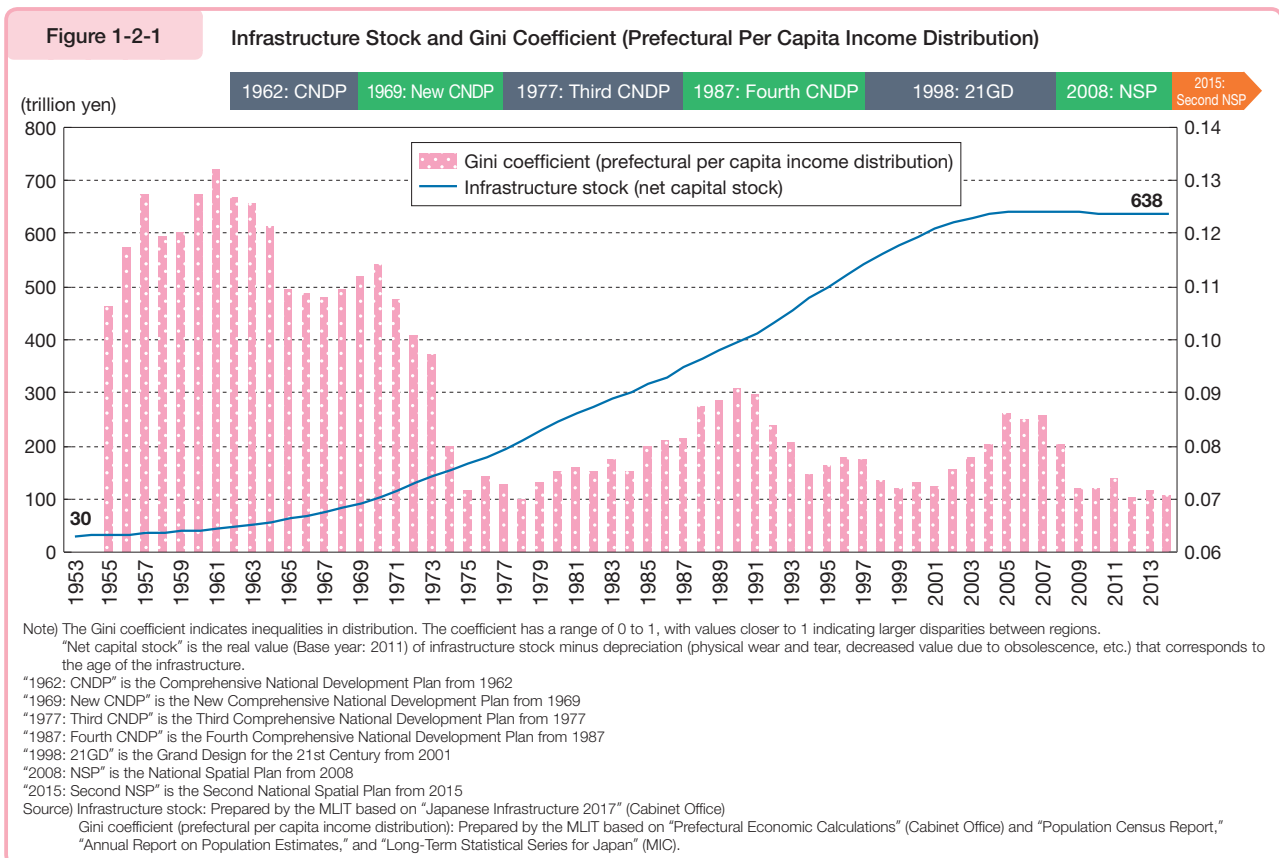
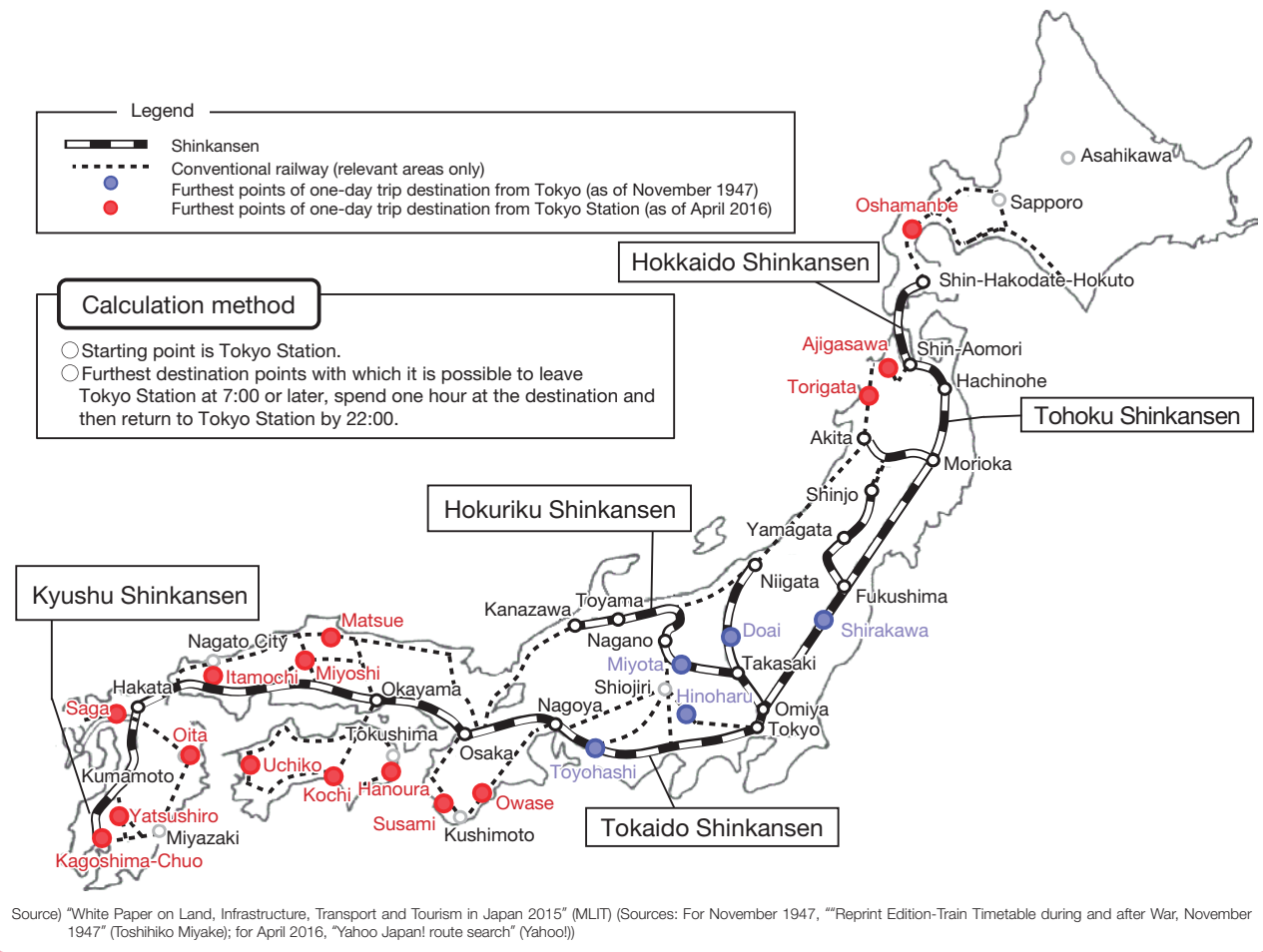


Figure 1-2-2 One-Day Trip Zone from Tokyo Station by Railway



Column

Infrastructure in the Meiji Period

Column

After the Meiji period began in 1868—a full 150 years ago—Japan took its first steps toward becoming a modern nation-state. Throughout the Meiji period, Japan made various efforts toward modernization and established the basic outline of the country we know today. These efforts included infrastructure development, and this column describes the state of that development during the Meiji period as it relates to the formation of the infrastructure stock discussed in the main text of this paper.

The development of railways in Japan began with the opening of the section between Shimbashi and Yokohama in 1872, and by the end of the Meiji period in 1912, a network of trunk lines stretched throughout most of the country. During that time, a number of private railways were established, most notably Nippon Railway, which was established in 1881. A private railway boom descended on Japan in the late 1880s and into the 1890s, but the enactment of the Railroad Construction Law in 1892 established the notion of railway construction as a state effort and served as policy to promote that notion over the long-term. Furthermore, after the Russo-Japanese War, the government acquired private railways under the Railroad Nationalization Law of 1906, and operated over 90% of the 8,047 km of railways in Japan at that time.

Road development lagged behind railway development because the Meiji government prioritized the latter. Japan's first road legislation is said to have been issued by the Grand Council of State in 1871, which encouraged private individuals to improve roads and bridges by allowing them to collect tolls. In 1876,

roads were classified into three categories: national highways, prefectural roads and vicinal roads. By 1885, the government had authorized 40 national highway routes. The Imperial Diet began deliberating over a bill for roadway legislation in 1896, and the former Road Act was enacted in 1919. Until the enactment of the current Road Act in 1952, the former Road Act played a central role in Japanese roadway administration.

As for the development of ports and harbors, the opening of the railway between Shimbashi and Yokohama at the beginning of the Meiji period increased the volume of freight transport from the Port of Yokohama, which opened in 1859, and resulted in increased demand for facility upgrades to accommodate the direct docking of large ships. Financial difficulties prevented the immediate launch of the renovation project to modernize the port, but the government was finally able to begin the work in 1889. The development of ports and harbors progressed further after the First Sino-Japanese War and Russo-Japanese War with the designation of important ports by the Port Research Committee under jurisdiction of the Minister of Home Affairs. The development was driven by the need to convert to industrial systems due to factors such as the development of heavy industry and for policy to create ports that served the changing needs of the times.

Airport development began with the 1911 establishment of a military airfield in Tokorozawa, Saitama Prefecture; full-scale airport development took place after the beginning of the Showa period in 1926.

This brings an end to our review of the Meiji-period development of the infrastructure that continues to support our way of life. We must continue to intensively, effectively and efficiently develop and improve this infrastructure to ensure that the next generation can enjoy the benefits that we have enjoyed thanks to the efforts of our predecessors.

Figure 1-2-3 Logo for policies related to "Meiji 150 Years"^{Note}



Source) Office for Promoting Policies Related to Meiji 150 Years, Cabinet Secretariat

Figure 1-2-4 The First Railway in Japan (The Scene at Shiodome Station)



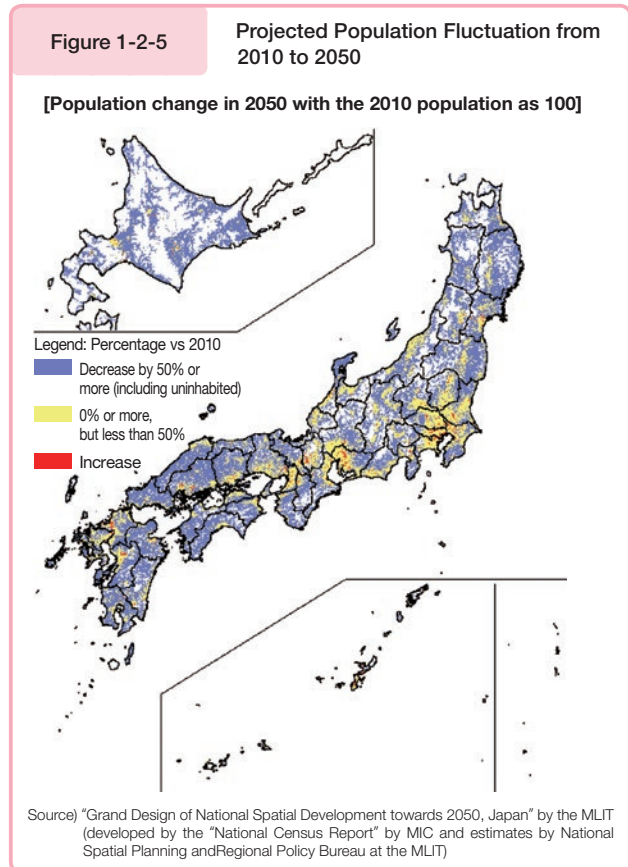
Source) National Diet Library website

Note To commemorate the full 150 years that have passed since the beginning of the Meiji period in 1868, the Japanese government is working together with local public entities and private corporations to carry out various efforts to once again reflect on the Meiji period and carry its benefits and lessons forward into the future.

(2) Changes in Population Distribution

Changes in the form of Japanese land produced a certain level of movement between the people that live on it, a level that has essentially remained constant since the end of World War II and has resulted in a concentration of the Japanese population in cities, namely the three major urban areas. That trend continues to this day; the Ministry of Internal Affairs and Communications (MIC) reported a population surplus of roughly 120,000 people in Greater Tokyo (Tokyo Metropolis, Kanagawa Prefecture, Saitama Prefecture and Chiba Prefecture) in 2017.

Figure 1-2-5 shows the estimated population distribution in 2050 in light of this trend. The projection shows that, from 2010 to 2050, the population will increase in only 2% of all inhabited areas, and will decrease by 50% or more in over 60% of regions.



(3) Recent Problems Involving Japanese Land

(Vacant homes and vacant land)

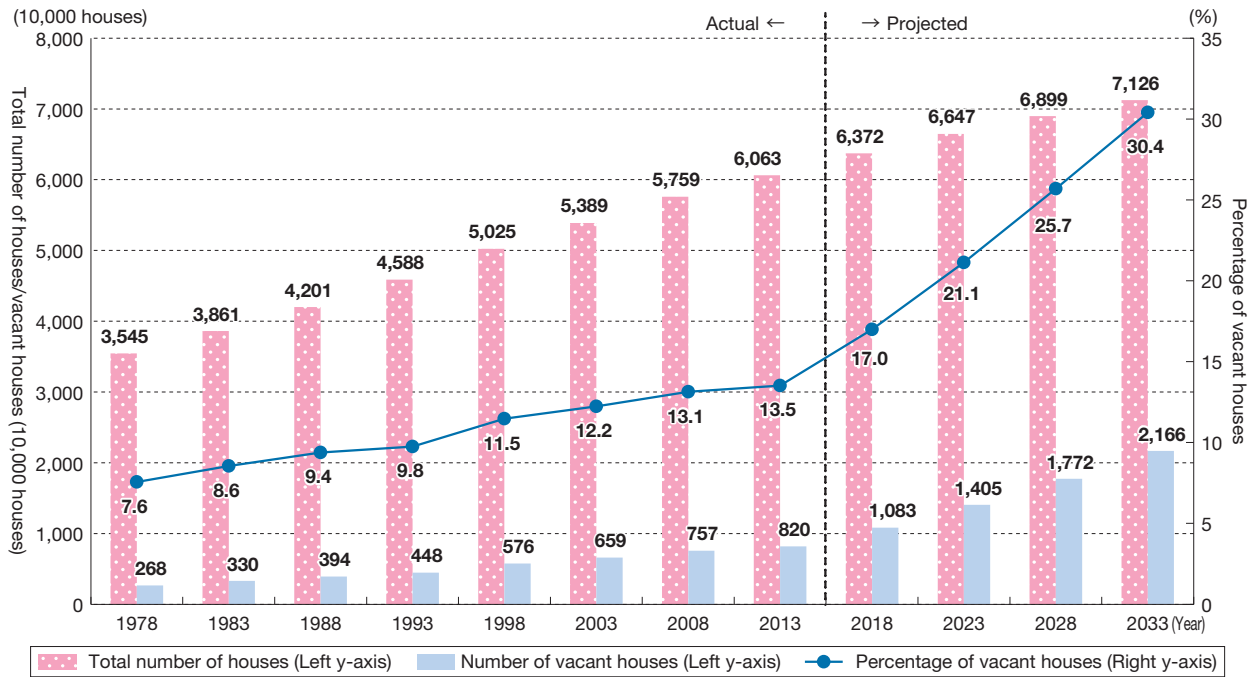
As depopulation progresses throughout Japan, vacant homes and vacant land have grown more pronounced as land-use related problems in recent years.

The MIC reports that the number of vacant homes doubled from 1983 to 2003, and that a total of 8.2 million vacant homes existed in 2013 (Figure 1-2-6). In addition, a private company's estimates predict an increase to 21.66 million homes in 2033.

The total area of vacant land was 1,554 km² in 2013, a 28% increase from the 1,217 km² in 2008 (Figure 1-2-7). In addition, a survey of municipalities showed that those with higher depopulation rates were more likely to report increases in vacant land (Figure 1-2-8).

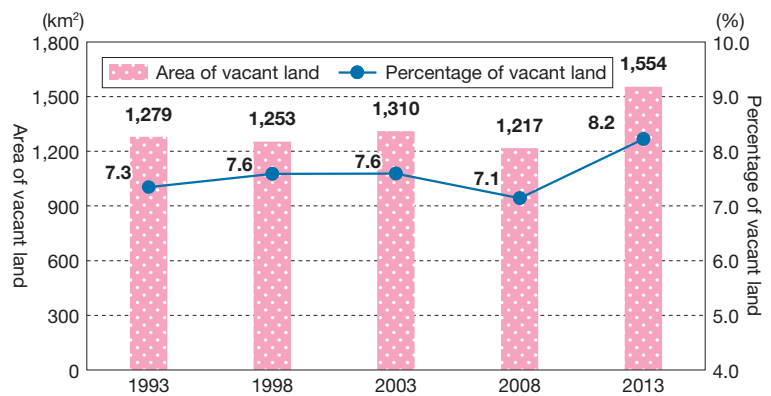
These increases in vacant homes and vacant land have led to a decline in the efficiency of national land use as well as an increase in land with unclear ownership. These developments are regarded as the cause of problems such as the inability to move ahead with discussions for converting existing private roads into public roads in crowded urban areas, or to cut down trees for forest clearing projects in rural areas.

Figure 1-2-6 Quantity and Percentage of Vacant Houses Nationwide



Source) Nomura Research Institute (Sources: For actual values, "Statistical Survey of Housing and Land" (MIC); for projections, Nomura Research Institute)

Figure 1-2-7 Area and Percentage of Vacant Land Nationwide



(Note 1) In this survey, "vacant land" includes wilderness, wasteland and ponds and swamps.

(Note 2) Note that estimates for 2008 may be too low.

*"Percentage of vacant land" is the sum of the following:

(1) Vacant land divided by land for housing, etc. in the results of corporate land/building basic surveys

"Vacant land" is vacant land (including land slated for construction that has not yet begun).

"Land for housing, etc." is all land other than land for farming, forests, railways, power transmission/distribution, etc., and includes industrial land, parking areas, equipment and material storage areas, open spaces, cemeteries, parks and wilderness.

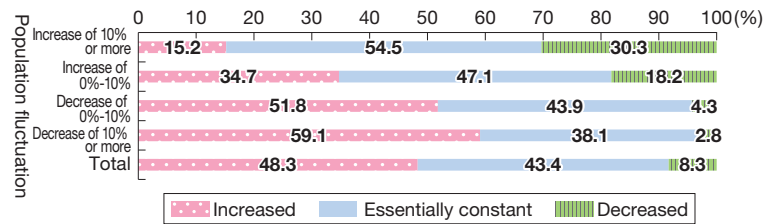
(2) Land that is not being used divided by land for housing, etc., in the results of statistical surveys of housing and land

"Land that is not being used" is vacant land, wilderness and other land that is not being used for a specific purpose (wasteland, ponds and swamps, etc.).

"Land for housing, etc." comprises properties that contain the house in which a household currently resides; properties that contain non-residential buildings owned by a household; and residential land, commercial land, wilderness, wasteland, lakes, ponds, swamps and other land that is not farmland or forest.

Source) "Basic Survey on Land" (MLIT)

Figure 1-2-8 Changes in Vacant Land over Past Decade by Population Fluctuation Range



Source) "Questionnaire Survey of Municipalities across the Country Concerning the Actual State of the Appearance/Disappearance of Vacant Lots (FY 2013)", (Policy Research Institute for Land, Infrastructure, Transportation and Tourism)

(Deterioration of infrastructure)

Much of Japan's infrastructure stock was developed intensively following the rapid economic growth. The amount of infrastructure that is 50 years or older is expected to increase at an accelerating pace in the near future; therefore, we must systematically and appropriately maintain and update this infrastructure in order to ensure that we can pass on its benefits to the next generation (Figure 1-2-9).

The rapid deterioration of the infrastructure that comprises Japanese land is a major problem that requires society-wide efforts to solve.

Figure 1-2-9 Percentage of Infrastructure 50 Years or Older

Much of Japan's infrastructure—road bridges, tunnels, rivers, sewers, ports and harbors and more—was developed after the nation's period of rapid economic growth; the percentage of infrastructure that is 50 years or older is expected to increase at an accelerating pace. The state of a facility's deterioration does not depend solely on the year in which it was constructed; the environment of the facility's location, the status of maintenance and other factors also play a role. However, for convenience, our guideline here is 50 years after construction.

Percentage of Infrastructure 50 Years or Older

	March 2018	March 2023	March 2033
Road bridges (Roughly 730,000 ^{Note 1} (bridges at least 2 m in length))	About 25%	About 39%	About 63%
Tunnels (Roughly 11,000 ^{Note 2})	About 20%	About 27%	About 42%
River control facilities (floodgates, etc.) (Roughly 10,000 ^{Note 3})	About 32%	About 42%	About 62%
Sewer lines (Total length: Roughly 470,000 km ^{Note 4})	About 4%	About 8%	About 21%
Ports, harbors and seawalls (Roughly 5,000 facilities ^{Note 5} (depth of at least 4.5 m))	About 17%	About 32%	About 58%

(Note 1) Construction dates are unclear for roughly 230,000 of the 730,000 road bridges; those bridges are excluded from the calculations. (FY 2017 total)

(Note 2) Construction dates are unclear for roughly 400 of the 11,000 tunnels; those tunnels are excluded from the calculations. (FY 2017 total)

(Note 3) Only publicly managed facilities. The calculations include the roughly 1,000 facilities for which construction dates are unclear. (Records exist for nearly all facilities constructed within the last 50 years, so facilities for which construction dates are unclear were treated as facilities older than 50 years.) (FY 2017 total)

(Note 4) The calculations include the roughly 20,000 km of sewer lines for which construction dates are unclear. (Records exist for nearly all lines installed within the last 30 years, so lines for which construction dates are unclear were treated as lines older than 30 years and distributed proportionately into the other categories based on construction dates on existing records.) (FY 2017 total)

(Note 5) The roughly 100 seawalls for which construction dates are unclear are excluded from the calculations. (FY 2017 total)

Source) MLIT

2 Changes in the Form of Japanese Cities

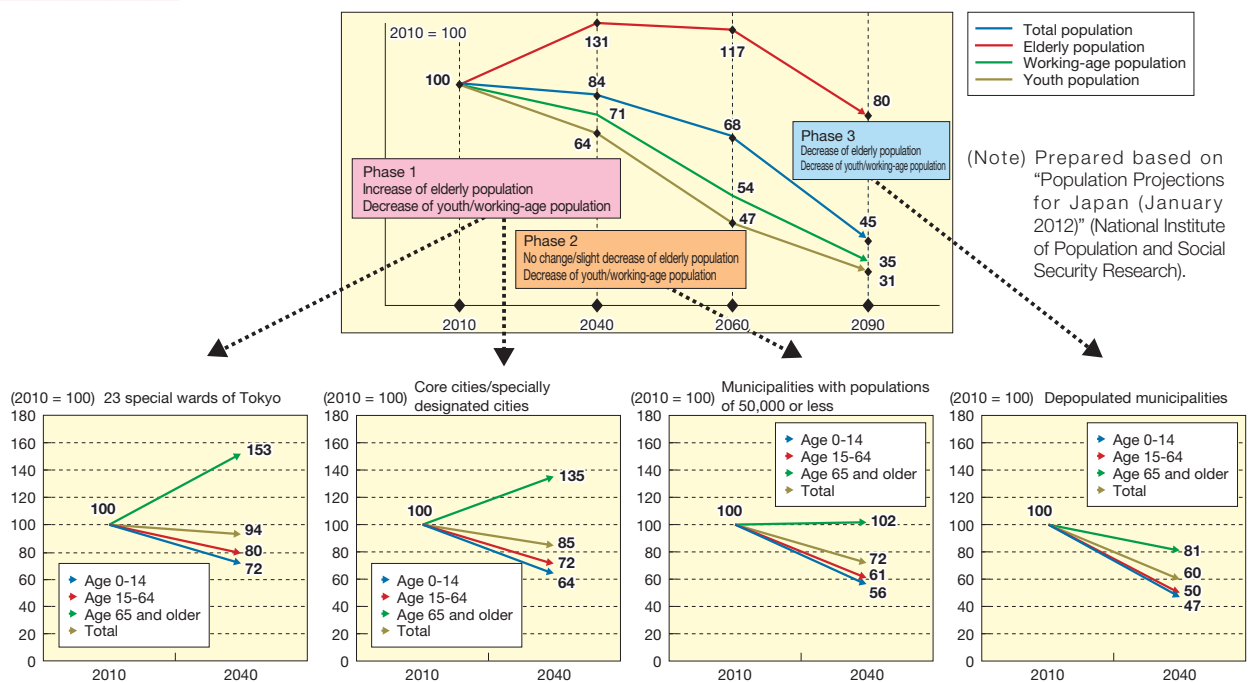
As the form of Japanese land changes, so too does the form of cities and rural areas. First, we present an overview of the changes in the form of Japanese cities.

(1) Urban Population: Changes and Outlook

Population changes and outlook

Depopulation is the rule rather than the exception for most Japanese cities in the near future; except for some major cities, the total population of each city in Japan will probably decrease each year. However, the population of people aged 65 and older will probably increase through 2040 in most cities, namely the special wards of Tokyo Metropolis, core cities and specially designated cities that comprise the three major urban areas (Figure 1-2-10).

Figure 1-2-10 Population Projections by Region



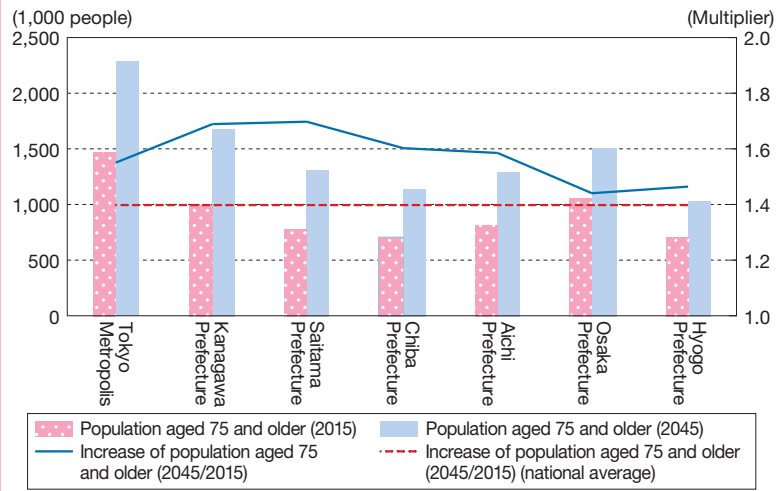
(Note 1) Prepared based on "Regional Population Projections for Japan (March 2013)" (National Institute of Population and Social Security Research).
 (Note 2) Populations by region were projected for three types of municipality: municipalities with populations of 50,000 or lower (2010 figures), core cities and specially designated cities (figures as of April 1, 2014), and municipalities in depopulated areas (figures as of April 5, 2014). The projected 2040 population for each type of municipality was then indexed against the base year of 2010 (set to 100).
 Source) "Reference Materials from the Long-Term Vision for Revitalizing Communities, People and Jobs" (Main Office for Revitalization of Communities, People and Jobs, Cabinet Secretariat)

Within that segment, the number of people aged 75 and older will increase substantially in the three major urban areas (Figure 1-2-11). In addition, the number of people aged 75 and older living alone or with a spouse only is expected to increase nationwide (Figure 1-2-12), and the fact that people aged 75 and older account for over 80% of those certified by the government as requiring long-term care yet living at home (Figure 1-2-13) prompts concern over an increase in that segment as well (Figure 1-2-14). In light of these projections, the three major urban areas can expect significant increases in the number of people aged 75 and older living alone or with a spouse only and the number of people certified by the government as requiring long-term care.

To prepare for these developments, cities must move ahead with efforts toward providing universally accessible facilities and housing that enables people to live free of worry.

Figure 1-2-11

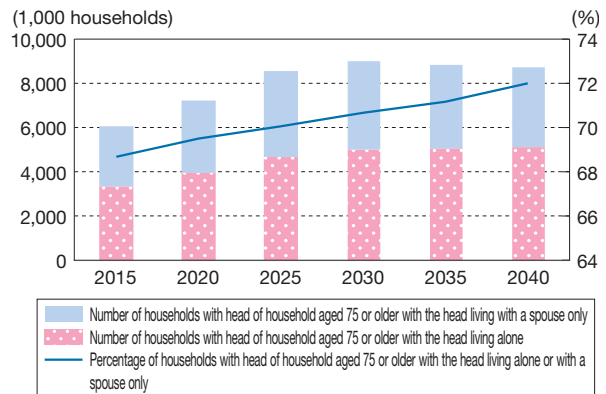
Population Aged 75 and Older in the Three Major Metropolitan Areas of Japan



Source) Prepared by the MLIT based on "Regional Population Projections for Japan (2018)" (National Institute of Population and Social Security Research)

Figure 1-2-12

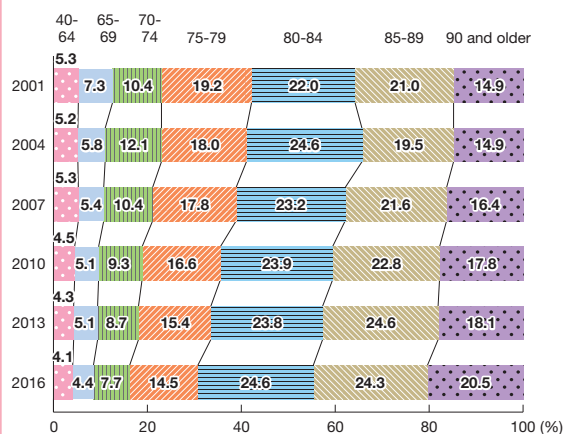
Percentage of Households with Head of Household Aged 75 or Older with the Head Living Alone or with a Spouse Only



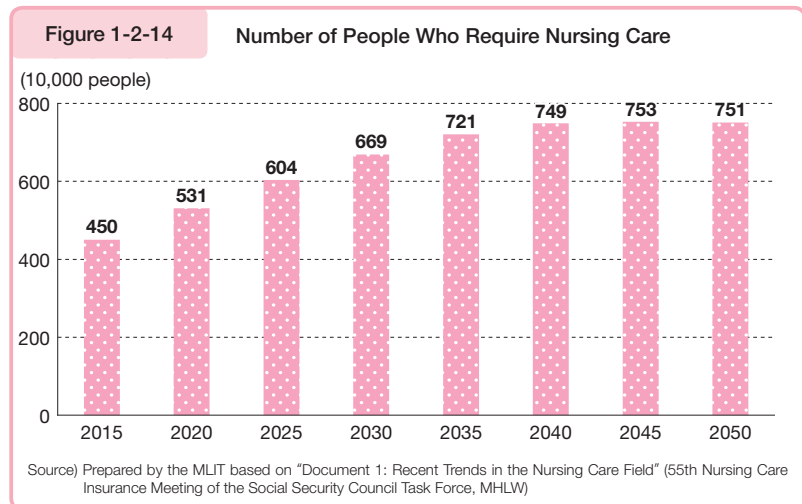
Source) Prepared by the MLIT based on "Household Projections for Japan (2018)" (National Institute of Population and Social Security Research)

Figure 1-2-13

Percentage of People Who Require Nursing Care by Age Group



(Note) The figures for 2016 do not include Kumamoto Prefecture.
Source) "Comprehensive Survey of Living Conditions" (MHLW)



(2) Characteristics of Urban Lifestyles

Population density in major cities is a factor of daily congestion and traffic that causes economic loss and has a sizeable impact on people's lifestyles.

These problems are particularly pronounced in Greater Tokyo, the most heavily populated area in Japan. For example, the economic loss from traffic jams in Japan amounts to the annual labor of 2.8 million people each year; Greater Tokyo accounts for 30% of that (Figure 1-2-15).

In addition, commuting times to and from work and school are longer in prefectures with more high-population cities; the four longest average commuting times in Japan were reported in Tokyo Metropolis and the other three prefectures of Greater Tokyo, and each far outpaces the national average of 79 minutes (Figure 1-2-16).

It is likely that these long commuting times affect working hours, which include both on-duty hours and commuting times. Over 30% of married men in Greater Tokyo reported working 12 hours or more each day (including commuting time), which is far and away higher than in other regions (Figure 1-2-17). Furthermore, women's employment rates were lower in areas where many men work long hours, which shows that the population density of Greater Tokyo has a major effect on people's lifestyles (Figure 1-2-18).

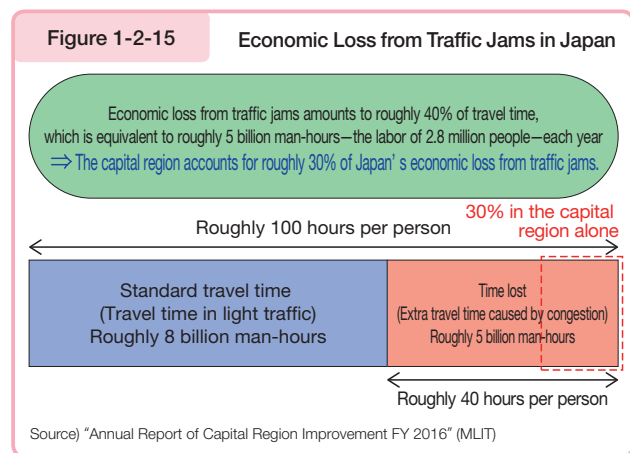
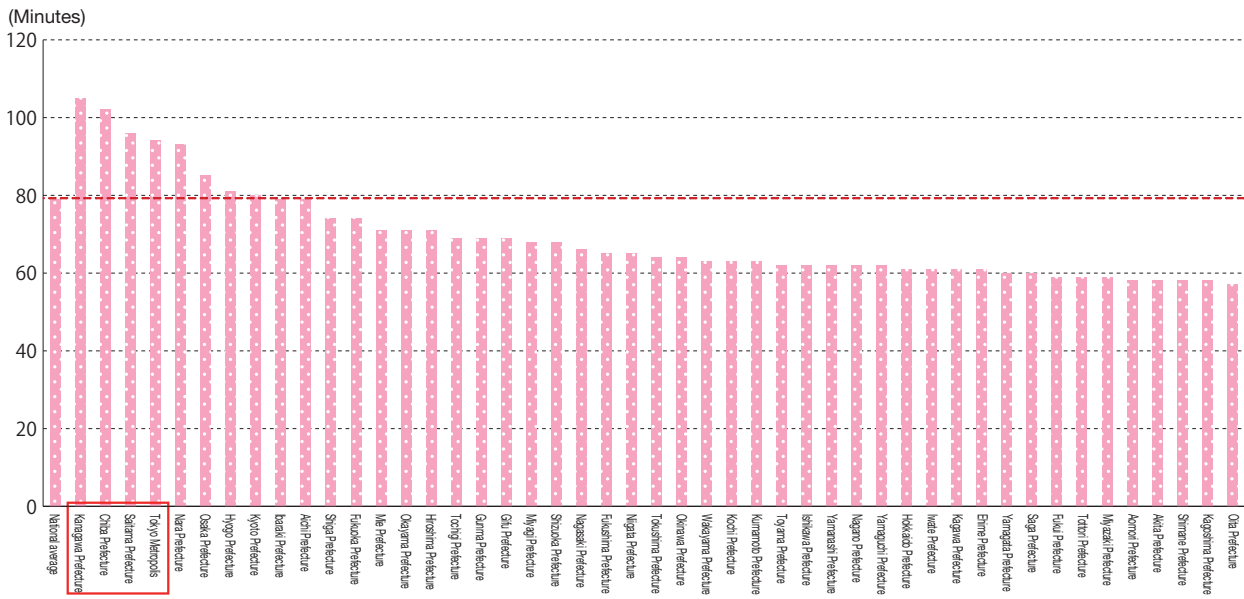
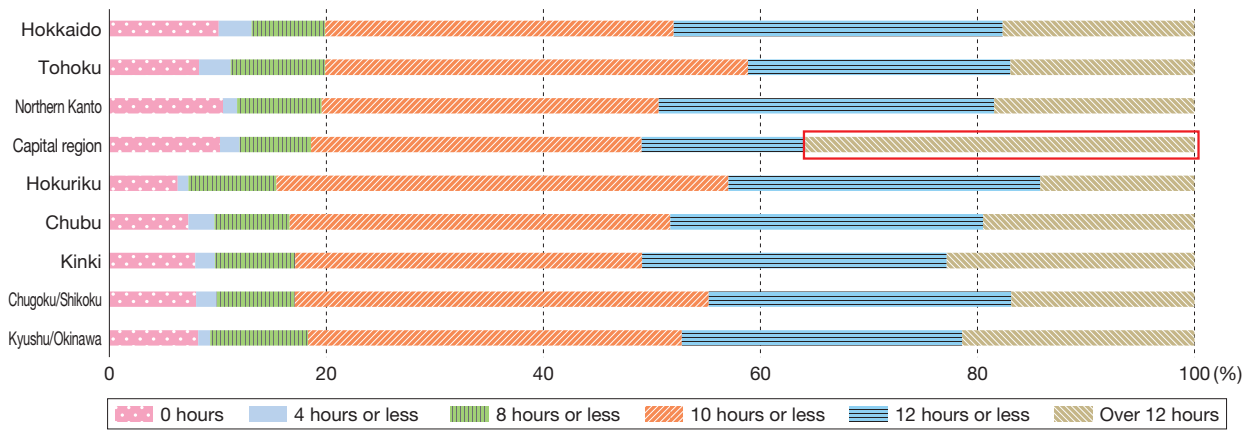


Figure 1-2-16 Round-Trip Work/School Commute Times by Prefecture



Source) Prepared by the MLIT based on "Basic Survey of Social Life" (MIC)

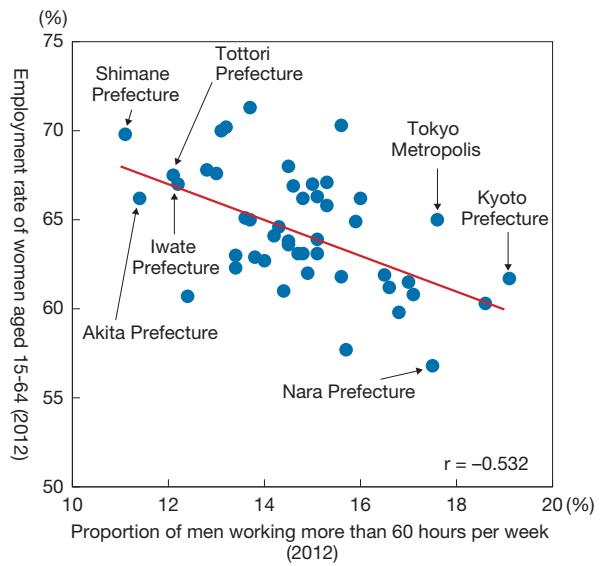
Figure 1-2-17 Working Hours of Married Men (by Region)



Source) Prepared by the MLIT based on "Survey of Child-Raising Environments in Urban and Rural Areas" (Cabinet Office)

Figure 1-2-18

Relationship Between Proportion of Men Working More Than 60 Hours Per Week and Employment Rate of Women Aged 15-64



(Note 1) Prepared based on "Employment Structure Basic Survey (2012)" (MIC)
 (Note 2) The proportion of employees working more than 60 hours per week is taken from the proportion of employees working more than 200 days per year (including directors at corporations, etc.).
 Source) "White Paper on Gender Equality 2015" (Cabinet Office) (Source: "Employment Structure Basic Survey (2012)" (MIC))

3 Changes in the Form of Japanese Rural Areas

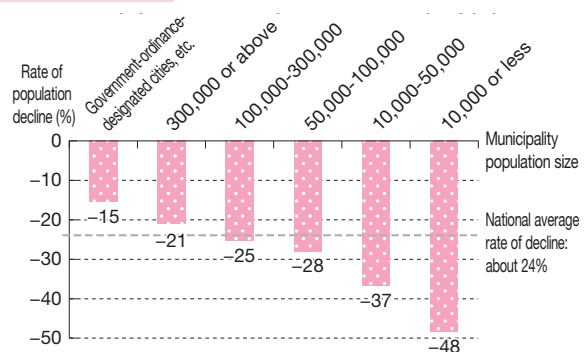
Now, we present an overview of the changes in the form of Japanese rural areas. Here, "rural areas" mainly refers to municipalities (including depopulated areas) with populations under 50,000.

(1) Rural Population: Changes and Outlook

In rural areas, the population of people aged 64 and younger is declining, and that of people aged 65 and older is remaining constant or decreasing. In the future, rural areas are expected to face further depopulation and population aging (Figure 1-2-10). Further analysis of these projected demographic changes reveals that depopulation rates are greater for municipalities with smaller populations (Figure 1-2-19). Specifically, although the highest depopulation rate in urban areas is 28%, the depopulation rate is 37% in municipalities of 10,000 to 50,000 people, and 48% in municipalities with fewer than 10,000 people. Therefore, finding ways to counteract this trend of depopulation is still a major issue in rural areas.

Figure 1-2-19

Rate of population decline by the size of municipality population



Source) "Grand Design of National Spatial Development towards 2050, Japan" by the MLIT (developed by the "National Census Report" by MIC and estimates by National Spatial Planning and Regional Policy Bureau at the MLIT)

Column

Efforts of Onan Town, Shimane Prefecture

Onan Town covers a semi-mountainous area in central Shimane Prefecture, and has a population of roughly 11,000 people and an aging rate of 43.2% (as of April 1, 2017). In October 2004, the town was formed by the merging of Hasumi Village, Mizuho Town and Iwami Town. Similar to other semi-mountainous areas, the town has long been afflicted by depopulation, a decreasing birth rate and aging population. However, the town has gained attention in recent years for its development of unique policies to tackle and overcome these problems.

In 2011, the town developed an “Offense and Defense Settlement Project” that has since produced substantial results. For the offense portion of the project, Onan Town promoted food- and agriculture-oriented community development based on the vision of fine dining, acquired the registered trademark of “Fine Dining Town” and made other efforts to improve the town’s image and visibility. Efforts for the defense portion of the project included striving to make the town the best place in Japan to raise children and providing rigorous care for everyone who had already relocated to Onan Town. Because few municipalities at the time included support for child raising as part of their appeal to outsiders, the town’s policies, which included completely subsidizing health expenditures for children through junior high school and childcare for couples’ second and subsequent children, were effective. As a result, in 2013, the town recorded its first population surplus (the number of people moving into the area exceeded the number of people moving out) since the municipal merger, and continued to enjoy surpluses through 2015.

Onan Town is currently working on new policies based on a new vision crafted in the wake of the Offense and Defense Settlement Project. The town’s new vision is to become a place where child raising is done in the community so that community members feel that the town is the best place in Japan to raise children. Policies include community-wide celebrations of the birth of children, and a point system for the support of child raising whereby parents are encouraged to use child-raising services within the community. The town is also providing continued care to transplants through efforts such as the installment of a settlement support coordinator.

The town, which is divided into 12 districts, has also developed strategies for each district that enable each and every community member to participate. For these strategies, the community forms a consensus to plan projects that community members will lead and implement to halt depopulation. For example, the Hinui District plans to implement a project to create lodging facilities and cafés on vacant land, cuisine that features local ingredients, opportunities to try pottery and other arts, and activities to attract visitors; the full-fledged project will start in FY 2018.

These efforts by Onan Town should serve as forward-looking examples for semi-mountainous areas expected to undergo accelerated depopulation, birthrate decreasing and population aging in the future.

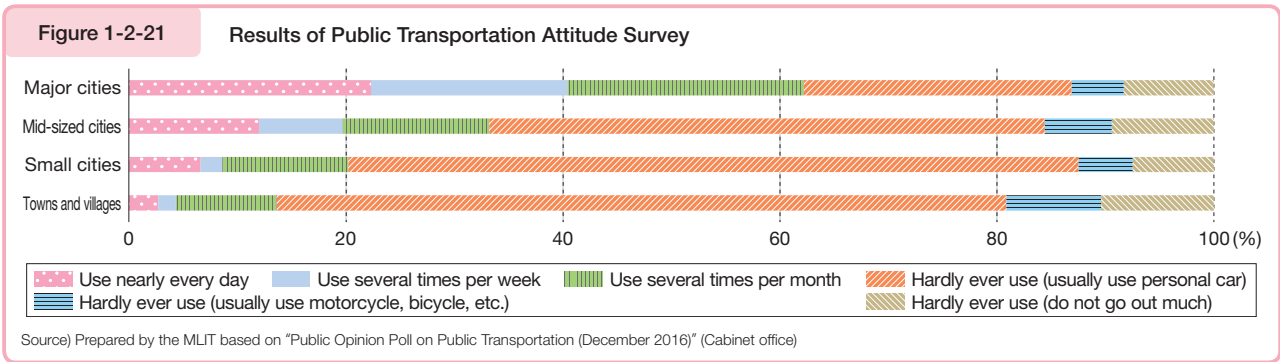
Figure 1-2-20 Picture of a meeting for the project to attract visitors to the Hinui District



Source) MLIT

(2) Characteristics of Rural Lifestyles
(Persistent automobile dependency)

According to a public opinion poll conducted by the Cabinet Office, few people use the public transportation options of railways and buses in their daily lives, while nearly 70% use automobiles on a daily basis (Figure 1-2-21). In addition, a comparison of the rates of increase in members per household and personal passenger vehicles per household from 2005 to 2015 shows that automobile dependency decreased only in the prefectures that comprise the three major urban areas; in the other prefectures, automobile dependency increased (Figure 1-2-22). Of this segment, automobile dependency increased particularly in rural prefectures with many sparsely populated municipalities.



(Elderly people continue to drive)

Although the number of elderly people who voluntarily relinquish their driver's licenses has increased rapidly throughout Japan in recent years, the intent to do so is less present in municipalities with smaller populations (Figures 1-2-23 and 1-2-24). This finding suggests that, although elderly people who live in rural areas likely face a higher risk of causing traffic accidents by driving despite declining physical faculties due to age, they have no choice but to drive to maintain the convenience of life, and that this situation will persist into the future.

In light of the above, as population aging progresses further, it is important to secure modes of transportation for elderly people in rural areas.

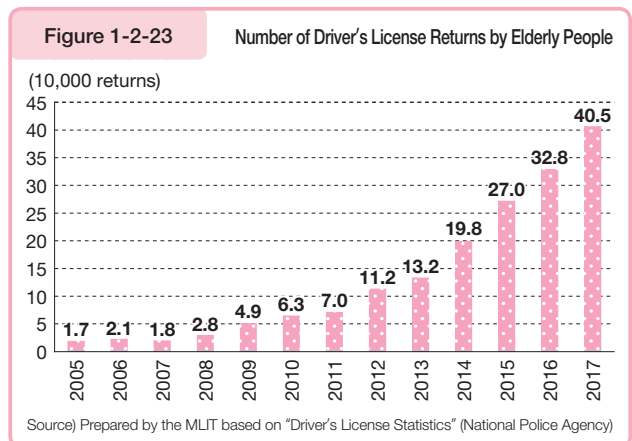
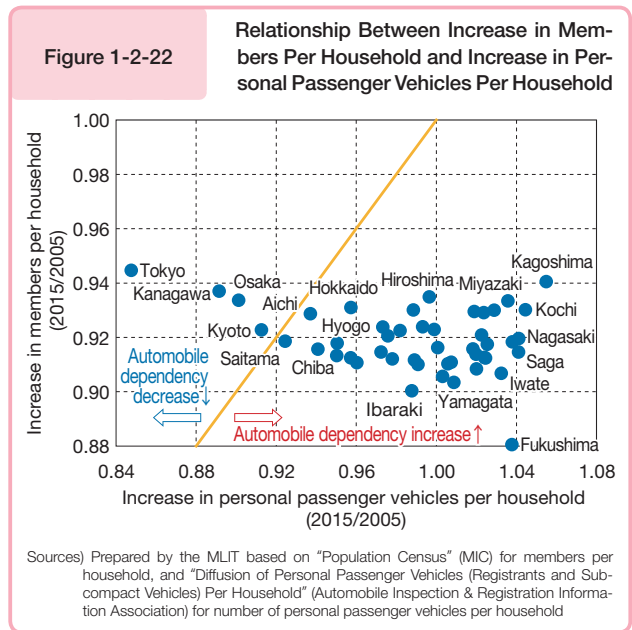
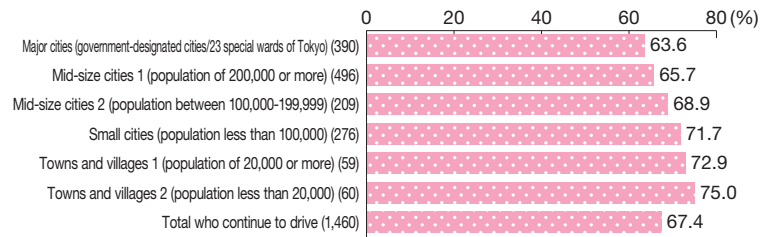


Figure 1-2-24

Result of Attitude Survey of Elderly People on Voluntary Relinquishment of Driver's Licenses



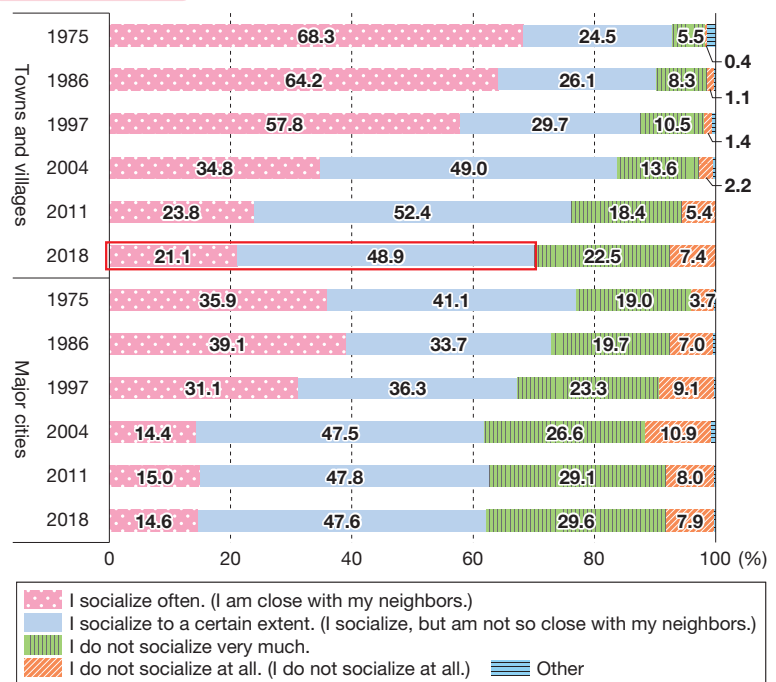
(Source) "Results of Questionnaire Survey on Voluntary Relinquishment of Driver's Licenses" (National Police Agency)

(Concern over maintaining communities)

A public opinion poll conducted by the Cabinet Office showed that 70% of people in towns and villages interact with others in their local communities (they reported frequent or somewhat frequent interactions) in 2018. This is a lower percentage than in 1975, but can be interpreted to mean that local communities in these areas are functioning better than those in major cities (Figure 1-2-25). However, because sparsely populated towns and villages will face the most serious population decline in the future (Figure 1-2-19), it will become increasingly important to find ways to maintain the functions of their communities.

Figure 1-2-25

Results of Attitude Survey on Extent of Interaction in Community



(Note 1) "Major cities" refers to the 23 special wards of the Tokyo Metropolis and ordinance-designated cities.
 (Note 2) The question and answer options for 1975, 1986 and 1997 are as follows:
 Question: To what extent do you socialize with your neighbors?
 Answer options: "I am close with my neighbors," "I socialize, but am not so close with my neighbors," "I do not socialize very much," and "I do not socialize at all."
 (Note 3) The question and answer options for 2004, 2011 and 2018 are as follows:
 Question: To what extent do you socialize in your community?
 Answer options: "I socialize often," "I socialize to a certain extent," "I do not socialize very much," "I do not socialize at all."
 Sources) Prepared by the MLIT based on "Public Opinion Poll on Social Awareness (December 1975, December 1986, December 1997, January 2004, January 2011, February 2018)" (Cabinet Office)

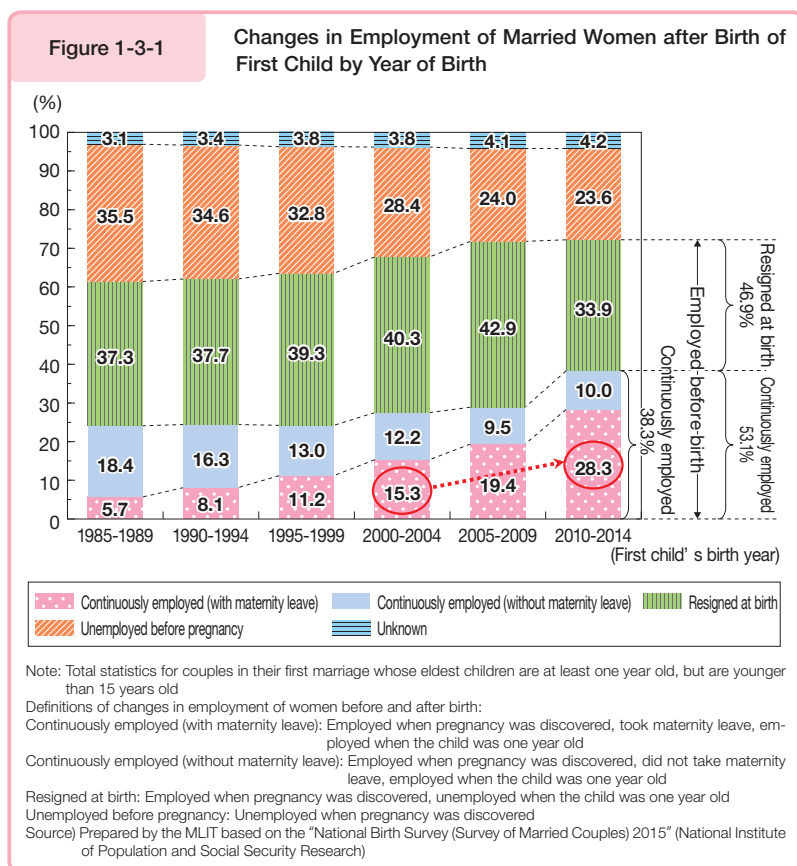
Section 3 New Signs in Japan

In Sections 1 and 2, we presented overviews of the issues Japan faces with regard to changes in the form of Japanese society and land. Amidst these circumstances, new signs that promise to help solve these problems have appeared. In this section, we introduce these new signs in Japan from four perspectives that comprise Japanese lifestyles: how Japanese people work, have fun, live and move.

1 How Japanese People Work

(Improving balance between work and child raising)

The state of the balance between work and child raising (women's continuation of employment) has improved; the percentage of married women who take maternity leave around the birth of their first child and then continue in employment nearly doubled from 15.3% to 28.3% over a 10-year period (birth of first child between 2000-2004 and 2010-2014) (Figure 1-3-1).



Column Workcation

"Workcation" is a portmanteau of "work" and "vacation" that means telecommuting—using a personal computer or the like to do work—while on a long-term vacation at a domestic or foreign resort or in one's hometown.

Starting in the summer of 2017, Japan Airlines Co., Ltd., offered workcations as a telecommuting option to roughly 4,000 employees who are not involved in shift work at airports and the like. The purpose of the offer was to encourage employees to take vacation time; the way each employee used the time determined whether or not their case counted as a workcation. For example, if an employee took three days of vacation and only worked during the afternoon of the second day, that counted as a workcation. However, if during

an extended public holiday an employee only rested each morning and worked each afternoon, that did not count as a workcation because work accounted for too much of the time. The airline aimed to create opportunities for travel and fulfilling family time by promoting a new way of working: working at a travel destination. In sum, 34 employees took workcations during the airline's two-month trial in July and August 2017, and their impressions were generally positive; one indicated that the workcation enabled them to visit their hometown as planned despite earlier concern over canceling the trip due to work, and another remarked that the change of scenery from their usual telecommuting helped them work more efficiently.

Local governments are also proactively drawing attention to workcations. For example, the Wakayama prefectural government is taking the lead among Japanese local governments in promoting and performing public relations for workcations. The local government has planned CSR activities, such as repairing the Kumano Kodo, a World Heritage site, and events where people can try workcations—including providing workplaces where Wi-Fi is available—and has also created a PR video for workcations.

Amidst the current call for work style reform, workcations are a promising new way of working that can enable people to refresh both body and mind by changing where they work, and contribute to regional revitalization while improving productivity.

Figure 1-3-2 Workcations



Source) Japan Airlines Co., Ltd.

Figure 1-3-3 Workcations



Source) Wakayama Prefectural Government

Figure 1-3-4 Repairing the Kumano Kodo



2 How Japanese People Have Fun

(Diversification/intensification of fun)

■ A park built from the ground up by people, communities and corporations (Izumi-Sano Hills Green Space in Osaka Prefecture)

Izumi-Sano Hills Green Space is a park and recreational facility operated by the Osaka prefectural government. However, the park was not created in the traditional government-centered style; the government and prefectural residents worked together to create the park from scratch, and since it opened, the two sides have collaborated to continue shaping the park. Courses and other events were held to train park volunteers—namely elderly people—and create a community. Today, those trainees form the core of a community of around 100 people who engage in activities in the park. These activities create opportunities for elderly people and others to make the personal connections that serve as the foundation of activities that benefit society.

■ Increasing demand for domestic travel

Japanese domestic tourism consumption and the total number of Japanese domestic travelers are both on the rise (Figure 1-3-6). In addition, the record-high 28.69 million foreign visitors to Japan in 2017 have had a major impact on regional tourism resources and beyond.

In light of developments such as the shift of tourism demand by foreign visitors to Japan toward experiences and away from things, it is important to encourage consumption of hands-on tourism. Investigations are underway to find new tourism resources that go beyond history and culture and other specific ways for both public and private entities to make efforts toward this end.

These kinds of efforts to make full use of existing resources and people to improve the appeal of tourism are expected to create even more fulfilling fun. In addition, strategic engagement in these efforts by local operators, residents and other key people should create connections between a wide variety of people who may or may not have connected otherwise.

Figure 1-3-5

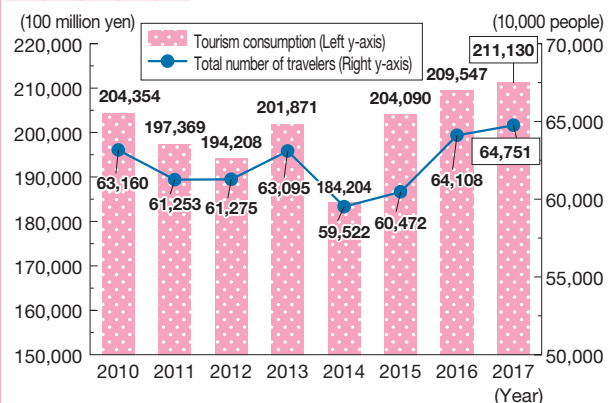
Izumi-Sano Hills Green Space Park Club: a volunteer group of citizens of Osaka Prefecture



Source) Osaka Prefectural Government

Figure 1-3-6

Japanese Domestic Travel



Source) "Survey on Travel/Tourist Spending Trends (FY 2017 Values)" (Japan Tourism Agency)

Column

Adult Daycare-Style Cooking Studio

Nanairo Cooking Studio is a cooking-themed participatory adult daycare center located in Jiyugaoka in Meguro city, Tokyo. The concept of cooking—the first of its kind in the nursing care industry—is the foundation of this completely new type of adult daycare center, which feels more like a cooking class and is designed to fill participants with feelings of joy, accomplishment and motivation.

UNIMAT Retirement Community Co., Ltd., created this service from the desire to spread awareness and understanding of efforts to encourage elderly people and people with dementia to enjoy cooking and give them motivation in life. The lessons start with simple tasks and advance gradually, so everyone—even first-timers and others who are not good at cooking—can feel free to join. In addition, cooking is considered to be a highly effective method of occupational therapy for rehabilitation. This “cooking therapy” involves cutting and peeling ingredients, adding ingredients in the proper balance, counting, thinking about time, plating food and other activities that stimulate the five senses, all of which can improve cognitive functions.

The stylish red awning on the exterior of the building draws people’s attention. The interior has a natural white tone with an elliptical cooking station in the center. The colorful pendant lights and various interior decorations are very charming and brighten the emotions of the participants. Staff members make preparations for the cooking while visitors take turns getting their vitals checked, and then the program begins with a lecture by a registered dietitian, who explains the recipes and nutritional components of each ingredient. Then the staff members assign tasks to each participant in line with their physical condition—participants are asked to cut vegetables, crack eggs, peel and the like while seated in wheelchairs or on chairs or while standing. Participants enjoy conversation with the chef and staff members in a friendly atmosphere, and the cooking is completed in around one hour. Three hours pass in no time as participants enjoy the meal time together at their tables.

The current ratio of women to men at the center is 4-to-1, and the oldest participant is a 96-year-old woman. Many participants not only make food for themselves, but also make meals to take to their families, which is a delight to the families. Presentations are held once every six months. At these presentations, participants invite family members and caregivers to watch them prepare a full party menu, and then eat together. Family members are impressed by the participants’ excitement and energy as they cook in a different environment from home, and the participants rediscover the joy of achievement and motivation for life through cooking, which motivates them to continue to work hard for themselves and others.

As the Japanese population continues to age, the number of elderly people who require nursing care is increasing. Adult daycare centers are helpful for people whose jobs and other responsibilities make it difficult for them to provide the constant nursing care that their elderly relatives require. As society diversifies, we should be aware that various kinds of adult daycare centers are appearing to make the lives of those who require care and their families more fulfilling and active.

Figure 1-3-7 Nanairo Cooking Studio





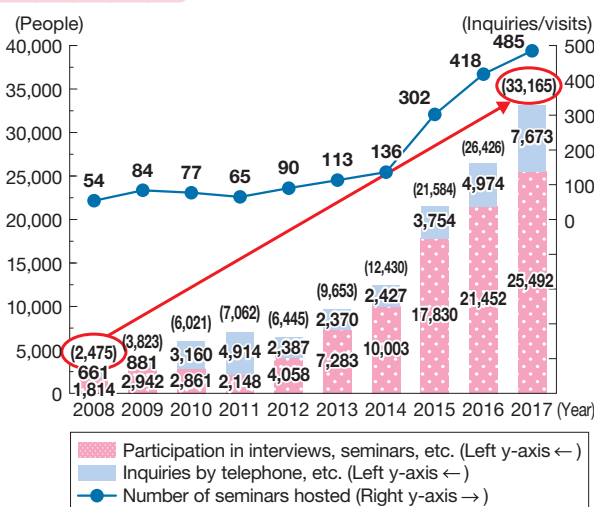
Source) UNIMAT Retirement Community Co., Ltd.

3 How Japanese People Live

(Increasing interest in moving to the countryside)

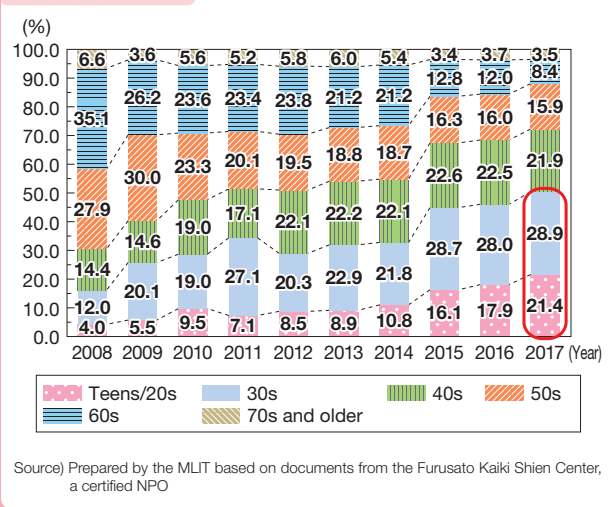
The Furusato Kaiki Shien Center^{Note 12} is an NPO that offers consultations to help people move to the countryside from major cities—whether they are moving back to their countryside hometown or to a countryside area that is not their hometown. The Center’s research shows an increase in the number of visitors and inquiries. The Center’s research also shows an increasing interest in moving to the countryside (Figure 1-3-8), particularly among people in their teens, 20s and 30s (Figure 1-3-9).

Figure 1-3-8 Visitors/Inquiries to the Furusato Kaiki Shien Center (Tokyo, 2008-2017)



Source) Prepared by the MLIT based on documents from the Furusato Kaiki Shien Center, a certified NPO

Figure 1-3-9 Furusato Kaiki Shien Center User Ages (Tokyo, 2008-2017)



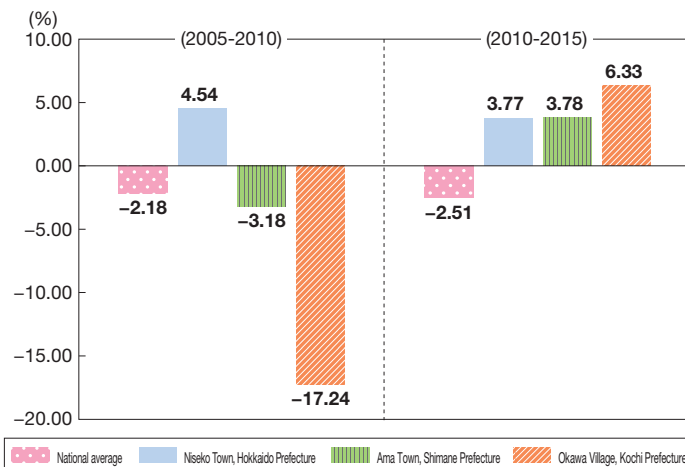
Source) Prepared by the MLIT based on documents from the Furusato Kaiki Shien Center, a certified NPO

(Municipalities successfully increase number of transplants)

As efforts toward regional revitalization continue, some municipalities have successfully increased the number of transplants they receive through efforts such as stimulation of local industry by the government and private entities, support for receiving transplants, and hosting high school students from other prefectures (Figure 1-3-10).

Note 12 An organization that collaborates with 850 communities throughout Japan to provide information about moving to the countryside in support of people who desire to do so—whether to move back to their countryside hometown or to a countryside area that is not their hometown—or to interact with those communities. The organization strives to revitalize the countryside and reinvigorate communities by serving as a bridge between urban areas and farming, mountain and fishing villages. The organization has a constant supply of pamphlets and information about living in the countryside on hand, and consultants from each community provide more specific information about their communities and various advice to people who want to live in the countryside. In 2017 alone, the organization held 485 seminars about life, housing and work in various countryside locations.

Figure 1-3-10 Rate of Population Change in Municipalities (Excerpt, Excludes Three Major Metropolitan Areas)



Note 1: Rate of population change in municipalities (national average excluding the three major metropolitan areas)
 (2005-2010) (2010-2015)
 $\triangle 2.18\%$ $\triangle 2.51\%$

Note 2: Three major metropolitan areas
 Greater Tokyo (Saitama/Chiba/Tokyo/Kanagawa), Greater Nagoya (Gifu/Aichi/Mie), Greater Osaka (Kyoto/Osaka/Hyogo/Nara)

Note 3: The population increased in 436 of 1,741 municipalities nationwide (2010-2015)

(Source/calculation method)

Population: "Population Census" (MIC) (Total population)

Rate of population change: (from first year to final year) Population change*1/Total population in first year

*1 Population change = (total population in first year - total population in final year) - natural fluctuation (number of births from first year to final year - number of deaths from first year to final year) *2

*2 Number of births/deaths: "Vital Statistics (Final Figures)" (MHLW)

It is not possible to obtain monthly totals from the data for each municipality; therefore, the period from October to December in the first year was calculated as one quarter of the first year total, and the period from January to September in the final year was calculated as three fourths of the final year total.

Source) Prepared by the MLIT based on "First Collection of Positive Examples of Policy for Relocation to/Settlement in Rural Areas" (Main Office for Revitalization of Communities, People and Jobs, Cabinet Secretariat)

Column

Intergenerational Homesharing

Column

Intergenerational homesharing is gaining popularity as a communal way of living in which young people live with elderly people who live alone because their own children have grown up and moved out. In this communal life, the two sides agree to rules to maintain a healthy distance; for example, the young people help the elderly people but do not provide nursing care, and each prepares their own meals.

For young people who move away from home to study or work, the arrangement is economically advantageous because they can live in high-quality housing at a reasonable price, and it also provides them with a place they belong in their new location, and with opportunities to learn from their elders. Elderly people also benefit substantially by avoiding isolation and feeling a sense of security in life, and the ability to converse with young people provides new stimuli.

Live and Live is an NPO that coordinates these communal living arrangements between elderly people and university students with the aim of creating new relationships that transcend blood. The two sides are free to go about their business during the day and are encouraged to communicate by spending time together in the evening and at night. The organization goes beyond making connections; each pair has a coordinator dedicated to their case, and each month, the coordinator checks in with the two sides to listen and offer advice to encourage them to enjoy supporting each other in their lives. Participants in this initiative have a positive impression of it; one elderly homeowner described the enjoyment of learning about thoughts and world views that are new to them on a daily basis, and another told of feeling safer and more secure living with a student after the student turned off a stove that the homeowner had forgotten to shut off. One student also reported feeling that their life is more fulfilling because someone else is happy to have them around.

Although the isolation of elderly people living alone plagues Japanese society, intergenerational homesharing is a new way of living that gives both elderly people and young people a place where they belong.

Figure 1-3-11 Intergenerational homesharing



Source) Live and Live, a non-profit organization

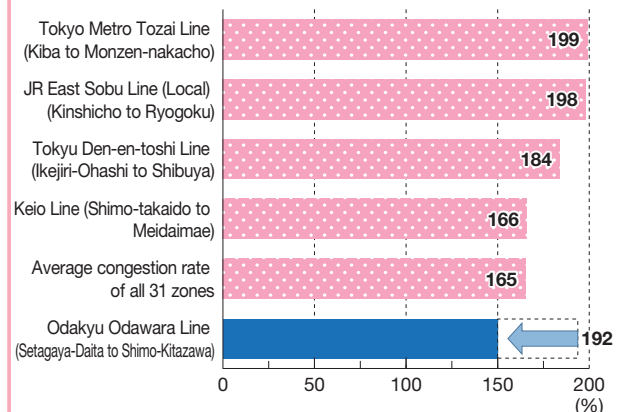
4 How Japanese People Move

(Mitigating congestion on railways)

Congestion on railways in major metropolitan areas during commuting to and from work and school is improving substantially as a result of efforts such as establishing new lines, quadruple tracking and adding cars onto trains (however, the rate of congestion on some routes still exceeds 180%). For example, in March 2018, Odakyu Electric Railway Co., Ltd., added one inbound line and one outbound line to create quadruple tracks between Yoyogi-Uehara and Noborito Stations to ease congestion rates during the peak of the morning rush hour and provide more comfortable transportation services. Their average congestion rate is now below 150%^{Note 13}, which is regarded as the rate at which passengers can comfortably read newspapers in the train cars (Figure 1-3-12).

Figure 1-3-12

Congestion Rates in Primary Zones of Greater Tokyo



Note: The figure of 150% for the Odakyu Odawara Line is from research by Odakyu Electric Railway Co., Ltd. Other figures are from "Congestion Rate Data" by the MLIT. Source) MLIT

Column

Universal Accessibility Apps

Smartphone apps for sharing information about universal accessibility are gaining popularity as a way for wheelchair users and able-bodied people alike to post and share information about universally accessible toilets, elevators and other facilities.

WheelLog! is an app unveiled in May 2017 that saves information about universally accessible facilities posted by users onto a map for sharing with others. Wheelchair users can also turn on the "traveling log" function when they go out to trace the path they take on the map. This allows wheelchair users to learn which places are accessible.

Note 13 Survey by Odakyu Electric Railway Co., Ltd. (as of April 2018)

WheelLog! was invented by a woman who uses a motorized wheelchair. The project to create this app began after the inventor won the grand prize in a contest for socially beneficial ideas hosted by a search engine operator. The governor of Tokyo created a buzz by attending an event to mark the app's release in Roppongi, Tokyo. The app has also received favorable reviews by users.

The app was used to conduct a demonstration experiment^{Note} as part of a barrier-free navigation project (pedestrian assistance using ICT) promoted by the MLIT, and the results are expected to be used in discussions about such factors as efficiently gathering information about universal accessibility.

An impassioned push for universal accessibility is underway in Japan in the lead-up to the Tokyo 2020 Olympics and Paralympic Games. We must continue to further our understanding of universal accessibility to prepare for the many Japanese and foreign people with disabilities who will visit competition venues. We must understand each other's way of life and cooperate to enable people from multiple generations to live in comfort.

Figure 1-3-13 An event in which the app is used to navigate the city streets



Source) WheelLog!

Figure 1-3-14: Images of the app in use



Source) WheelLog!

Note The "Demonstration Experiment for Creating an Accessibility Map Using Probe Information" was conducted from late November 2017 to February 2018 to verify ways of visualizing accessible routes for wheelchair users on a map using positional information (traveling logs) from routes they actually traveled.

Section 4 Government Initiatives

1 Overall Government Trends

(1) Promoting the Dynamic Engagement of All Citizens

In a society in which all citizens are dynamically engaged, everyone—women and men, elderly people and young people, people who have failed or made mistakes, and people with disabilities and intractable diseases—can be active and participate in their homes, workplaces, communities and everywhere else. ^{Note 14}

To successfully create such a society, the Japanese government developed “Japan’s Plan for the Dynamic Engagement of All Citizens” (June 2, 2016 Cabinet decision). The government identified work style reform as the highest hurdle to clear toward creating such a society, and thus developed a specific plan of action known as the “Action Plan for the Realization of Work Style Reform” (March 28, 2017 Council for the Realization of Work Style Reform decision). On December 8, 2017, the Cabinet decided on a “New Economic Policy Package” to encourage revolutions in productivity and human resources development to serve as the wheels on the cart for overcoming the immense barriers of a declining birthrate and aging population. For the revolution in human resources development, the package includes a policy worth 2 trillion yen for free early childhood education, elimination of waiting lists for child care, free higher education, and improved treatment of caregivers toward the elimination of departures from that line of work. In addition, discussions about recurrent education, university reform and other points of contention have progressed since the beginning of the year.

■ Japan’s Plan for the Dynamic Engagement of All Citizens

A Commission for the Dynamic Engagement of All Citizens comprising relevant Cabinet ministers and experts and chaired by Prime Minister Shinzo Abe was convened in October 2015 to discuss the general direction of policies for tackling the structural problems of a declining birthrate and aging population head-on and promoting the dynamic engagement of all citizens.

The eighth meeting of the Commission on May 18, 2016, resulted in the development of Japan’s Plan for the Dynamic Engagement of All Citizens, which the Cabinet decided on June 2 of that year. The plan aims to realize a new three-arrow approach (a robust economy that creates hope, childcare support that fosters dreams, and social security that creates a sense of safety) to promote the dynamic engagement of all citizens, and sets out to create a virtuous cycle between growth and distribution and realize a society where everyone has motivation in life and can exhibit their capabilities to the fullest.

It is worth noting that follow-up meetings are being held to facilitate discussions to revise policies and continuously investigate the progress of the roadmap set out in Japan’s Plan for the Dynamic Engagement of All Citizens.

■ Action Plan for the Realization of Work Style Reform

Work style reform sets out to fundamentally reform the labor system and change the corporate culture and landscape from the perspective of working people. The pursuit of this reform aims to give each and every person who works the ability to dream of a better future.

The Council for the Realization of Work Style Reform, which is chaired by the Prime Minister, was convened in September 2016, and developed the Action Plan for the Realization of Work Style Reform in March 2017. The plan sets out specific measures and roadmaps for nine fields of work style reform, including improved treatment for non-regular employees, wage increases and labor productivity improvement, and correction of long working hours (Figure 1-4-1).

Note 14 From Japan’s Plan for Dynamic Engagement of All Citizens

Figure 1-4-1 Items of Action Plan for the Realization of Work Style Reform

- | | |
|---|--|
| 1. Improved treatment for non-regular employees | 6. Acceptance of foreign workers |
| 2. Wage increases and labor productivity improvement | 7. Establishment of atmosphere that encourages women and young people to flourish |
| 3. Correction of long working hours | 8. Support for switching careers to/finding employment in industries with high employment absorption, fulfillment of human resources development and education that battles inequality |
| 4. Establishment of atmosphere that encourages flexible work styles | 9. Promotion of the employment of elderly people |
| 5. Promotion of balance between work and healing from illnesses, child raising and nursing care; promotion of work for people with disabilities | |

Source) Prepared by the MLIT based on "Action Plan for the Realization of Work Style Reform"

2 Ministry of Land, Infrastructure, Transport and Tourism Trends

(1) MLIT Productivity Revolution Project

To increase Japan's capacity for potential growth and unearth new demand, productivity must be improved to counteract and exceed the reduction of workers. We must also push forward with work style reform to secure and train the leaders of industry for the medium and long term, and productivity improvement is required toward that end as well.

The MLIT oversees infrastructure and other field sites throughout Japan, and is responsible for transportation, construction and a wide range of other industrial fields that underlie economic activity; thus, the MLIT plays an extremely important role in achieving productivity improvement and other goals for Japan.

In light of the above, the MLIT Productivity Revolution Headquarters, which was established in March 2016 and is chaired by Minister of Land, Infrastructure, Transportation and Tourism Keiichi Ishii, spearheads ministry-wide efforts toward productivity improvement and other goals, and has selected and continues to promote 20 innovative projects (productivity revolution projects) (Figure 1-4-2) for improving productivity in the following three areas:

1. On roads, in cities and at ports and harbors, airports and other bases of society
2. In the tourism industry and other industries
3. Through autonomous driving, climate business and other future-oriented investment and new technology

Figure 1-4-2 MLIT Productivity Revolution Project 20

◆Projects to increase the productivity of the bases of society

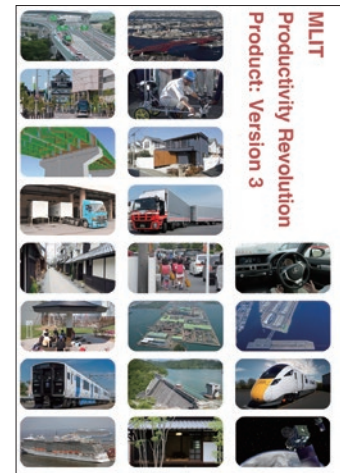
- (1) Pinpoint Congestion Measures
- (2) Smart Fee System for Expressways
- (3) New Era for Cruises: Toward the Realization of the Goal of 5 Million Passengers on Cruises to Japan
- (4) Compact Plus Network: Improving Productivity in a Saturated Economy
- (5) Promotion of Optimal Use of Real Property
- (6) Infrastructure Maintenance Revolution: Promoting Reliable, Efficient Infrastructure Maintenance
- (7) Dam Revitalization: Quickly Improving Water Management and Flood Control Capacities to Support Regional Economies
- (8) Air Travel Infrastructure Revolution: Best Mix for Airports and Air Traffic Control

◆Projects to increase the productivity of specific industries

- (9) Promotion of i-Construction
- (10) New Development for the Housing Life Industry: Reinvigorating the Circulation of Existing Housing and the Renovation Market
- (11) i-Shipping and j-Ocean: Maritime Productivity Revolution for Strong Industry, High Growth and Prosperity in Rural Areas
- (12) Distribution Productivity Revolution: Realization of Efficient, High-Value-Added Smart Distribution
- (13) Road Distribution Innovation: Improving Truck Transportation Productivity
- (14) Tourism Industry Revolution: Making the Tourism Industry a Core Industry of Japan (Lodging Industry Revolution)
- (15) Sewer System Innovation: Strategy for Creating “Made-in-Japan” Resources
- (16) Railway Industry Revolution: Increasing Productivity through Next-Generation Technology

◆Projects to increase productivity in future-oriented investing and new technology

- (17) Using Big Data for Transportation Safety Measures
- (18) Overseas Expansion of Quality Infrastructure: Japan as a Spark for a Massive Market
- (19) Automobile ICT Revolution: Combining Autonomous Driving and Pilot Projects
- (20) Creation of Climate Business Market



Source) MLIT

(2) MLIT Focus 2018

The MLIT will prepare a publication called “MLIT Focus” to introduce the various efforts and policies it is implementing in each new fiscal year. The publication will focus on novel, highly creative policies that fit the theme for the year.

The MLIT regards 2018 as a year of intensification for the productivity revolution, and is working to make individual efforts carried out to date stronger and more concrete as well as to make the approach of creating the largest possible output from even the smallest input—the foundation of the productivity revolution—permeate throughout every policy area in the administration of national land and transportation.

“MLIT Focus 2018,” which was released on March 27, 2018, and is the first edition, contains 28 policies to be implemented in FY 2018 that fit the theme of providing innovation through (1) ensuring safety and security, (2) strengthening the capacity for economic growth by promoting productivity improvement, and (3) building communities to help improve social activity and the quality of life (Figure 1-4-3).

Figure 1-4-3 MLIT Focus 2018

◆Ensuring safety and security

- (1) Shifting to a Society with Higher Disaster Prevention Awareness
- (2) Intensification of Efforts toward Ensuring Transportation Safety and Security
- (3) Expressway and Local Road Safety Measures that Combine Structural and Non-Structural Elements
- (4) Promotion of Electric Power Pole Removal to Prevent Disasters and Ensure Safe, Smooth Transportation
- (5) Improvement of Station Platform Safety through Efforts on Both Structural and Non-Structural Fronts
- (6) Creating Maritime Safety: Toward the Realization of Safe, Efficient Maritime Activities

◆Strengthening of economic growth capacity through the promotion of productivity improvement, etc.

- (7) Intensification of i-Construction
- (8) Automobile ICT Revolution: Combining Autonomous Driving and Pilot Projects
- (9) Distribution Innovation
- (10) Improvement of Productivity and Convenience of Taxis and Buses
- (11) Development of Maritime Industries and the Human Resources to Support Them: Intensification of the Maritime Productivity Revolution
- (12) Intensification of Efforts to Realize a New Era for Cruises
- (13) Realization of World-Class Airport Services

- (14) Improvement and Advancement of Tourism Infrastructure, Tourism Industry Revolution and Reinvigoration of Tourism Resources toward Becoming an Advanced Tourism Nation

- (15) Promotion of the Use and Open Provision of Overland and Maritime Data

- (16) Creation and Expansion of a Climate Business Market: Promoting the Effective Use of Climate Data

- (17) Overseas Expansion of Quality Infrastructure: Strengthening the System for Robustly Promoting Overseas Expansion

- (18) Work Style Reform in the Construction Industry: Improving Working Environments, Securing/Cultivating Leaders

- (19) Work Style Reform in the Automobile Transportation Industry, etc.

◆Community building to help improve social vitality and the quality of life

- (20) Using the Tokyo Olympic and Paralympic Games to Promote Universal Accessibility

- (21) Promoting the Introduction of a Concessions Industry

- (22) Environmental Innovation

- (23) Innovation in the Use of Little-Used and Unused Real Property

- (24) Shimakaze Concept: Using Island Culture to Create a Refreshing Approach

- (25) Developing Parks to Commemorate Earthquake Disasters and Sustain History and Culture, etc.

- (26) Road Infrastructure Development toward Creating Appealing Tourist Sites

- (27) Focused Development of International Exchange based on Public-Private Partnerships

- (28) Creating Safe, Comfortable Environments for Bicycle Use



Source) MLIT

Chapter 2 Public Awareness and Desires Regarding Lifestyle

In light of the current condition of lifestyles associated with labor, leisure time, generation, and place of residence, as shown in Chapter 1, in Chapter 2 we look at different lifestyles as they are and as people want them to be, depending on generation and place of residence, based on an opinion survey (nation attitude survey)^{Note 15} that we administered to the general public.

Note that in this chapter “lifestyle” is classified, organized, and aggregated into four elements: “work,” “leisure,” “housing,” and “mobility.”

Section 1 Awareness of and Desires Regarding Work

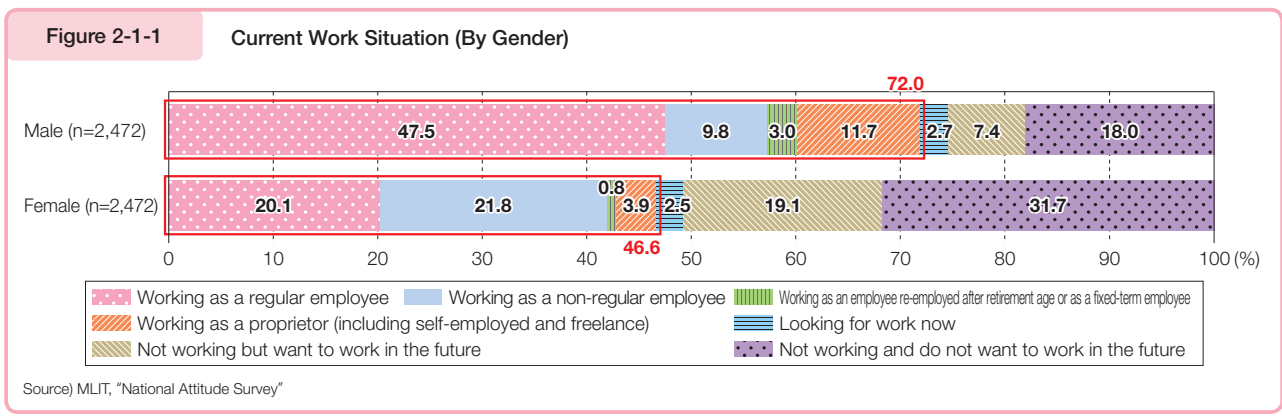
It is assumed that with the arrival of “the 100-year life,” healthy lifespans will increase and people will be able to work for a longer period. That is why it is thought that changing the way people work during their lives will have a major impact on the enhancement of lifestyle overall.

In this section, we organize points such as the public’s motivation to work and things considered important in work by age and place of residence. We then look at the issues and desires for all people to achieve their preferred working style and participate actively in the world of work.

1 Public Awareness Regarding Work

(Women’s high will to work)

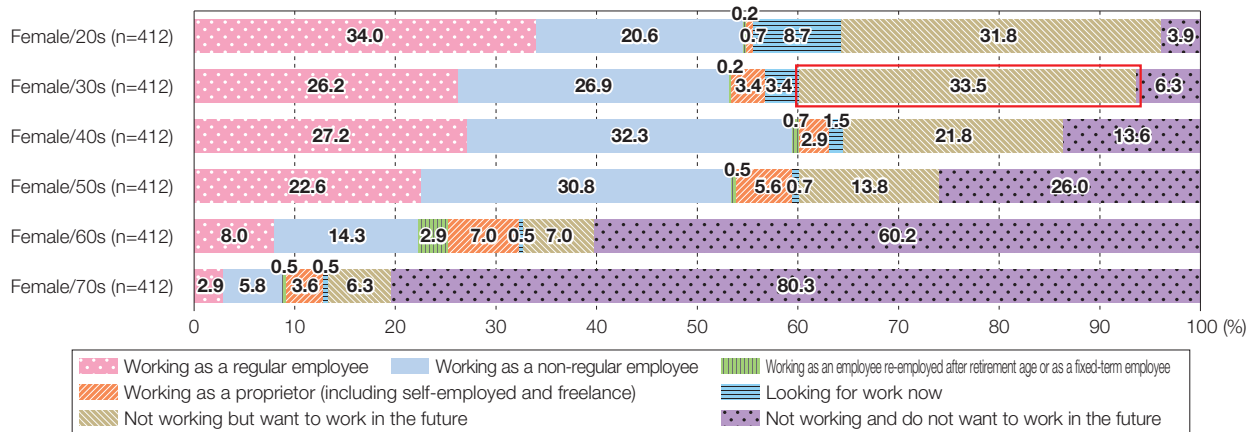
A look at the current work situation shows that 72.0% of men and 46.6% of women are working. Also, there are fewer women in regular employment than non-regular employment. Thus, the labor situation still differs between men and women (Figure 2-1-1).



Note 15 The survey was administered online to individuals throughout Japan in February 2018 (4,944 people responded). The survey was administered to approximately 100 people in each of 48 categories: Two categories of gender (male, female), six categories of age range (20s, 30s, 40s, 50s, 60s, 70s, with 20s including 18 and 19 year olds), and four categories for place of residence (the three major metropolitan areas; government-designated cities, prefectural capitals, and core cities; municipalities with a population of 50,000 or more; municipalities with a population under 50,000).

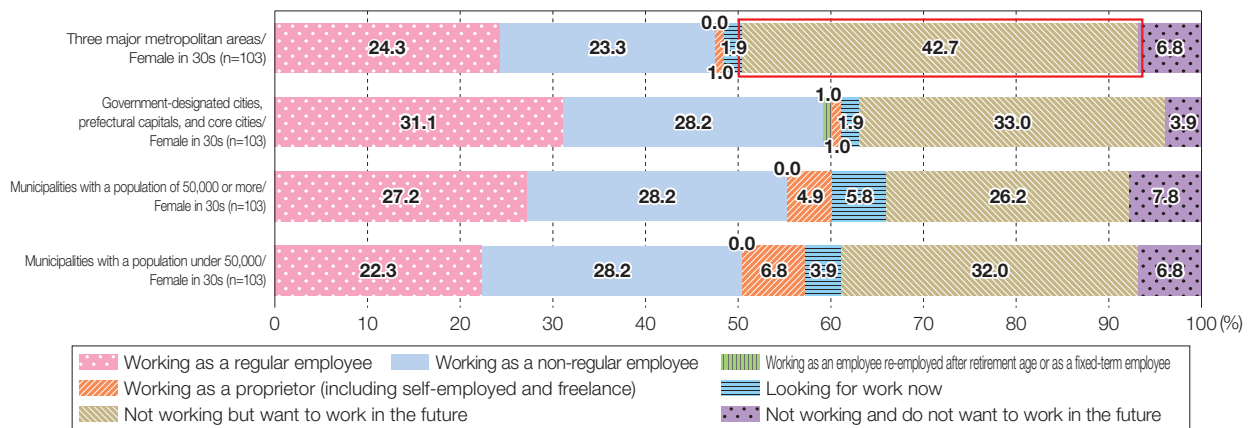
Moreover, the percentage of people who responded that they are “not working but want to work in the future” was 7.4% for men in contrast to 19.1% for women. Furthermore, among women, the percentage was highest for women in their 30s (Figure 2-1-2) and, among that group, especially high among women living in the three major metropolitan areas (Figure 2-1-3). We can see from this that the three major metropolitan areas have more women who want to work but cannot right now than in other locations. We surmise that the reasons for this include the facts that husbands have long working hours (time spent working + time spent commuting) and women have a large housework/child-rearing burden, as mentioned in Section 2 of Chapter 1 [Note 16](#).

Figure 2-1-2 Current Work Situation (Female/By Age)



Source) MLIT, "National Attitude Survey"

Figure 2-1-3 Current Work Situation (Female in 30s/By Place of Residence)



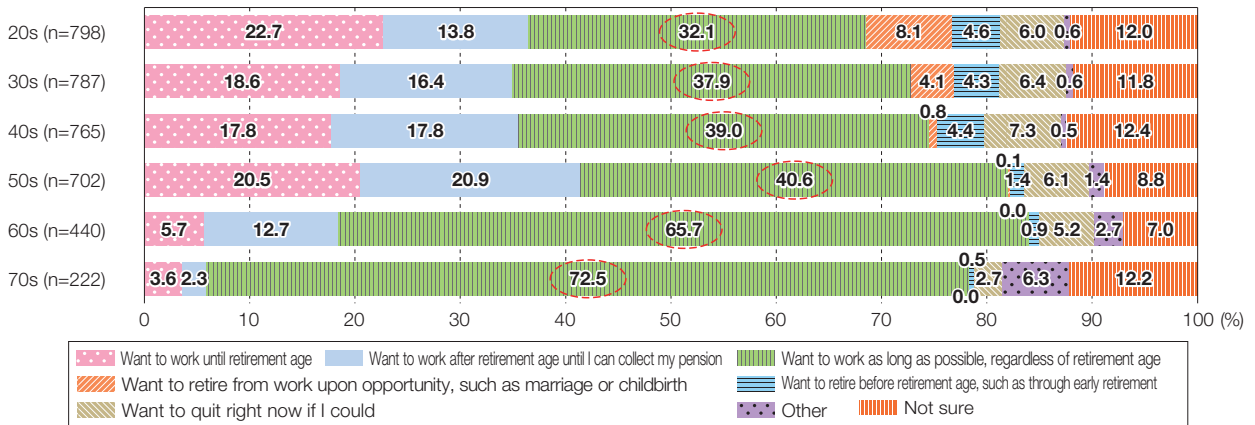
Source) MLIT, "National Attitude Survey"

(Desire to work for a long time)

Next, when we asked people who are currently working how long they would like to work, many people across all ages replied that they would “like to work as long as possible, regardless of retirement age.” This trend becomes more obvious the higher the age bracket. We surmise that the reasons for this include the fact that the upper age brackets easily see themselves continuing to work after retirement age, taking it as an achievement of a longer lifespan and in order to maintain contact with society (Figure 2-1-4).

Note 16 See Chapter 1, Section 2, 2. (2) Characteristics of Urban Lifestyles.

Figure 2-1-4 Desire to Work (By Age)



Source) MLIT, "National Attitude Survey"

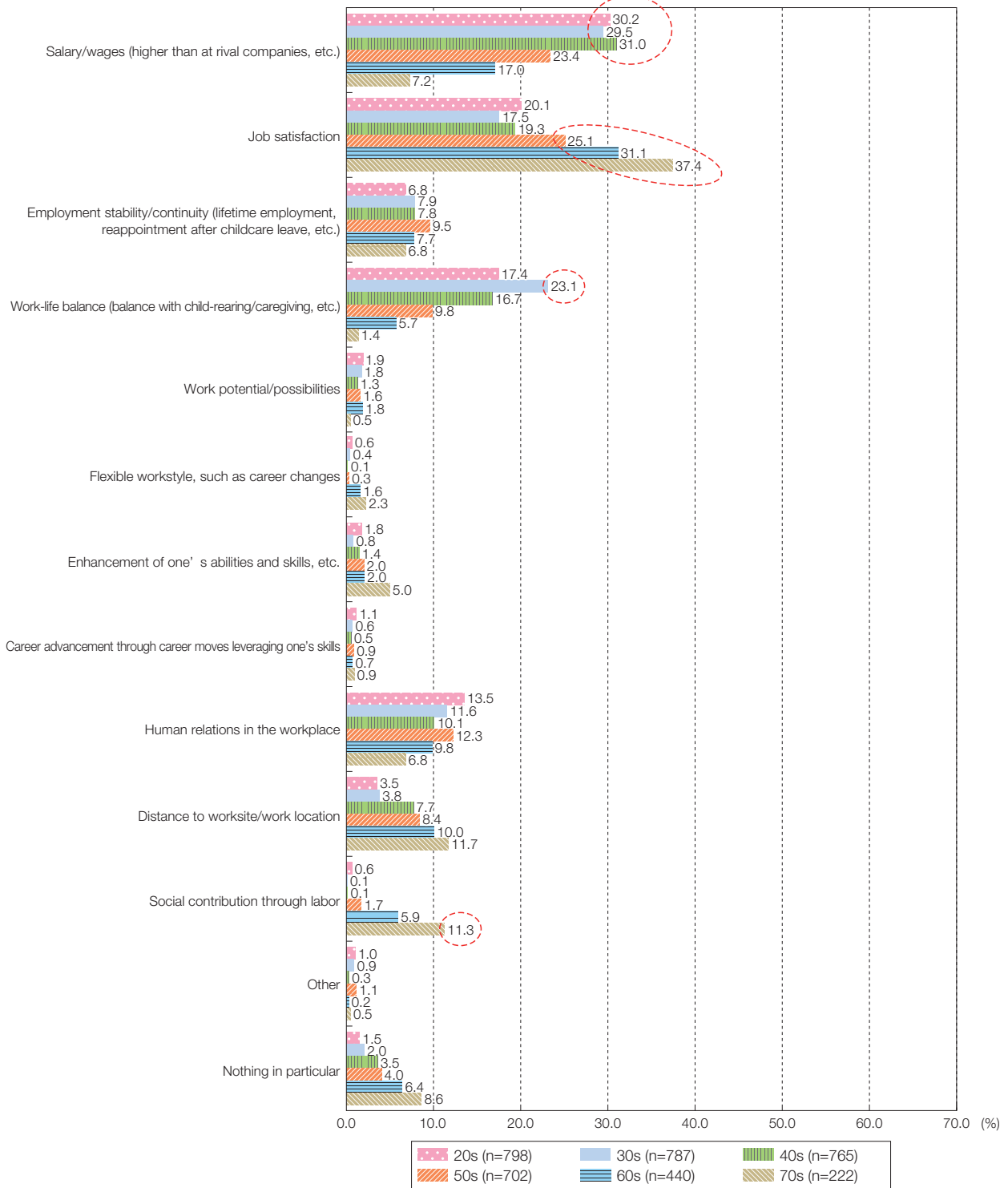
(Things considered important in work, which differ by generation)

The things considered most important in work tend to differ by one's stage in life. People in their 20s to 40s see "salary/wages" as most important whereas people in their 50s to 70s view "job satisfaction" as most important (Figure 2-1-5).

Among people in their 20s, "salary/wages" are ranked as most important by 30.2%, followed by "job satisfaction" at 20.1%. At this age there is a tendency to desire rewarding work while valuing compensation.

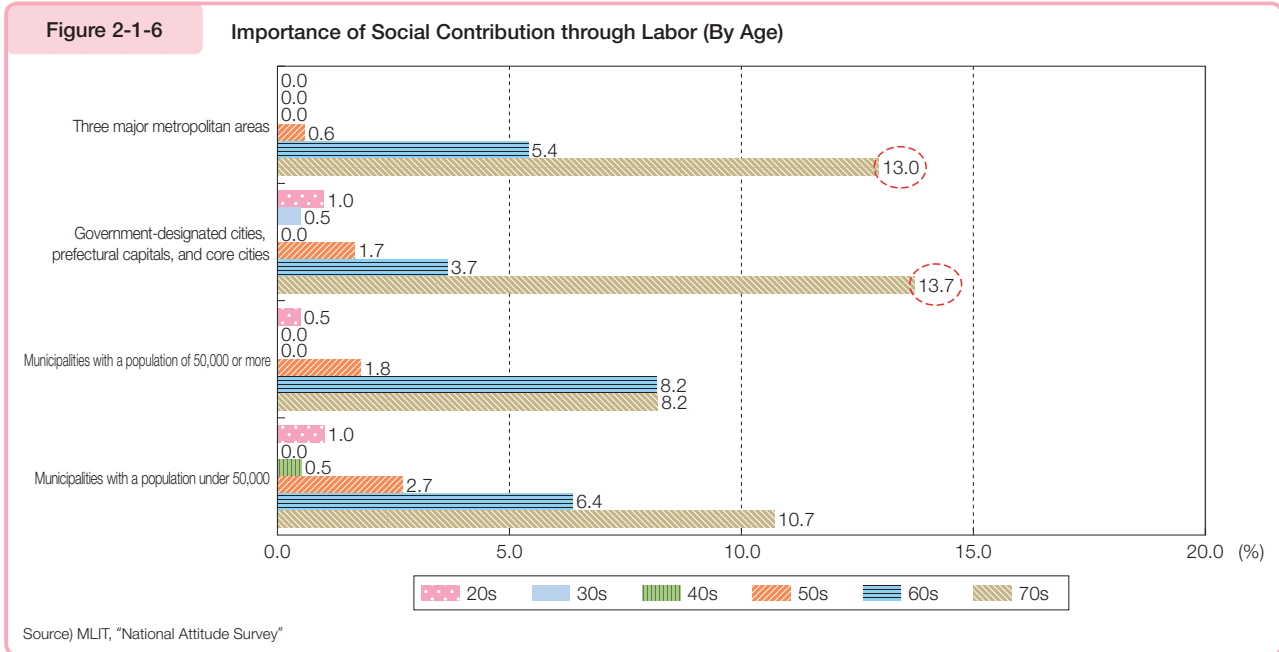
There were more responses stressing "work-life balance" among people in their 30s than other age brackets. The 30s is an age when many people are dealing with child rearing and caregiving, and we surmise that people in this age bracket therefore view balance between work and home life as more important than job satisfaction.

Figure 2-1-5 Things Considered Important in Work (By Age)



Source) MLIT, "National Attitude Survey"

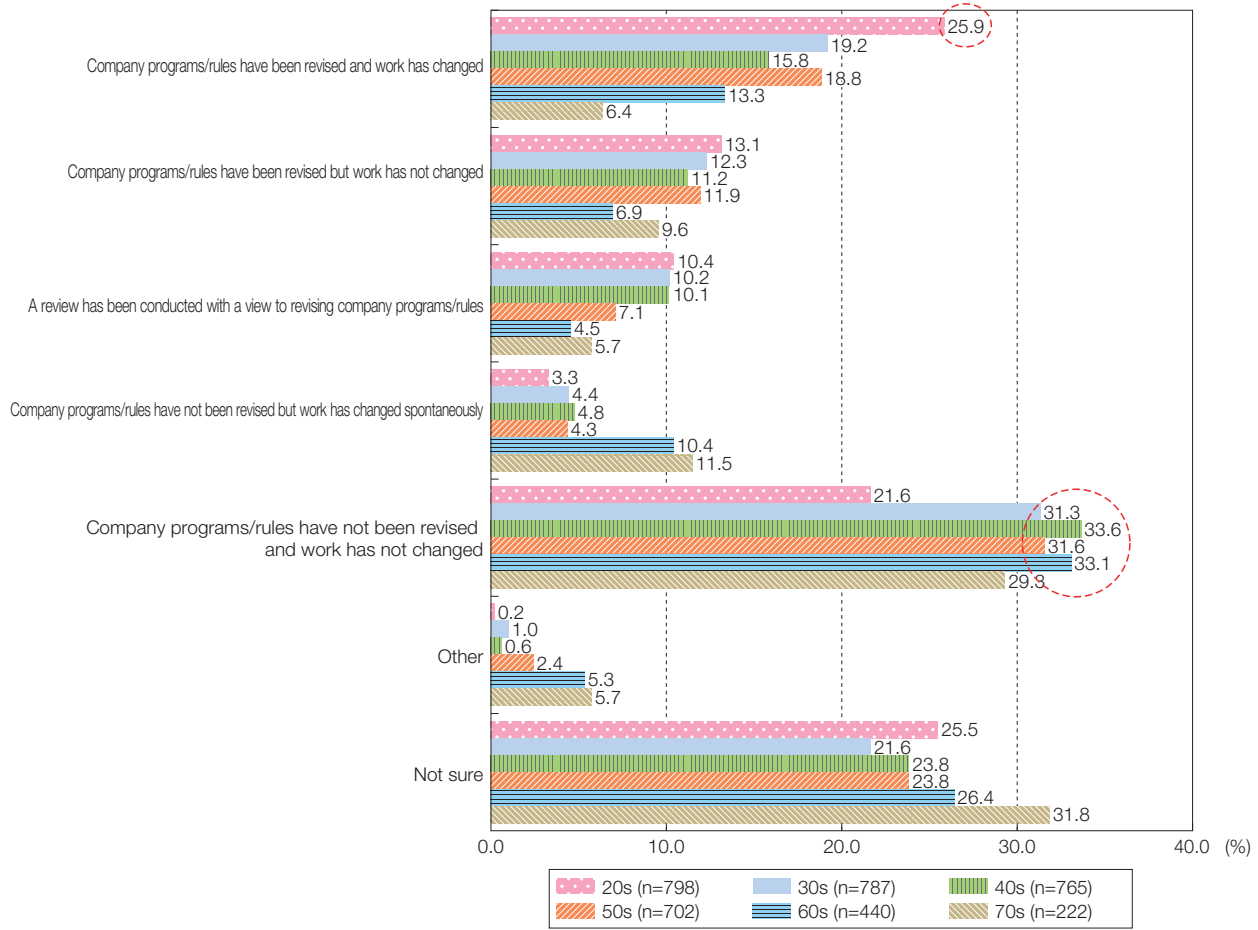
“Social contribution through labor,” on the other hand, was highest among people in their 70s. This tendency was large in the three major metropolitan areas as well as government-designated cities, prefectural capitals, and core cities. We surmise that the larger a community’s population, the higher its consciousness of wanting to contribute to society, rather than just derive income through labor (Figure 2-1-6).



(Requirements to change work)

Our survey on the existence of programs/rules for changing work at places of employment and their practical use showed a large gap in responses by age. Among people in their 20s, the largest response was, “Company programs/rules have been reviewed and work has changed.” Among people in their 30s to 60s, on the other hand, the largest response was, “Company programs/rules have not been reviewed and work has not changed” (Figure 2-1-7). Based on this, we surmise that changes in attitude toward work and the use of programs for changing work have started to make the most progress among the age bracket of people with a short history as working adults.

Figure 2-1-7 Implementation of Programs/Rules for Changing Work at Places of Employment and Their Practical Use (By Age)



Source) MLIT, "National Attitude Survey"

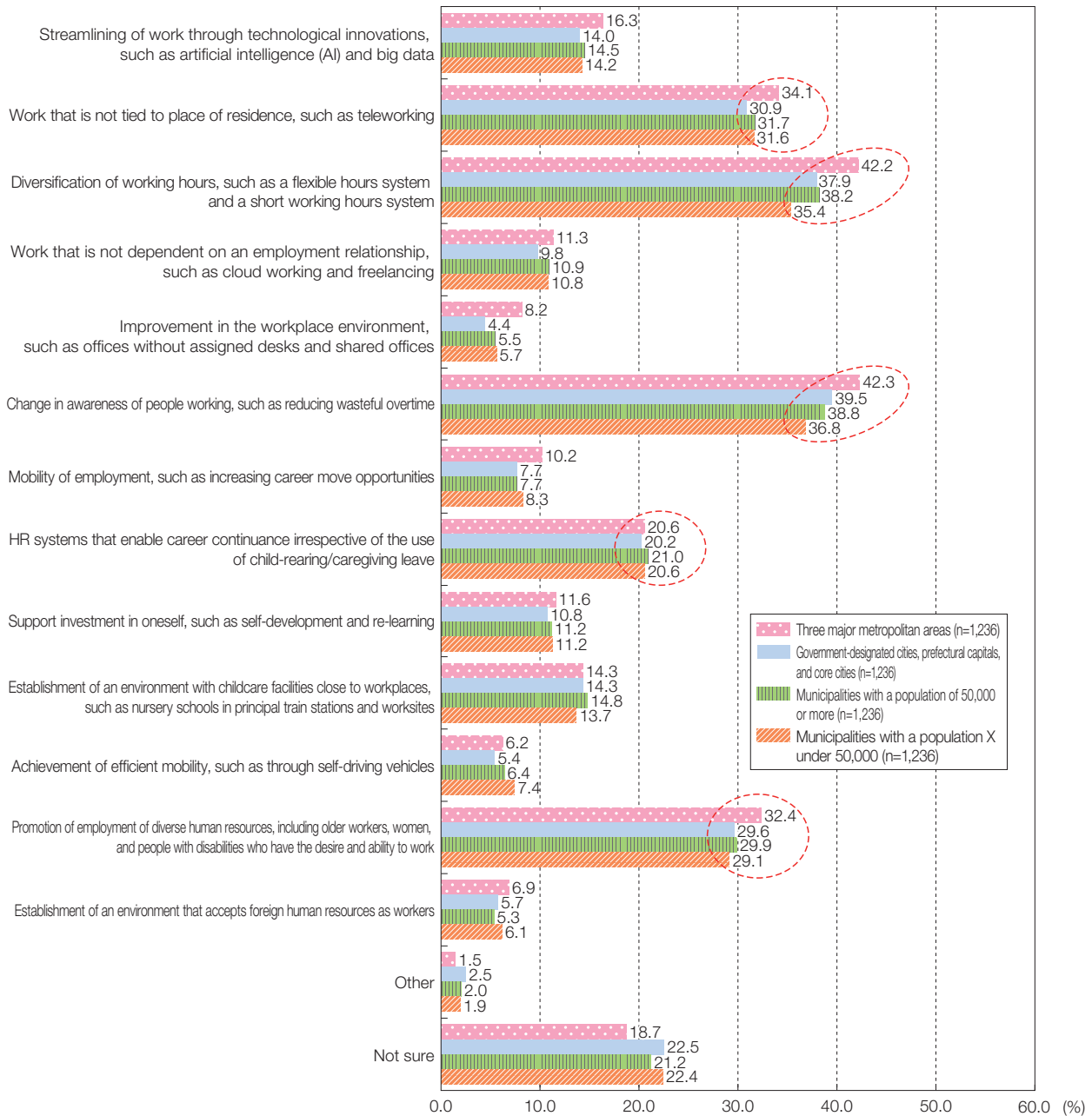
Next, we look by place of residence at what kinds of initiatives people think are needed for changing work.

The largest response in all places of residence was, "Change in awareness of people working, such as reducing wasteful overtime." There is a need to develop new attitudes that shift away from the custom of long working hours (Figure 2-1-8).

In addition, "Diversification of working hours, such as a flexible hours system and a short working hours system" and "Work that is not tied to place of residence, such as teleworking" had the most responses as specific initiatives. This kind of work with few constraints on time and place is in greater demand in the three major metropolitan areas compared to other places of residence. We surmise that this is due to facts such as the longer working hours (time spent working + time spent commuting) and higher awareness of improving the quality of time in the three major metropolitan areas than in other regions.

The next initiative with a high number of responses in the three major metropolitan areas and elsewhere was, "Promotion of employment of diverse human resources, including older workers, women, and persons with disabilities who have the desire and ability to work." With Japan's workforce projected to decline, there is a need to make use of older workers and women, etc., who are highly motivated to work. Also, since "HR systems that enable career continuance irrespective of the use of child-rearing/caregiving leave" was a high response regardless of place of residence, there is a need to establish systems that allow people to keep working in their current careers.

Figure 2-1-8 What is Needed to Change Work (By Place of Residence)

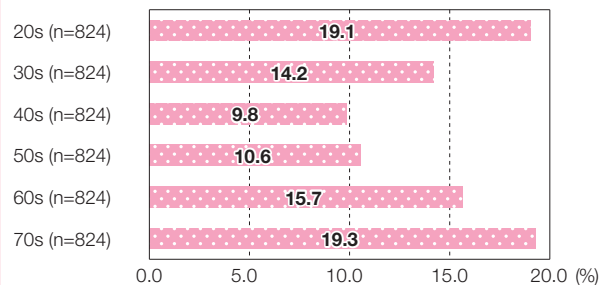


Source) MLIT, "National Attitude Survey"

Another item that is going to become important along with the securing of workers is increasing productivity. Progress in technological innovations such as AI is therefore attracting attention in various fields. Analyzed by age, the higher percentages of people in our survey who chose "Streamlining work through technological innovations such as artificial intelligence (AI) and big data" were in the lower and upper age brackets. We surmise that there could be a willingness to actively embrace technological innovations not only among the younger age bracket, which uses the Internet a lot on a routine basis and is thought to be the cen-

Figure 2-1-9

Streamlining Work through Technological Innovations such as Artificial Intelligence (AI) and Big Data (By Age)



Source) MLIT, "National Attitude Survey"

ter of technical innovation, but also among the upper age bracket for such purposes as work continuance (Figure 2-1-9).

2 Desires Regarding Work

(1) Achieving Diverse Working Styles According to Life Stage

The things considered important in work are diverse, according to one's stage in life. An environment needs to be developed that allows all people to keep working in their desired way.

(Fulfillment of the will to work)

There is a desire among those who are not working now to work in the future, especially among women in their 30s. There is a need for systems that allow people to keep working without interrupting their careers due to child-rearing/caregiving or to start working again after resigning or taking a leave of absence.

Also, across all ages, many people hope to keep working for a long time, regardless of the age of retirement. Furthermore, the upper age bracket attaches importance to contributing to society through labor, rather than just deriving income. Among younger age brackets, including the 20s, many people desire a sense of job satisfaction even as they emphasize the importance of salary/wages. This indicates the need to establish an environment in which people can continue to do rewarding work, such as by establishing systems that support the continuance of or moves into jobs that use skills and for improving one's skills.

(Achievement of work-life balance)

Especially among people in their 20s to 40s, there is a need to achieve work-life balance, including securing time for housework/child-rearing while working and valuing personal time, in order to work in good mental and physical health. This indicates the need to diversify places of work through the use of telework and satellite offices as well as for initiatives to facilitate work with few constraints on time and place, such as diversification of working hours through a flexible hours system and a short working hours system, etc.

(2) Streamlining Work through Changes of Attitude and Technological Innovation

As Japan's workforce decreases due to a declining and rapidly aging population, it is of great importance to increase productivity along with securing diverse human resources, including women, older workers, and persons with disabilities as workers. That will require a change in the awareness of people who are working, such as reducing wasteful overtime. It will also require efforts to streamline work by introducing innovations such as AI and big data in all fields and across all generations, including the younger age bracket, which has a high affinity for using the Internet and which is thought will be at the center of the 4th Industrial Revolution.

Moreover, in order to keep working for a long time with a sense of satisfaction amid such progressing technological innovations, human resources must be able to adapt to the changing times. Accordingly, there is a need to create opportunities for relearning with the objective of updating one's skills.

Section 2 Public Awareness and Desires Regarding Leisure

Enriching one's free time leads to a richer life overall and, by refreshing the mind and body, also translates into a richer work life.

In this section, we organize the current condition of leisure time and leisure time that people wish to enhance, based on age and place of residence. We also look at what is needed to enhance leisure time.

Also, participating in community activities, volunteer activities and other activities that benefit society^{Note 17} can become an "enjoyment" for that person by giving him or her a sense of reward and purpose. That is why, in this section, we introduce awareness of social contribution activities, taking them as a kind of "leisure."

Note 17 Social contribution activities, such as community activities and volunteering, are the same as defined in Note 10 in Chapter 1, Section 1.

1 Public Awareness Regarding Leisure

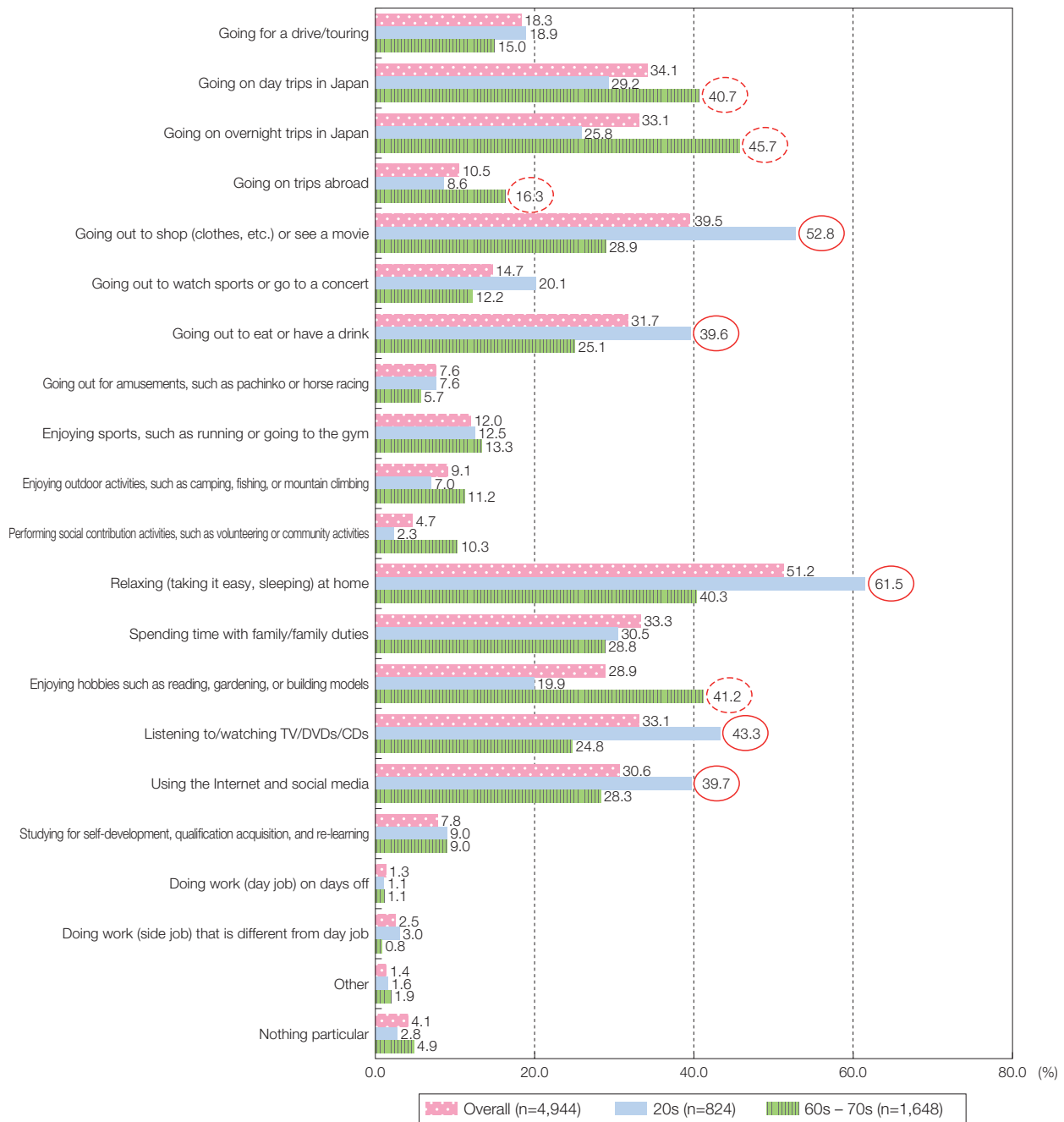
(Diverse kinds of leisure time)

Leisure time is spent in a great variety of ways depending on age. There is a large difference in how leisure time is spent, especially between people in their 20s and those in their 60s and 70s. There is also a difference in their spheres of activity.

People in their 20s tend to spend leisure time indoors, such as at home, with the highest percentage (61.5%) “Relaxing (taking it easy, sleeping) at home” or “Listening to/watching TV/DVDs/CDs” and “Using the Internet and social media.” As for going out, most responses indicated spending time casually nearby, such as “Going out for shopping or to see a movie” and “Going out to eat or have a drink” (Figure 2-2-1).

People in their 60s and 70s, on the other hand, spend a higher than average amount of leisure time “Going on overnight trips in Japan,” “Going on day trips in Japan,” and “Going on trips abroad.” We can say that their sphere of activity is broader than that of people in their 20s. When they do spend time at home, it is often in “Hobbies” such as reading, gardening, and building models,” suggesting they even at home they engage in relatively active endeavors.

Figure 2-2-1 Ways of Spending Leisure Time (Overall / 20s / 60s – 70s)



Source) MLIT, "National Attitude Survey"

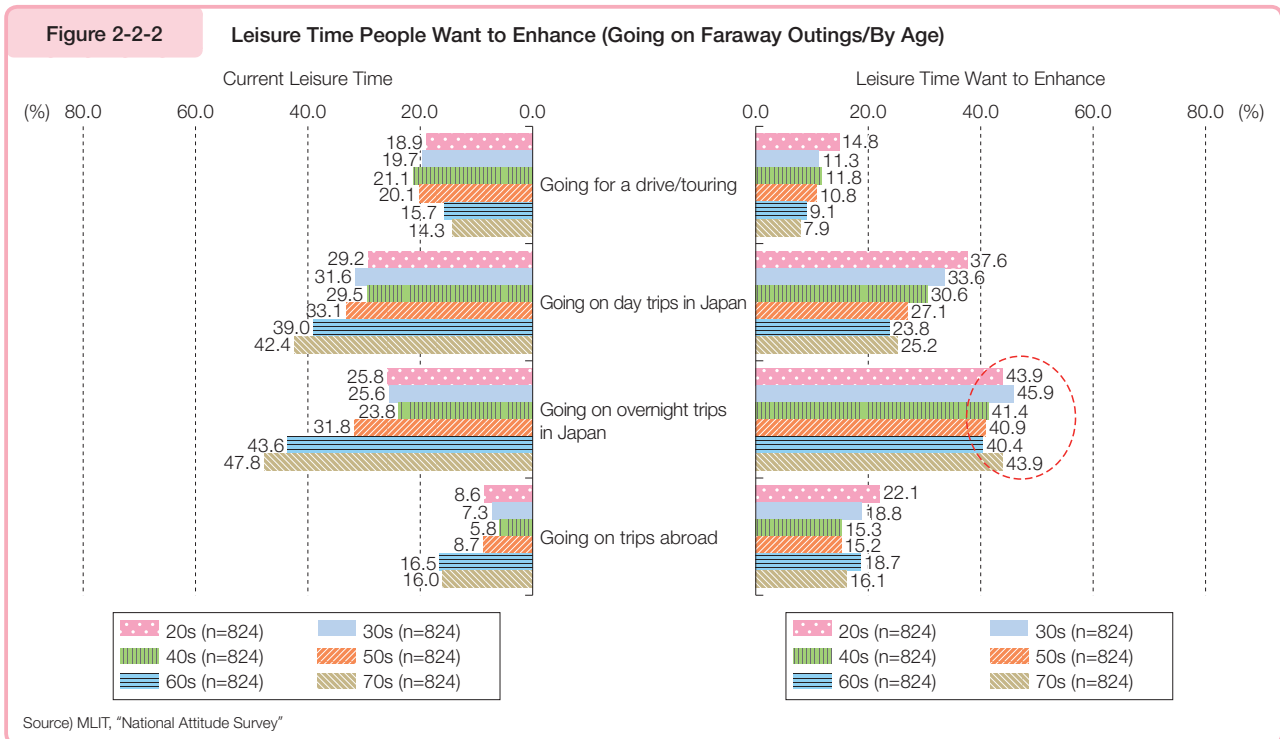
(Leisure time that people wish to enhance)

We asked people what kind of leisure time they would like to enhance if their work changed as a result of correcting long working hours and achieving work-life balance. The replies indicated a latent wish to expand spheres of activity more than now and a desire to enhance time for personal growth, including personal development and re-learning.

■ Expansion of sphere of activity

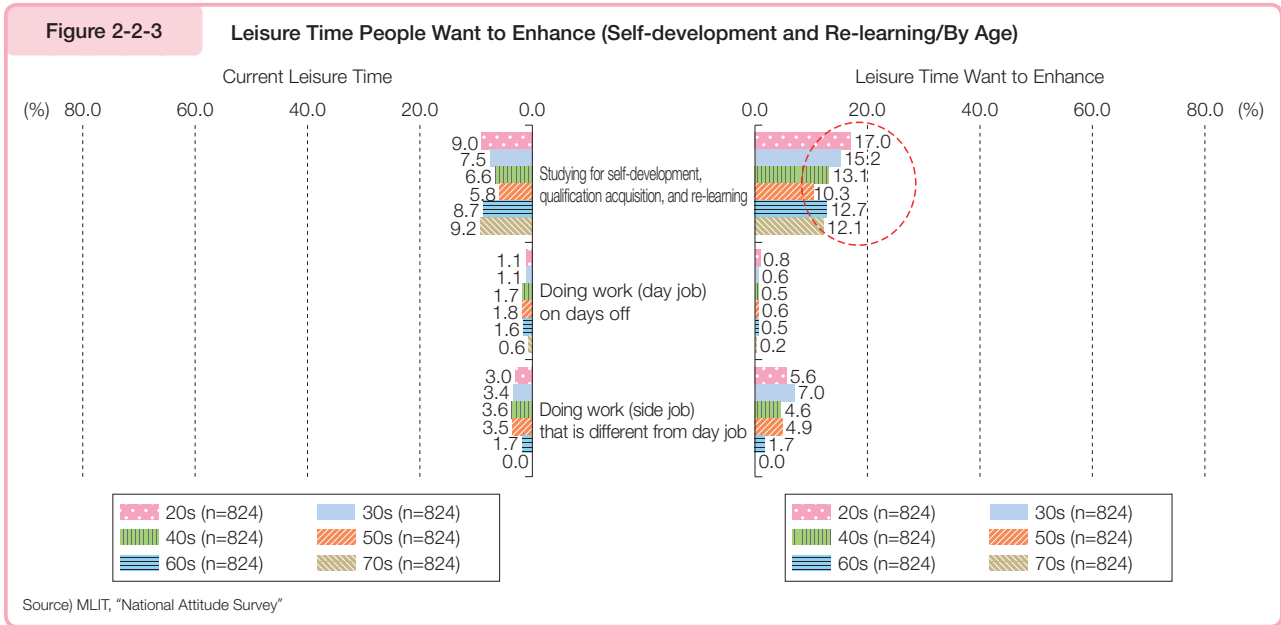
Currently, people in their 20s to 50s have less leisure time to spend traveling to faraway places than people in their 60s to 70s (Figure 2-2-2). However, when asked about leisure time that they would like to enhance if changing work created time, many people replied that they would “like to go traveling.” We therefore surmise that there is a latent wish to expand one’s sphere of activity.

Also, among the kinds of traveling, many people in each age bracket gave “Going on overnight trips in Japan” as leisure time that they would like to enhance. Thus, there is a demand for attractive travel in Japan (Figure 2-2-2).



■ Enhancement through self-development and re-learning

Few people gave “Studying for self-development, qualification acquisition, and re-learning” as a way they currently spend leisure time; for people in their 20s to 40s it was 9.0%, 7.5%, and 6.6%, respectively. In contrast, their replies indicating a desire to enhance this in the future were 17.0%, 15.2%, and 13.1%, respectively, a nearly twofold increase over the present (Figure 2-2-3). Although the total numbers were small, the same trend appeared in replies for, “Doing work (a side job) that is different from one’s day job.” Based on this, we surmise that there are people who, in anticipation of “the 100-year life,” aspire to new ways of work by re-learning and doing side jobs to update and improve their skills.



(The things lacking for enjoying leisure time)

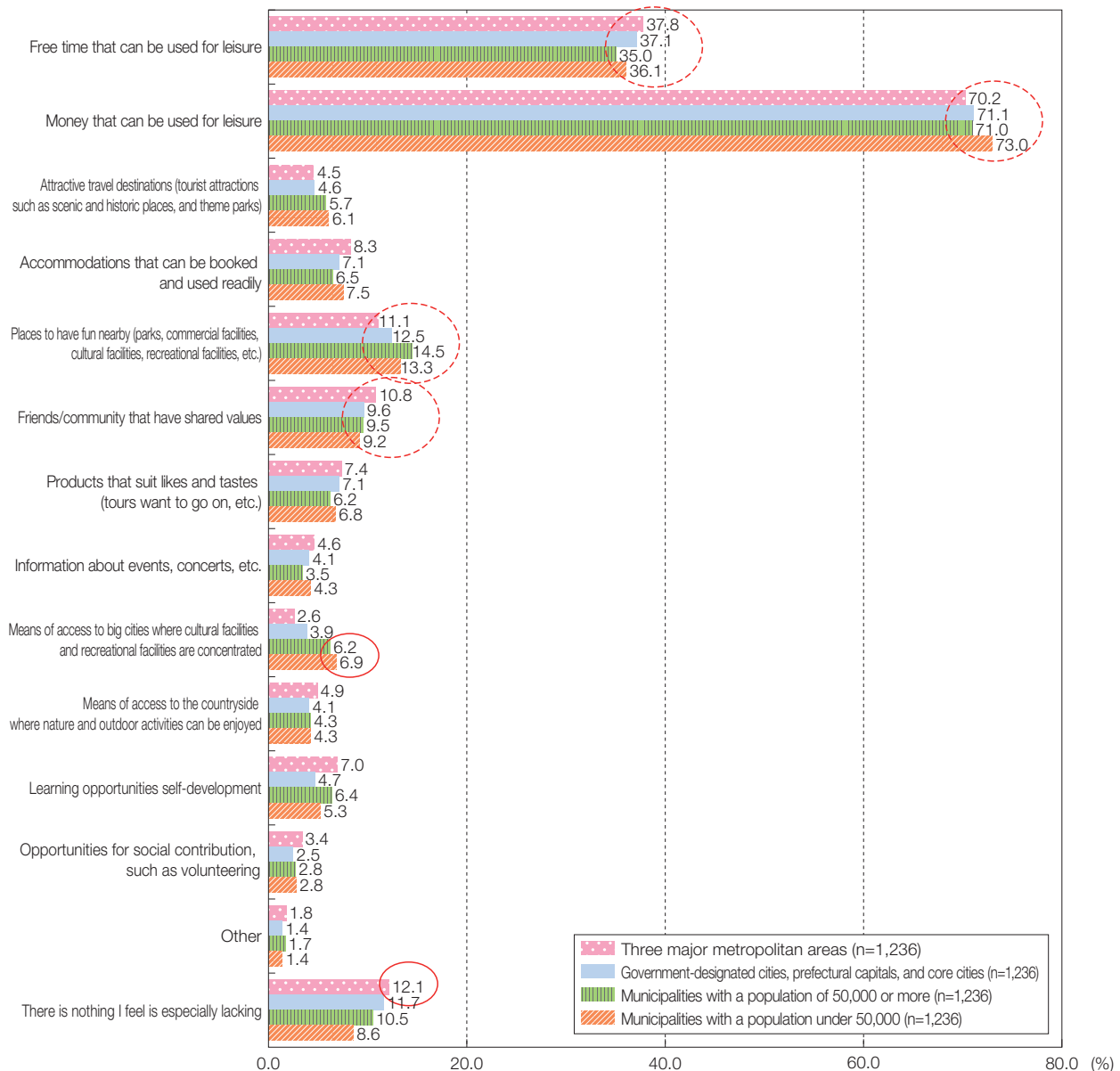
“Money” and “time” are given by a lot of people as things that are lacking for enjoying leisure time. In order to increase time for leisure, there is a need to make efforts to change work and to provide places where people can have carefree fun without spending money and time (Figure 2-2-4).

Looking by place of residence at things besides “time” and “money” that are lacking, we see that “There is nothing I feel as especially lacking” is a somewhat higher trend, at 12.1%, in the three major metropolitan areas as compared to other places of residence, indicating a relatively lower sense of inadequacy regarding leisure time.

Also, many people across all regions feel that there are not enough “Places to have fun nearby (parks, commercial facilities, cultural facilities, recreational facilities, etc.)”. With regard to this, the smaller an area’s population, the more people indicated the lack of “Means of access to big cities where cultural facilities and recreational facilities are concentrated.” We therefore surmise that were the convenience of public transportation to improve, people could offset the sense of inadequacy regarding “Places to have fun nearby” by using facilities in big cities.

The next highest reply, regardless of place of residence, was “Friends/community that have shared values.” This suggests a sense of inadequacy regarding connection, such as companions to spend leisure time with.

Figure 2-2-4 Things Lacking to Enjoy Leisure Time (By Place of Residence)



Source) MLIT, "National Attitude Survey"

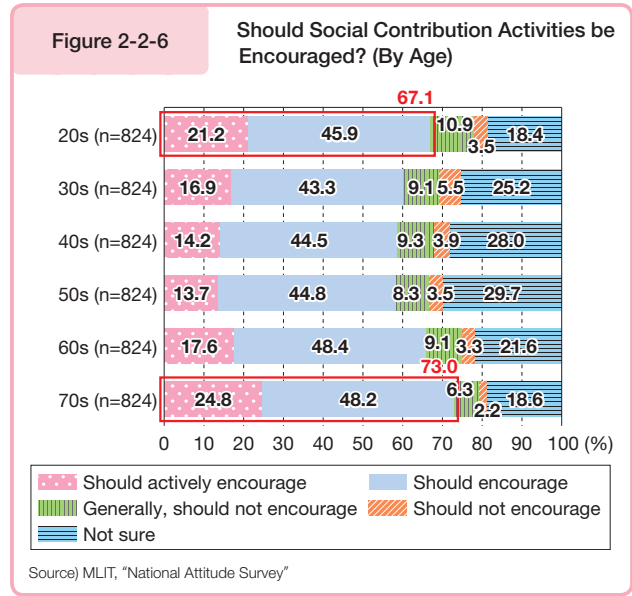
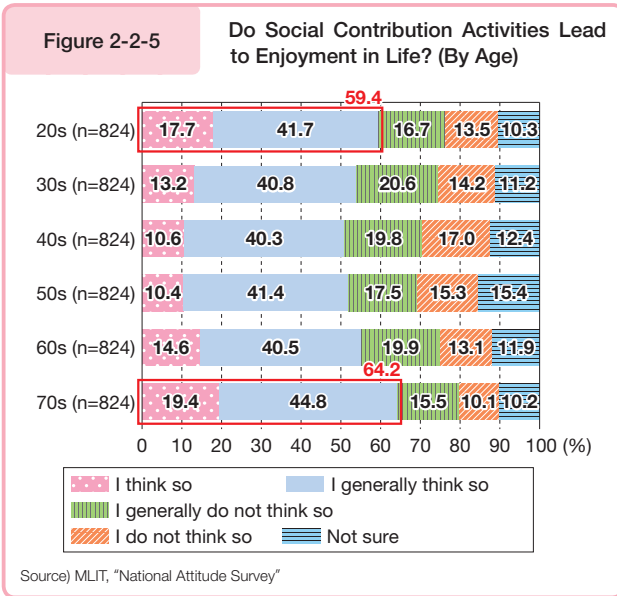
(Social contribution activities as an enjoyment in life)

In this section, we take the feeling of purpose in life that comes from participating in social contribution activities such as community activities and volunteering as "enjoyment" in the broad sense, not just using one's own time freely.

Overall, many people replied that using leisure time to participate in social contribution activities leads to enjoyment in life (Figure 2-2-5). Of those, the total percentage of people in their 20s and 70s who replied that they "agree" or "generally agree" were 59.4% and 64.2%, respectively. These are higher than for other age brackets, suggesting their high awareness regarding social contribution activities.

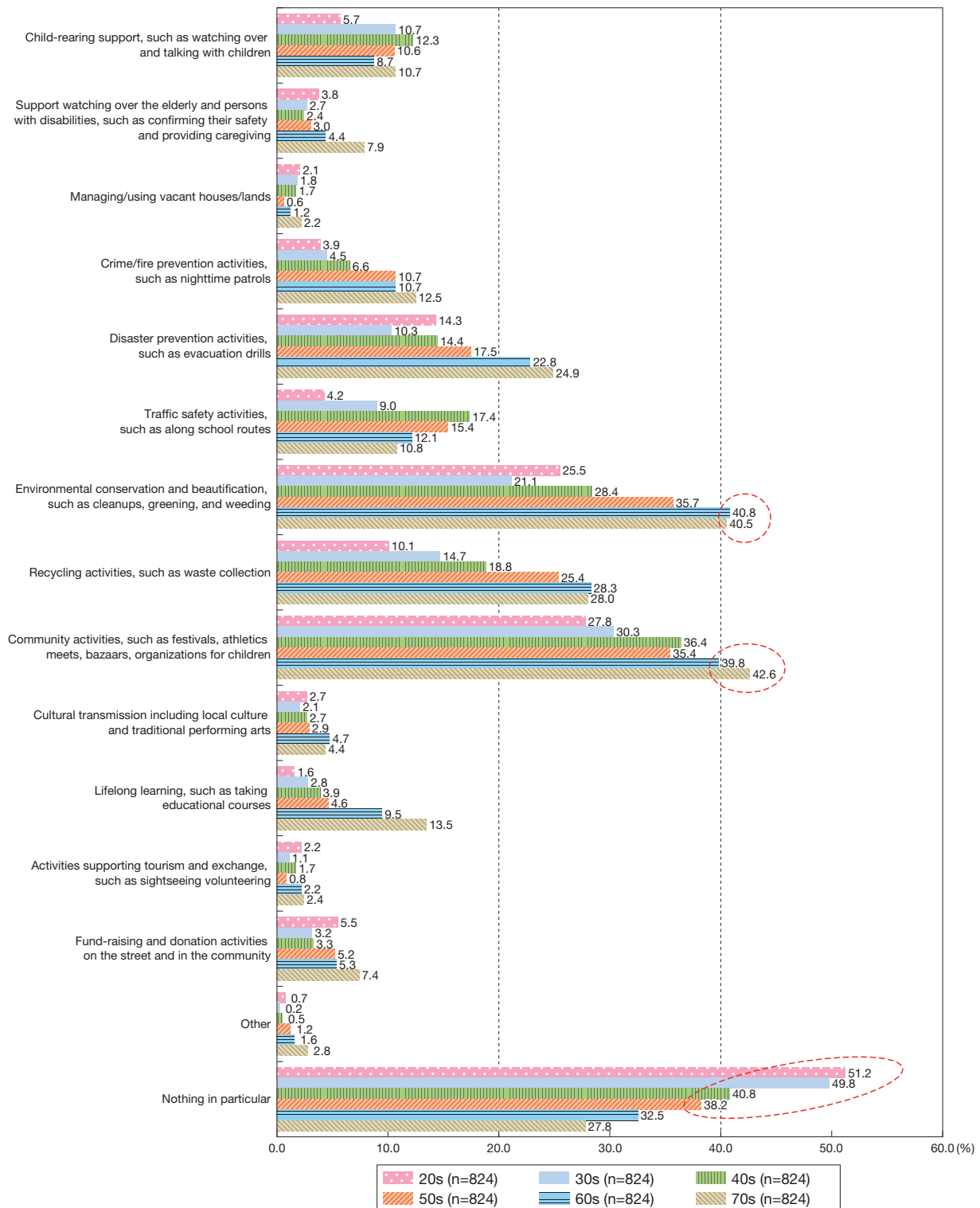
We also asked people whether efforts should be made to encourage (spread) the use of social contribution activities in community development. As in Figure 2-2-5, there were many affirmative responses in each age bracket, with an especially high percentage of 73.0%, combining "Should actively encourage" and "Should encourage," among people in their 70s (Figure 2-2-6). The next highest percentage, at 67.1%, was for people in their 20s. This suggests that the social contribution-minded age brackets have a high awareness regarding the use of social contribution activities in community development. Japan is in a tight fiscal situation, and it is thought that maintaining the same level of government services

as in the past will become difficult. Accordingly, the question of how to capitalize on this public drive is important.



While people say in this way that they have a desire to participate in social contribution activities, when we look at actual participation by age, we see that people in their 60s and 70s participate mainly in festivals and cleanups, etc., and most people in the 20s to 50s replied "Nothing in particular" (Figure 2-2-7).

Figure 2-2-7 Actual Social Participation (By Age)

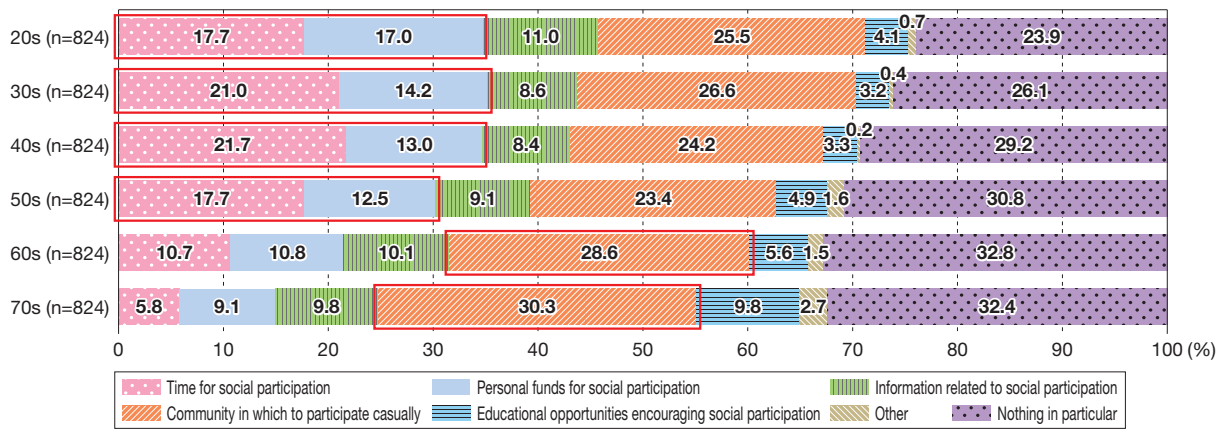


Source) MLIT, "National Attitude Survey"

Furthermore, when we asked people what was lacking to enhance social contribution activities, many people across all age brackets replied, "Community in which to participate casually," indicating the need for places of connection (Figure 2-2-8). This reply was especially high among people in their 60s and 70s, at 28.6% and 30.3%, respectively. Whereas other age brackets have communities such as places of employment and schools (including schools that family members attend), the upper age brackets have a lack of these kinds of communities. We therefore surmise that they need an impetus

to participate in social contribution activities.

Figure 2-2-8 Sense of Inadequacy for Enhanced Social Contribution Activities (By Age)



Source) MLIT, "National Attitude Survey"

Also, people in their 20s to 50s, more than the other age brackets, felt a lack of funds and time. It is therefore thought that there is a need for communities in which people can participate casually and increase their activities without spending money and time. Moreover, as we surmise that people in these age brackets have little time for leisure due to the pressures of daily living, including work, there is a need for initiatives to change work so as to achieve a work-life balance.

2 Desires Regarding Leisure

(1) Creating time for leisure

Nowadays, the ways of spending leisure time vary greatly by age. While there are differences in tastes among age brackets, it is thought that the length of time that can be spent on leisure also has a major impact. We surmise that if time for leisure could be created in the future, such as by correcting long working hours, it would be possible for people to go traveling, inside or outside of Japan, and to use time in forward-looking ways for the future, such as self-development. For that reason, there is a need for initiatives to change how people work.

Also, the efficiency of transportation to places for spending leisure time needs to be improved, both to broaden spheres of activity and to create time. Accordingly, there is a need for initiatives related to improvement of mobility, including the convenience of public transportation and mitigation of road congestion.

(2) Diversifying and Deepening Enjoyments

(Creation of places that can be enjoyed even more)

Given current conditions, many people feel a lack of time and money to spend on leisure time, necessitating places that can be enjoyed casually. Also, many people across all age brackets chose "Traveling in Japan" as a leisure activity that they would like to enhance in the future. Thus, there is a major desire to enhance domestic travel among the younger age brackets, in addition to the upper age brackets, among which many people currently spend leisure time traveling.

So, there is a need for initiatives to create places that can be enjoyed even further, by making use of existing resources and people and by increasing the attractiveness of sightseeing.

(Creating opportunities for re-learning)

At present, less than 10 percent of people in each age bracket allocate limited time for leisure to time spent in self-development and re-learning. However, there is a great deal of desire to enhance self-development and re-learning, if time permitted. Under these circumstances, "re-learning," in which one pursues self-improvement, will become more important in light of progress in technological innovation and the arrival of "the 100-year life," and so there is a need to create such opportunities.

(3) Enhancing Social Contribution Activities

Among the diverse ways to enjoy oneself, there is a latent group of people who seek purpose in life and take as enjoyment participation in social contribution activities such as community activities and volunteering. This drive is higher among people in their 20s and 70s, but we imagine that there are people who cannot satisfy this urge due to a shortage of activity funds or community. Based on this, there is a need to create places of social participation, including communities in which people can participate casually and increase their activities without spending money and time.

Also, currently, initiatives that leverage the public drive to participate in social contribution activities by volunteering for community development and infrastructure maintenance are already taking place in different areas. These are places that create connections among people, regardless of generation, and are also thought to create a purpose in life for each individual. In light of Japan's tight fiscal situation, it is important to further expand these kinds of activities.

Section 3 Public Awareness and Desires Regarding Housing

The home is the base of our lives and can be said to be the most important factor supporting lifestyle. That is why it is thought that enhancing housing will translate into a richer life, including “work” and “leisure.”

In this section, we organize public awareness regarding current and future housing by age and place of residence and, keeping this in mind, discuss desires regarding housing.

1 Public Awareness Regarding Housing

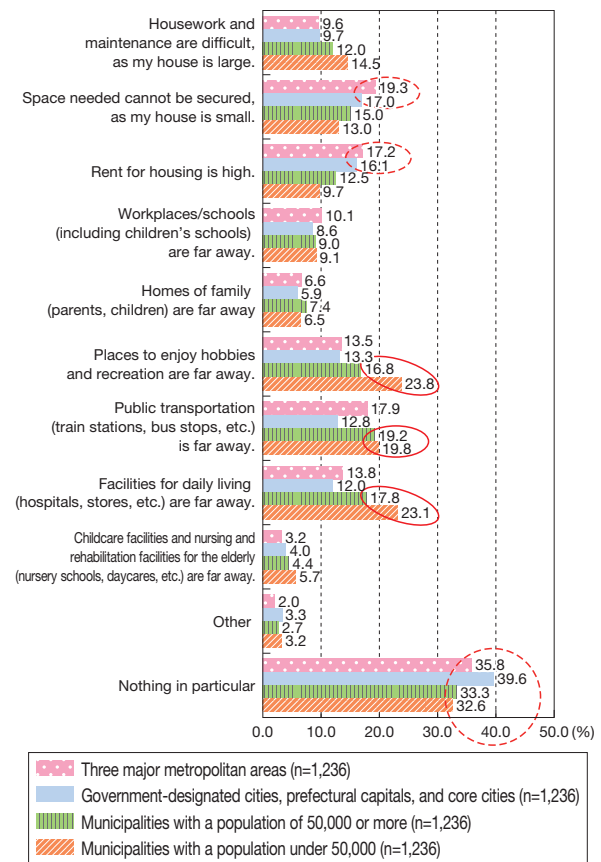
(Dissatisfaction with one's current home (residential area/housing))

Looking at dissatisfaction with one's current home (residential area/housing), the highest response in all regions was, “nothing in particular.” From this we surmise that, in general, there is little dissatisfaction with people's homes (Figure 2-3-1).

However, in the three major metropolitan areas, as well as in government-designated cities, prefectural capitals, and core cities, many responses indicated that, “Space needed cannot be secured, as my house is small,” and “Rent for housing is high.” Furthermore, in municipalities with a population of 50,000 or more and municipalities with a population under 50,000, many people replied that, “Places to enjoy hobbies and recreation are far away,” “Public transportation (train stations, bus stops, etc.) is far away,” and “Facilities for daily living (hospitals, stores, etc.) are far away.” Based on this, we see that the types of dissatisfaction with people’s homes differ by region, with higher dissatisfaction with housing itself, including floor space and rent, in the city and higher dissatisfaction with access to residential areas in the countryside.

Figure 2-3-1

Dissatisfaction with Current Home (Residential Area/Housing) (By Place of Residence)



Source) MLIT, "National Attitude Survey"

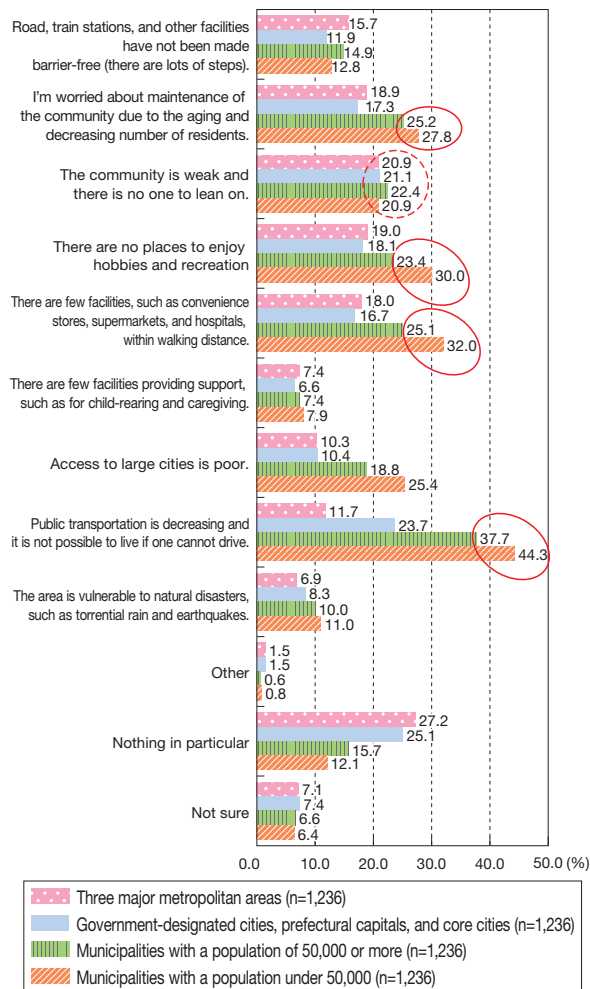
(Worries regarding one’s current home (residential area/housing))

Looking at worries regarding one’s current home (residential area/housing), high responses in all regions were, with regard to residential area, “The community is weak and there is no one to lean on” and, with regard to housing, “Maintenance and upkeep costs, such as renovations and repairs, are expensive” (Figures 2-3-2 and 2-3-3). In municipalities with a population of 50,000 or more and municipalities with a population under 50,000, the highest response was, “Public transportation is decreasing and it is not possible to live if one cannot drive,” followed by, “There are few facilities, such as convenience stores, supermarkets, or hospitals within walking distance,” “There are no places to enjoy hobbies and recreation,” and “I’m worried about maintenance of the community due to the aging and decreasing number of residents.”

From this we see that in all regions there are worries about the weakness of the communities that support living and about the maintenance and upkeep costs of current housing. In addition to that, in the countryside, there are major worries about the automobile-dependent society, shortage of urban functions that support living, such as hospitals, shortage of places to have fun, and community maintenance. Among these worries, the one with an especially large gap between the city and countryside is worry about automobile dependence. We surmise that the ongoing movement toward automobile dependence in the countryside, as mentioned in Section 2 of Chapter [Note 18](#), is having an effect on this concern.

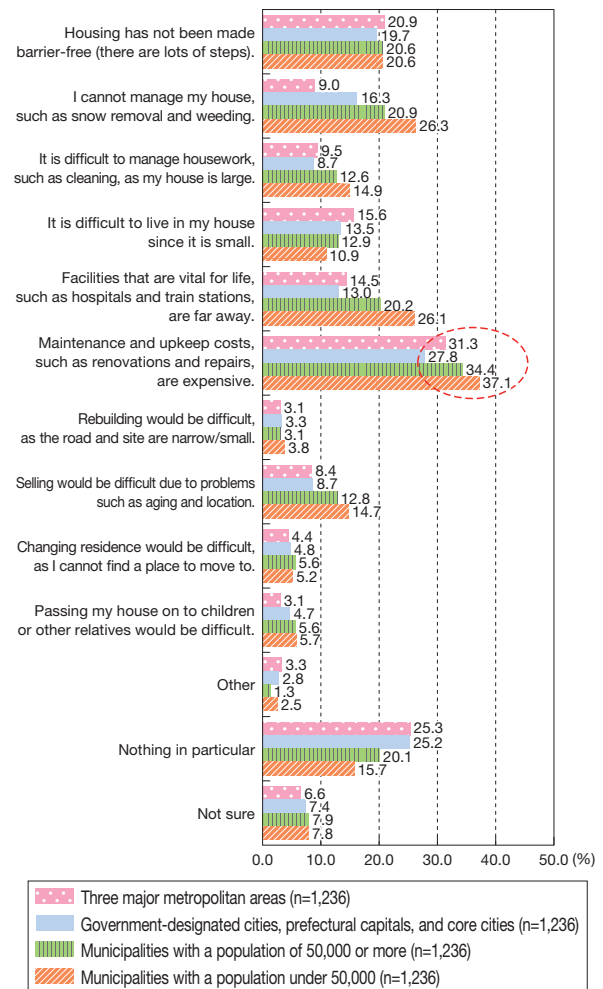
Note 18 See Chapter 1, Section 2, 3. (2) Characteristics of Rural Lifestyles.

Figure 2-3-2 Worries Regarding Residential Area (By Place of Residence)



Source) MLIT, "National Attitude Survey"

Figure 2-3-3 Worries Regarding Housing (By Place of Residence)



Source) MLIT, "National Attitude Survey"

(Housing desired in the future)

The highest response, across all generations, regarding the desired housing in the future was, "Development of a home where I can continue to live with peace of mind within the means of my pension, even if nursing care is needed." The higher the age bracket, the higher the percentage providing that response (Figure 2-3-4). This indicates a desire, regardless of generation, for ways of living that take seriously our aging society with a declining birthrate, and we surmise that this desire strengthens the higher the age bracket.

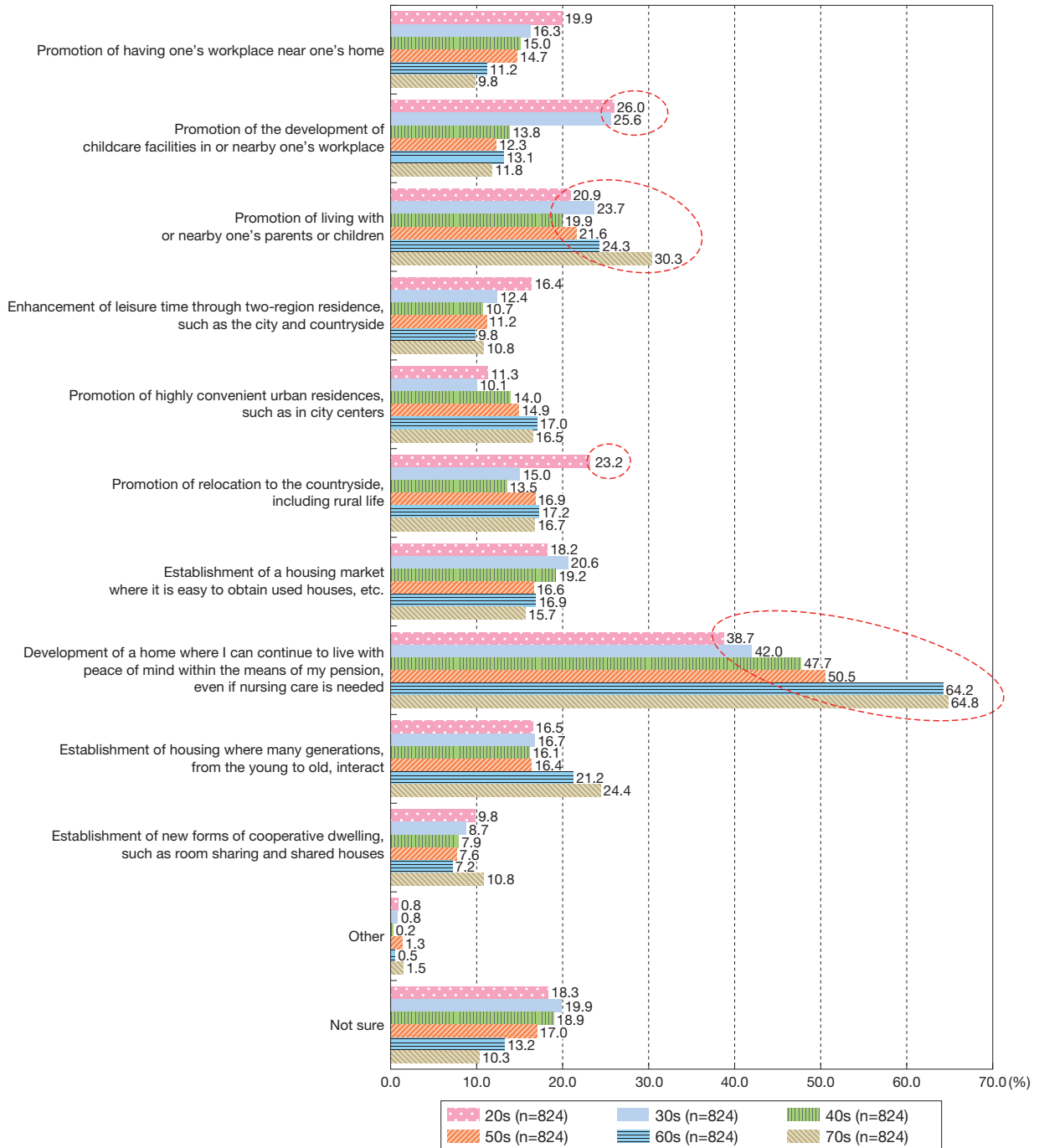
The next response that was high regardless of generation was, "Promotion of living with or nearby one's parents or children." This response was higher among people in their 30s and 60s to 70s than in other age brackets, suggesting that they look to family for help with child-rearing and caregiving.

Also, a high percentage of the child-rearing generation of people in their 20s and 30s responded, "Promotion of the development of childcare facilities in or nearby one's workplace." This shows that they are deeply concerned about living situations that support work-life balance.

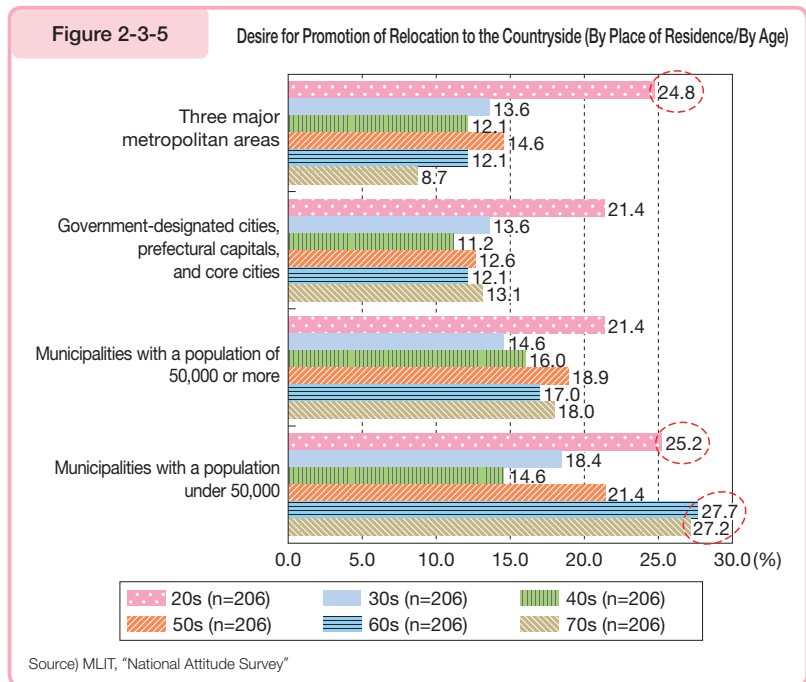
Additionally, people in their 20s had a higher interest in "Promotion of relocation to the countryside, including rural life," than did other generations. When this tendency was further analyzed by place of residence, it showed high percentages for people in their 20s living in the three major metropolitan areas and municipalities with a population under 50,000 and even higher interest among people in their 60s to 70s living in municipalities with a population under 50,000 (Figure 2-3-5). We surmise from this that there are many people in their 20s living in the three major metropolitan areas who are interested in moving to the countryside, in addition to which there are many people in their 20s living in the countryside who are interested in relocation as the ones who would welcome the incomes. We also surmise that the result reflects a

high number of people in the upper age brackets who hope that welcoming newcomers to the countryside would lead to maintenance and reinvigoration of the local community. Based on this, it is thought that support is needed for housing that expands human interaction, including relocation to the countryside and two-region residence.

Figure 2-3-4 Housing Desired in the Future (By Age)



Source) MLIT, "National Attitude Survey"



2 Desires Regarding Housing

(1) Sustainable Community Development, Including Intensification of Urban Functions

In all regions, there are worries about the communities that underpin living. What is more, in the countryside, there are major concerns about hospitals and other urban facilities, the automobile-dependent society, the shortage of places to have fun, and community maintenance.

Based on this, and in light of issues such as increasing population decline and lower population densities in residential areas in the future, there is a need for initiatives related to intensification of urban functions that increase community sustainability, the restructuring of public transportation, and community maintenance, etc.

(2) Development of Environments in which Elderly People Can Keep Living with Peace of Mind

In all regions, there are worries about the maintenance and upkeep costs of current housing. Additionally, there is a major need for the "Development of a home where I can continue to live with peace of mind" across all generations, including the elderly.

Based on this, there is a need for initiatives related to the development of environments in which elderly people and others can continue to live with peace of mind, including the securing of housing and development of barrier-free facilities.

(3) Support for Housing that Underpins Work-Life Balance

Housing in the future desired by people in their 20s to 30s include development of childcare facilities in or nearby one's workplace. There is a major need for living situations that support work-life balance.

Based on this, there is a need for support for housing that underpins work-life balance, including promotion of childcare facilities close to workplaces, housing close to workplaces, and multigenerational households.

(4) Support for Housing that Expands Human Interaction, Including Relocation to the Countryside

The current situation suggests that there is strong interest in promotion of relocation to the countryside, including rural life, mainly among the upper age bracket of people in their 60s to 70s and people in their 20s living in municipalities with a population under 50,000, which are the communities that would welcome relocation to the countryside, and among people in their 20s living in the three major metropolitan areas, who would be the people relocating to the countryside.

From this we can say that there is a need for initiatives that support ways of living that expand human interaction, including relocation to the countryside and two-region residence. Furthermore, these initiatives are ones that are thought

to contribute to the provision of places for person-to-person connection, which could also help shore up the “community weakness” about which there is anxiety in all regions.

Section 4 Public Awareness Regarding Mobility and Desires for Future Initiatives

Thus far in this chapter we categorized lifestyle into “work,” “leisure,” and “housing”, and looked at their current situation and what people desire for them in the future. “Mobility,” including means of transportation and movement, is related to each of these other facets of lifestyle and is thought to have a major impact for their enhancement.

In this section, we organize the public’s worries, etc., regarding means of transportation and movement, including public transportation and automobiles, by age and place of residence and consider the difference in issues faced by the city and the countryside as well as desires for the future.

1 Public Awareness Regarding Mobility

(Inconvenience and dissatisfaction with public transportation)

Inconvenience and dissatisfaction with means of transportation in daily life and for commuting to work or school differs depending on the place of residence.

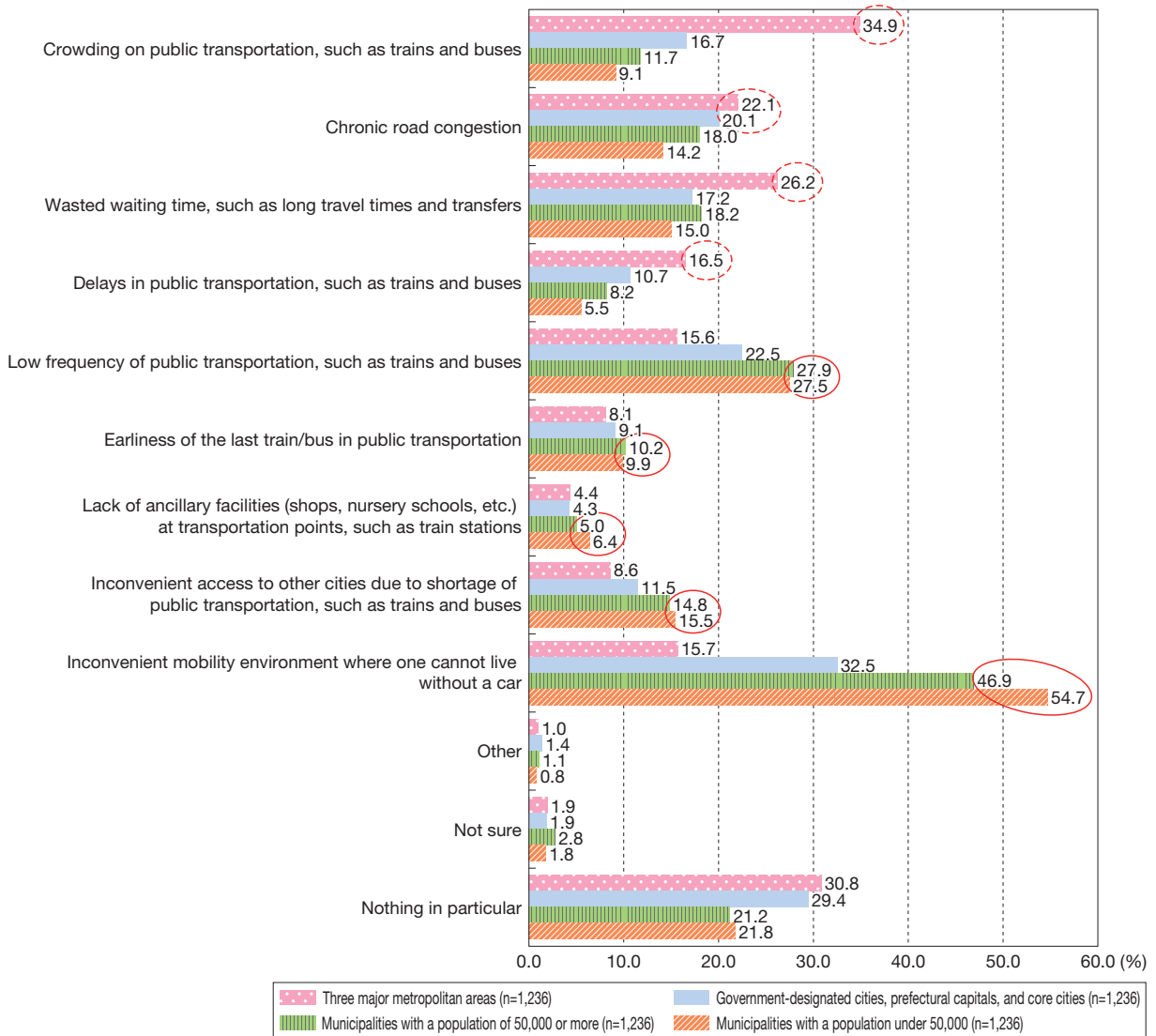
The larger an area’s population, the more dissatisfaction with comfort is felt during movement, including “Crowding on public transportation such as trains and buses,” “Chronic road congestion,” “Wasted waiting time, such as long travel times,” and “Delays in public transportation such as trains and buses” (Figure 2-4-1). In the three major metropolitan areas in particular, the response of “Crowding on public transportation such as trains and buses” was extremely high compared to other regions. Furthermore, when the need for mitigation of crowding on public transportation was analyzed in more detail by area, it was highest in the southern Kanto region, which is the Tokyo area^{Note 19}. We could say that crowding on public transportation is an especially serious problem in the Tokyo area (Figure 2-4-2).

The smaller an area’s population, on the other hand, the more dissatisfaction there was with the shortage and deficiency of public transportation itself, including, “Low frequency,” “Inconvenient access to other cities,” and “Earliness of the last train/bus” (Figure 2-4-1).

Also, in regions besides the three major metropolitan areas, the most common response was, “Inconvenient mobility environment where one cannot live without a car.” This is especially true in municipalities with a population of 50,000 or more and municipalities with a population under 50,000, where nearly half of people gave this response, at 46.9% and 54.7%, respectively. We can see from this that people are dissatisfied with an environment where a car is vital for life.

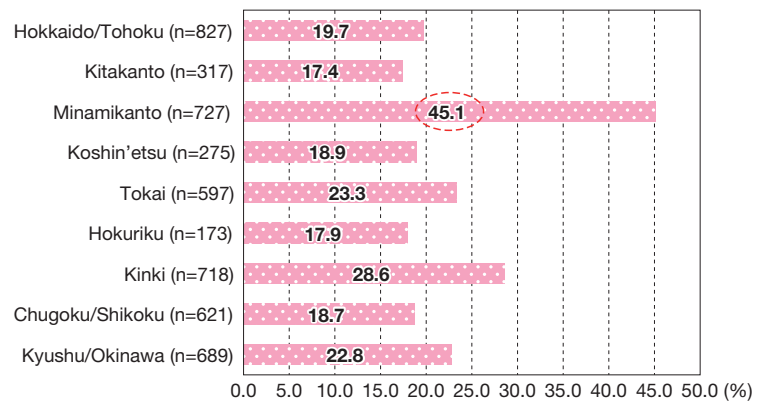
Note 19 Refers to the Tokyo Metropolis, Kanagawa Prefecture, Saitama Prefecture, and Chiba Prefecture

Figure 2-4-1 Inconvenience and Dissatisfaction With Public Transportation (By Place of Residence)



Source) MLIT, "National Attitude Survey"

Figure 2-4-2 Need for Crowding Relief on Public Transportation (By Region)



* Minamikanto: Tokyo Metropolitan, Saitama Prefecture, Chiba Prefecture, Kanagawa Prefecture
 Minamikanto: Tokyo, Saitama, Chiba, Kanagawa
 Source) MLIT, "National Attitude Survey"

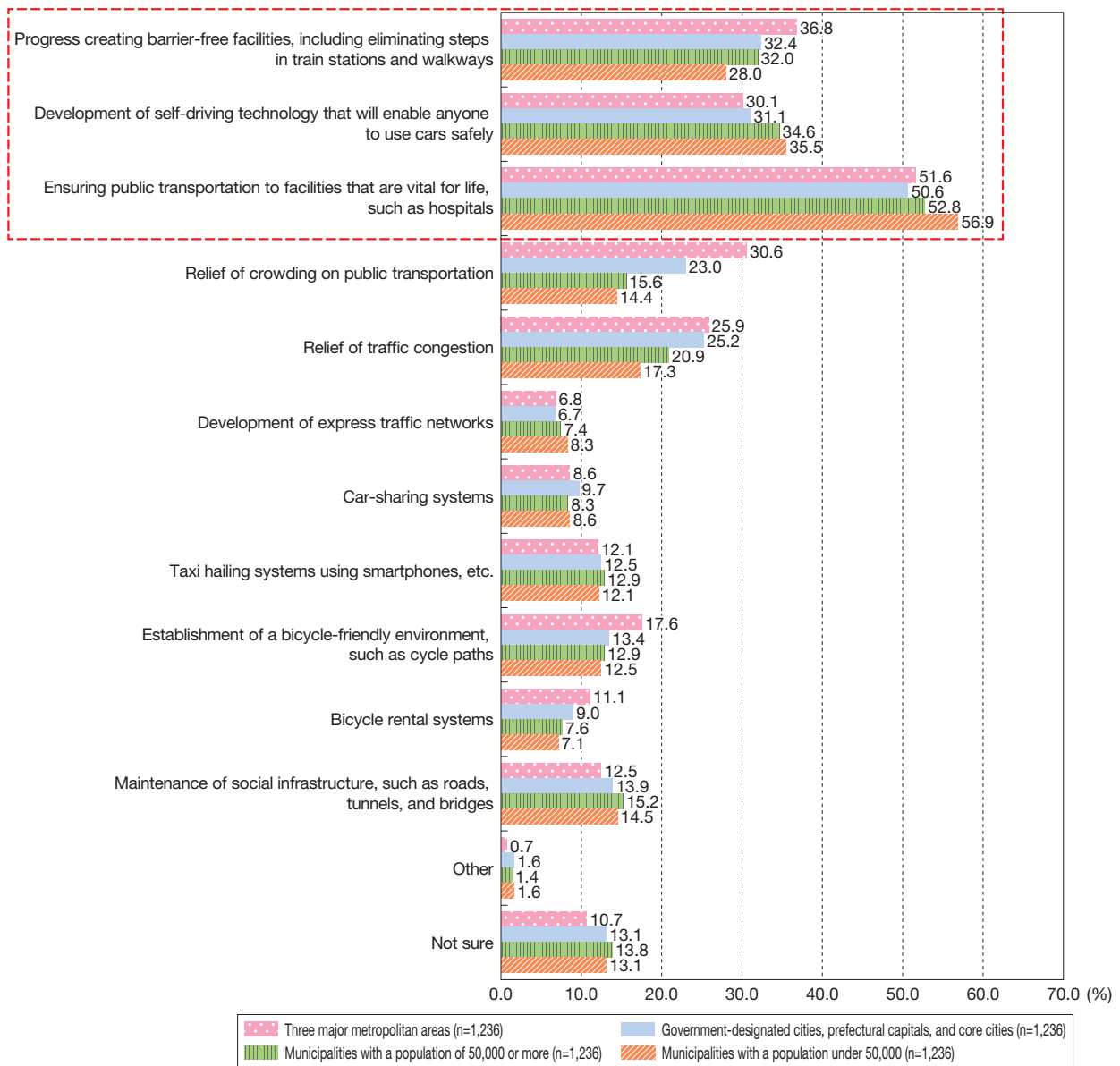
(Initiatives desired in the future)

We asked people what kinds of initiatives they desired regarding “mobility” in the future in order to achieve a richer life, given assumptions including an increase in elderly persons who cannot drive a car, falling economic viability of public transportation with a declining population, and greater sophistication of movement with technological development.

In response to this, the highest number of replies, in all places of residence, was, “Ensuring public transportation to facilities that are vital for life, such as hospitals” (Figure 2-4-3). We surmise that this reflects worries that the inability to secure means of mobility due to aging and other factors could interfere with everyday life.

The next highest number of replies were for “Progress creating barrier-free facilities, including eliminating steps in train stations and walkways” and “Development of self-driving technology that will enable anyone to use cars safely.” Among these, the larger an area’s population, the more desire there was for “Progress creating barrier-free facilities, including eliminating steps in train stations and walkways,” and the smaller an area’s population, the more desire there was for “Development of self-driving technology that will enable anyone to use cars safely.” Thus, the initiatives desired differ by place of residence.

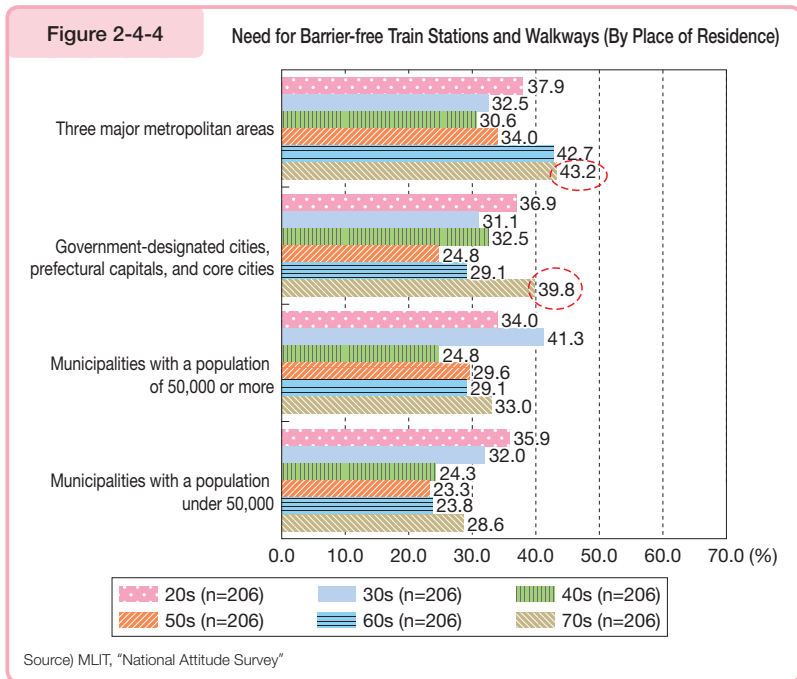
Figure 2-4-3 Initiatives Regarding Mobility Desired in the Future (By Place of Residence)



Source) MLIT, “National Attitude Survey”

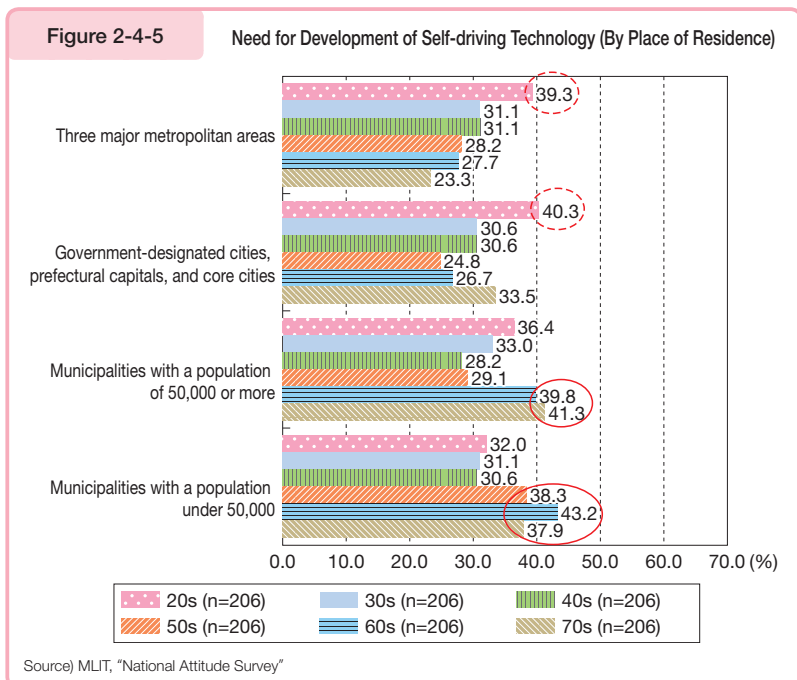
■ Barrier-free train stations and walkways

When we further analyzed the need for progress in creating barrier-free facilities, including eliminating steps in train stations and walkways, we saw that, as a whole, many people in their 20s to 30s, which can be considered the child-rearing generation, want barrier-free facilities (Figure 2-4-4). However, people in their 70s living in the three major metropolitan areas as well as government-designated cities, prefectural capitals, and core cities have a greater need for barrier-free facilities than the younger age bracket of people in their 20s to 30s. Since public transportation could be the primary means of mobility for the upper age bracket in cities, where there is relatively more public transportation such as trains and buses, we surmise that they want its comfort to increase.



■ Development of self-driving technology

Looking more closely at the need for development of self-driving technology that can be used safely, we see that in municipalities with a population of 50,000 or more and municipalities with a population under 50,000, the desire for development of self-driving technology is mainly found in the upper age bracket of people in their 60s to 70s (Figure 2-4-5). We surmise that this reflects the facts that the smaller an area's population, the greater the sense of inadequacy with public transportation and the greater the dependence on using automobiles, resulting in the upper age bracket, which is concerned about declining driving ability in the future, placing high expectations on the development of self-driving technology.



Also, in general there is high interest among people in their 20s, and in the three major metropolitan areas as well as government-designated cities, prefectural capitals, and core cities, this interest is higher than in other regions, at 39.3% and 40.3%, respectively. We assume that this is due to the younger age bracket being sensitive to technological innovation and as a result of an increase in people who do not have a driver's license.

2 Desires Regarding Mobility

(1) Increasing comfort of mobility in the city

In the city, comfort of mobility is an issue, with dissatisfaction regarding crowding on and delays in public transporta-

tion and great dissatisfaction regarding the length of travel and waiting times and chronic road congestion in the Tokyo area.

As a result, there is a need for initiatives to resolve dissatisfaction using structural and non-structural solutions to mitigate public transportation crowding and delays as well as initiatives to remove the causes of road congestion. Also, increasing the comfort of mobility in the city could bring improvements in the quality of time, including shorter working hours and reduction of stress as a result of shorter travel times and less crowding. It is thought that this could translate into a richer lifestyle, including in “work” and “leisure.”

(2) Ensuring Mobility in the Countryside

(Maintaining and reinvigorating public transportation)

In comparison with the three major metropolitan areas as well as government-designated cities, prefectural capitals, and core cities, there is greater dissatisfaction with the deficiency of public transportation itself in municipalities with a population of 50,000 or more and municipalities with a population under 50,000, where securing means of transportation is an issue.

As a result, there is a need for maintenance and reinvigoration of efficient and sustainable public transportation in proportion to the size of the population of each area.

(Development of self-driving technology)

In regions besides the three major metropolitan areas, a mobility environment where one cannot live without a car produces great dissatisfaction, which is especially large in municipalities with a population of 50,000 or more and municipalities with a population under 50,000. That is why, in addition to the maintenance and reinvigoration of public transportation mentioned above, securing a means of mobility besides public transportation is an issue. Furthermore, the need for self-driving technology, which is one way to secure a means of mobility, is especially high among the upper age bracket in the countryside, which is concerned about declining driving ability in the future.

Accordingly, the development of self-driving technology is a necessity, and the elderly and other people who are disadvantaged with regard to mobility especially want it to develop to the point where it becomes usable in everyday life in the countryside.

Securing mobility in the countryside as described above would ensure worry-free living and bring maintenance and improvement of convenience. It is thought that this would lead to enhancement of lifestyle, including “leisure” and “housing.”

(3) Securing Mobility that is User-Friendly for the Elderly, Etc.

Mainly people in their 70s living in the city and people in their 20s to 30s, who are thought to be the child-rearing generation, have high hopes for progress in the creation of barrier-free public facilities including train stations and walkways. The securing of mobility that is user-friendly for the elderly and child-rearing generation is therefore an issue.

Based on this, there is a need for structural and non-structural barrier-free development in public facilities, in order for the elderly and child-rearing generation to secure smooth mobility on their own.

Moreover, it is thought that securing mobility that is user-friendly for the elderly, etc., will ensure worry-free living and broaden the range of people’s activities, leading to enhancement of lifestyle, including “leisure” and “housing.”

Chapter 3

Initiatives in the Land and Transport Sector

Based on the changing state of Japan analyzed in Chapter 1 and the public awareness and desires regarding lifestyle based on the results of the national attitude survey in Chapter 2, in Chapter 3 we will look at initiatives in the land and transport sector to address these issues, and similarly to Chapter 2, we will introduce them from the four perspectives of “work,” “leisure,” “housing” and “mobility.”

Section 1 Initiatives Related to Work

As observed previously, workforce participation by women and the elderly, etc., and improving labor productivity, etc., are issues to be tackled in Japan, and in addition to providing opportunities for women and the elderly to newly engage in work or continue employment etc., achieving a work-life balance for the child-rearing generation and qualitative improvements such as reforming attitudes toward work and streamlining work through technological innovations such as AI and big data are required.

1 Initiatives to Provide Opportunities to Work

(Initiatives for new work and continued employment for women and the elderly)

■ Promotion of the establishment of childcare facilities, etc.

In order to support opportunities for women to start work and continue employment, it is necessary to eliminate childcare waiting lists and create an environment that is conducive to women starting new jobs or continuing employment, and it is essential to establish and supplement childcare centers, etc., in order to do this. The MLIT is promoting specific initiatives in cooperation with relevant parties at the Ministry of Health, Labour and Welfare, etc., in order to achieve this.

In order to respond to the increase in children on childcare waiting lists in recent years, it has been made possible to establish childcare centers, etc., through the exclusive use of urban parks. This has been implemented in national strategic special zones since 2015, and was expanded nationally in 2017 due to a revision of the Urban Park Act (Figure 3-1-1). In order to promote the appropriate establishment of childcare centers that utilize this program, we have created and disseminated a manual for local government bodies and business operators.

Furthermore, in order to promote the establishment of childcare facilities in large-scale apartment blocks, there has been demand for local government bodies to ensure appropriate childcare facilities, such as by working to achieve cooperation and information-sharing between cities, construction departments and childcare departments, from the point of drafting urban plans when constructing large-scale apartment blocks that make use of exceptional measures to alleviate floor area ratio, as there is a possibility that the demand for childcare facilities will increase, particularly locally.

Figure 3-1-1

Nursery school in an urban park



Source) MLIT

■ Securing and training female and elderly workers, etc., in land- and transport-related industries

In land- and transport-related industries, such as the construction industry and the transport industry, a range of initiatives, such as disseminating information and networking, are being conducted in order to secure and train female and elderly workers.

(1) Securing and training female and elderly workers, etc., in the construction and manufacturing industries

In the construction industry, it is expected that a large number of older workers will leave their jobs, and securing and training workers in the medium- to long-term has become a pressing issue. Therefore, it is necessary to create an environment in which women can actively participate alongside men, leading to the industry becoming more attractive and securing new workers, irrespective of their gender or age.

The MLIT provides support for the participation of female engineers and skilled workers in the construction industry through public-private partnerships, through such initiatives as creating female friendly workplaces, conducting seminars that allow female workers to express themselves, and establishing an advisory service for businesses that wish to encourage female participation (Figure 3-1-2).

Also, in autumn 2018, the construction career advancement system, which is a mechanism that records and stores the qualifications and work experience of each skilled worker, began operation.

Through this system, we will be able to maintain an objective understanding of the skills and experience of skilled workers, which is expected to lead to the development of an ability evaluation system that objectively divides people according to general levels, and the creation of an environment that is conducive to the appropriate evaluation and treatment of individual technicians by ensuring transparency of the construction capabilities of specialist construction companies that hire technicians (Figure 3-1-3 and Figure 3-1-4).

Figure 3-1-2

Project to Support Female Participation in the Construction Industry (PR)



(Source) MLIT

Figure 3-1-3

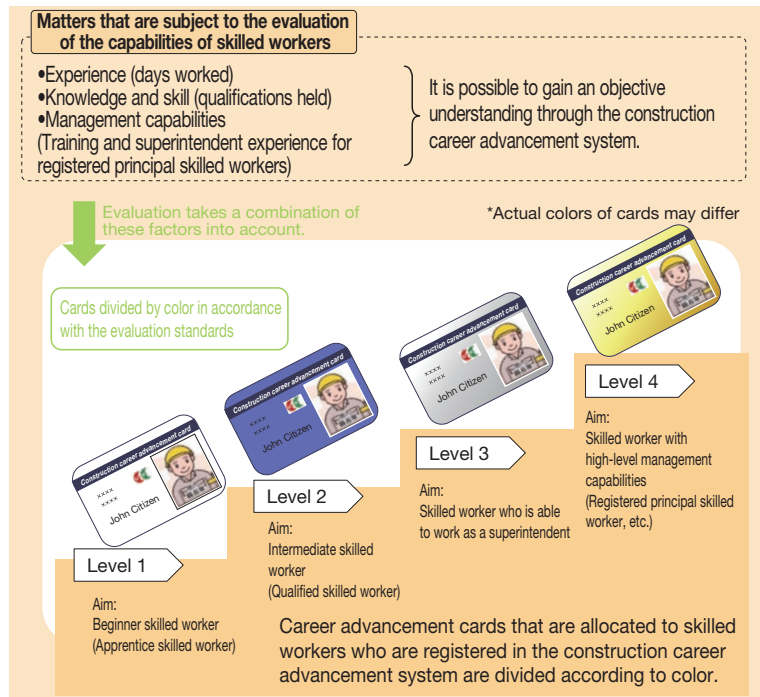
Establishing the Construction Career Advancement System



(Source) MLIT

Figure 3-1-4 Treatment According to Experience and Skills

- Consideration of ability evaluation standards according to the level of the skilled worker, using the work history and qualifications that are recorded in the system (Dividing career advancement cards by color according to level)
- Promoting transparency of the construction capabilities, etc., of specialist construction companies according to the ability evaluations of skilled workers, developing quality workers and creating an environment where the specialist construction companies that employ them are selected



Source) MLIT

(2) Securing and training female and elderly workers, etc., in the automotive transportation industry

With regard to the automotive transportation industry, which includes trucks, busses, and taxis, drivers work in an environment in which annual work hours are 10 to 20 percent longer, and annual wages are 10 to 30 percent lower when compared to the average of all professions, so the lack of drivers is even more ingrained and securing workers is a pressing issue.

The MLIT established the Committee for Consideration of Trucks That Are Easy to Drive for Female Drivers, etc., in March 2018, and began discussions of vehicle designs from the perspective of female, etc., truck drivers, etc.

2 Initiatives for Quality of Work

(Initiatives to achieve work-life balance for the child-rearing generation)

■ Promotion of telework

Creating an environment in which workers are not restricted to their place of work and shortening work hours will achieve a flexible work-style that allows for both child-rearing and work, and lead to work-life balance, particularly for the child-rearing generation, as well as contribute to the alleviation of traffic congestion and crowding on trains.

An example of such an initiative is “telework,” which uses information and communication technology (ICT), and the MLIT is promoting wider acceptance of telework in cooperation with relevant government agencies and private organizations. As a step toward this, we designated July 24^{Note 21} as “Telework Day” in 2017, and on this day, approximately 63 thousand people at approximately 950 organizations simultaneously engaged in telework. 2018 will be the second time Telework Day is held, but the period has been expanded to five days, from July 23 to July 27, and the event will

Note 21 The scheduled date of the opening ceremony of the 2020 Olympic Games

be rebranded “Telework Days.” During this period, we will call for workers to simultaneously engage in telework and promote further initiatives.

Also, an example of a site that has utilized telework in recent years is a shared office known as SALT, for which Smart Design Association Co., Ltd. and others in Fukuoka City, Fukuoka Prefecture, have used vacant space by the seaside, approximately 30 minutes by car from the center of Fukuoka City, with the support of the local community. This initiative not only targets local residents, but also users who wish to make use of the seaside location to engage in resort work for a few days or even a few months, and the companies are recommending or providing accommodation in renovated vacant buildings in the vicinity. The concept of this initiative is to achieve a new style of work, wherein workers temporarily leave the location of their usual work and life in order to improve their productivity while enjoying sightseeing, before coming back refreshed, and it is supported by the MLIT as a leading example of a telework center (Figure 3-1-5).

Figure 3-1-5

Share Office SALT Satellite Office



Source) MLIT

(Initiatives for work efficiency through technological innovation, etc.)

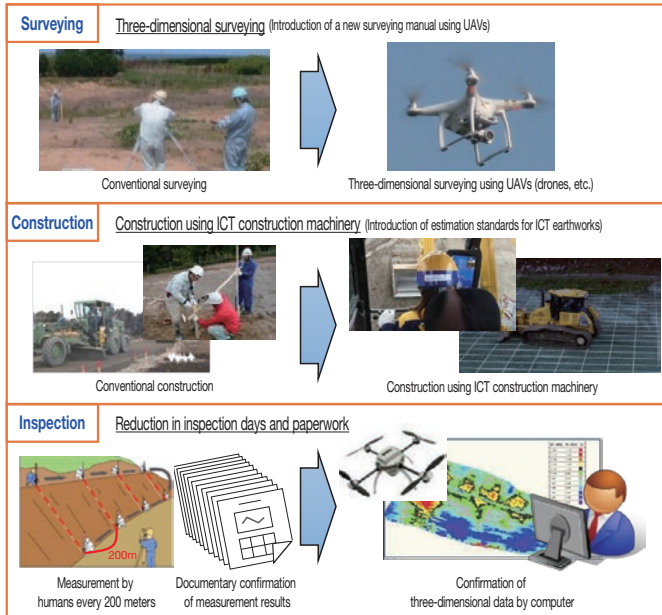
■ Promotion of i-Construction

As the population ages and declines, the construction industry bears the brunt of maintaining social infrastructure and fills the role of a “regional protector” that is indispensable for national land conservation, so it is necessary to conduct work-style reforms by increasing the level of wages and the number of holidays, etc., and increase productivity in the construction industry. Therefore, it is necessary to increase construction productivity and create attractive construction sites where a diverse workforce that includes women and the elderly, etc., can participate, by achieving work-style reforms through increasing the level of wages, and providing regular holidays, etc.

The MLIT is promoting “i-Construction,” which utilizes ICT, etc., in all construction processes from exploration and measurement through design, construction, inspection, maintenance and renewal, with the aim of increasing construction site productivity by 20% by fiscal 2025 (Figure 3-1-6). As part of this, we are promoting initiatives to introduce drones to increase the efficiency of measurement work, introduce construction machinery with semi-automated controls that utilize ICT to increase the efficiency of on-site construction, and introduce robot technology to assist in inspection and construction, etc., in locations where work is difficult, as specific measures to support the labor of workers at construction sites (Figure 3-1-7).

Fiscal 2017 is the second year since the commencement of i-Construction, and we have been thoroughly promoting ICT civil engineering as a Top-Runner measure, while also working to expand the varieties of work that incorporate ICT to paving and dredging, to promote three-dimensional model design, to standardize concrete work standards, to level construction schedules and to promote development and introduction of technology through a consortium featuring cooperation between industry, academia and government. Going forward, we will continue the initiatives we have promoted until now and engage in expanding the introduction of ICT to the maintenance and construction fields, expanding three-dimensional design for large-scale construction, etc., promoting the introduction of new technology to create innovation in public projects and providing comprehensive support to accelerate the initiatives of small and medium-sized businesses.

Figure 3-1-6 i-Construction



Source) MLIT

[Visualization of increased productivity]

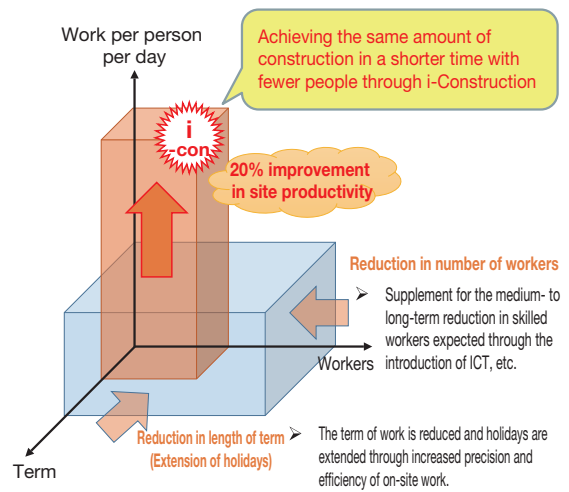


Figure 3-1-7 Underwater Robots and Welding Robots

Example of use of robots



Underwater robot

Welding robot

Source) MLIT

■ Supporting recurrent education

In order to increase productivity in the construction industry, it is necessary to increase the skill level of each worker directly involved with construction at construction sites and achieve a productivity revolution for small and medium-sized construction businesses.

Against this backdrop, the MLIT provides support to small and medium-sized construction businesses and local educational institutions, etc., conducting effective and continuous re-education and training (recurrent construction education) that is necessary to increase productivity (Figure 3-1-8).

Figure 3-1-8 Recurrent Construction Education



Source) MLIT

■ Increasing productivity at shipbuilding sites (deepening the i-Shipping maritime productivity revolution)

To increase competitiveness in the shipbuilding industry, it is important to secure and train a range of personnel, including women and the elderly, etc., and to do this, it is necessary to reform the work environment through increased site productivity, etc.

At present, the MLIT is promoting the i-Shipping maritime productivity revolution, which aims to increase productivity in the maritime industry and secure a 30%

share of new ships produced globally for the Japanese shipbuilding industry (by 2025). To this end, we are providing support for research and development, etc., conducted by private enterprise, etc., such as the automation of processing using 3D design data, the introduction of efficient automatic welders that use revolutionary technology such as AI, the introduction of assistance suits that reduce the workload on skilled workers and the creation of efficiency in shipbuilding through optimal management of parts and materials using IT, as initiatives related to increased productivity at shipbuilding sites (Figure 3-1-9).

Figure 3-1-9

Automatic Welders and Assistance Suits

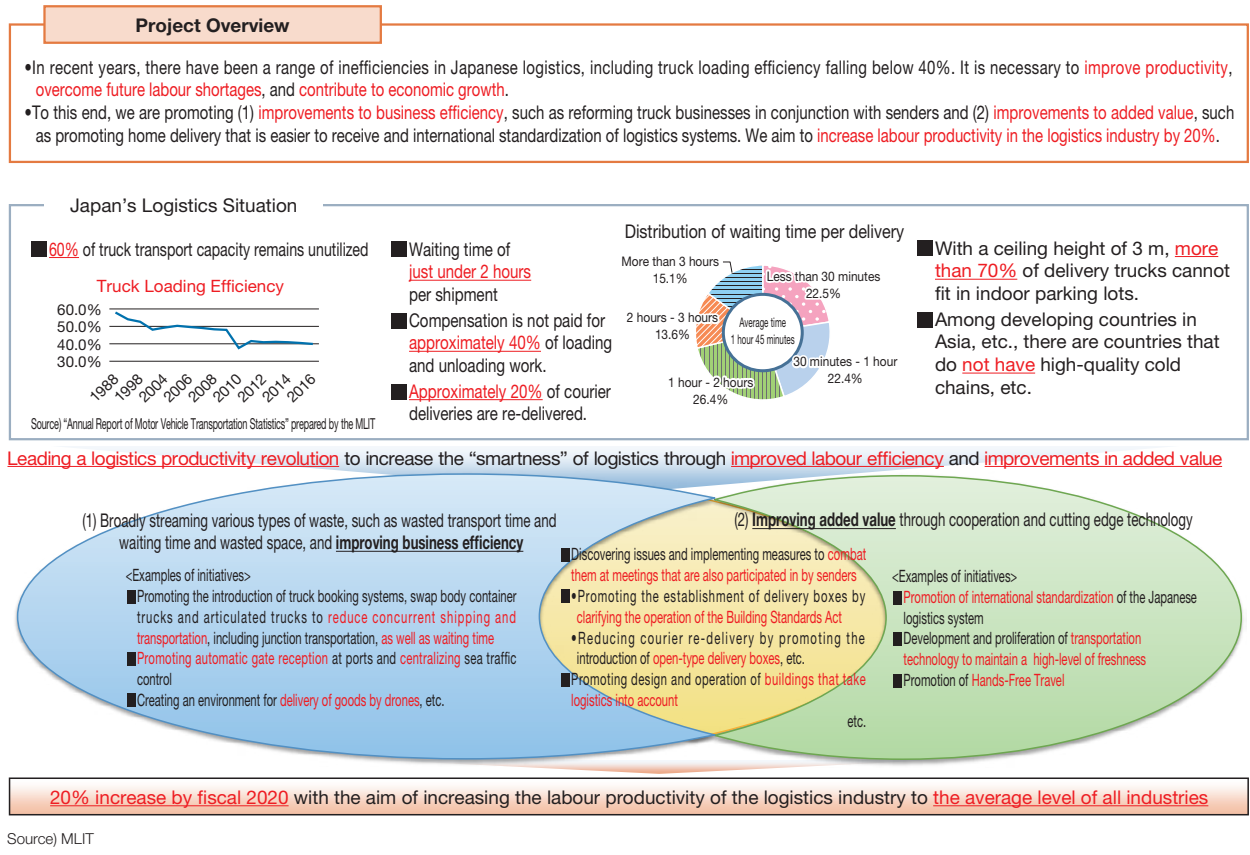


Source) MLIT

■ Initiatives for a revolution in logistics productivity and road logistics innovation

The MLIT is promoting a revolution in logistics productivity to significantly increase the “smartness” of logistics in order to increase productivity, overcome future labor shortages, and contribute to economic growth. We aim to increase labor productivity in the logistics industry by approximately 20% by 2020 by promoting improvements in work efficiency through the promotion of joint transportation, etc., using the framework of the revised Act on Advancement of Integration and Streamlining of Distribution Business, home delivery that is easier to receive, and increased added value such as promoting international standardization of logistics systems (Figure 3-1-10).

Figure 3-1-10 Logistics Productivity Revolution



In addition, we have established a major logistical road system, which conducts enhancement and priority assistance for the arterial road network in order to ensure stable delivery irrespective of whether or not there has been a disaster, and have actively developed initiatives to contribute to truck transport productivity, such as conserving labor through double-trailer trucks, enhancing logistics modal connection, and enhancing flexibility of heavy truck transport, as innovations in road-based logistics (Figure 3-1-11).

Figure 3-1-11 Road Logistics Innovation

Initiative (1): Reduction in manpower through double-trailer trucks



Examining relaxing the special vehicle permit standards from the current 21 meters to allow vehicles of up to 25 meters in length

Conducted in preparation for future automated convoys

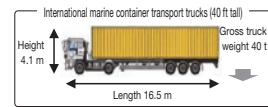
Trial underway, focusing on the Shin-Tomei Expressway (4 companies are participating in the trial using 12 trucks) Full-scale introduction planned for FY2018

Source) MLIT

Initiative (2): Ensuring stable delivery irrespective of whether there has been a disaster

In order to ensure stable delivery irrespective of whether or not there has been a disaster, the Minister of Land, Infrastructure, Transport and Tourism has designated the major road logistics network as **major logistical roads**, enhanced functionality, and conducted priority assistance.

- Strengthening road construction according to the size of trucks
- Ensuring immediate clearing and restoration of roads after disasters, etc.



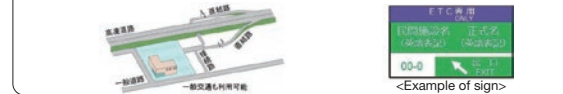
⇒Special vehicle permit is unnecessary (vehicle restriction ordinance)

Established Important Distribution Roads System in March 2018 (Road Act amendment)

Initiative (3): Enhancing logistics modal connection

Promoting enhancement of access to ports and airports, etc., and expressways, and direct connection between expressways and private facilities

Smart IC to directly connect private facilities (example)



Announcement of direct connection IC on July 7, 2017

Initiative (4): Enhancing flexibility of heavy truck transport

Enhancing a transport inspection system focusing on manual labour to create an automatic inspection system that uses electronic data related to geometric design and bridges, and that enables immediate inspection of special vehicle permits



Section 2 Initiatives Related to Leisure

As observed previously, making the most of time and securing time, etc., for leisure has become an issue in Japan. With this in mind, initiatives related to the utilization of leisure are required, such as the creation of opportunities to further enjoy increased tourism appeal, etc., and opportunities for re-education, etc., initiatives for the diversification and intensification of leisure activities, the creation of opportunities to create connections with other people through social involvement and leveraging this for social contribution activities.

1 Initiatives for the Diversification and Intensification of Leisure Activities

(Increasing the appeal of tourism)

■ Increased development and the appeal of tourism resources

There are diverse and valuable tourism resources in locations around Japan, and developing these resources and improving their appeal allows tourists to enjoy a more appealing trip and effects such as creating new demand are anticipated by attracting tourists to many different regions.

The Japan Tourism Agency supports development of regional specialty products, regional networking for tourism development through designated tourism resources such as breweries and related PR activities, etc. Furthermore, we are considering night-time usage of facilities such as museums, to effectively utilize tourism resources. These kinds of initiatives are not only expected to maximize the leisure experience of foreign tourists, but also Japanese domestic tourists (Figures 3-2-1 and 3-2-2).

Figure 3-2-1 Initiatives for Saijo Sakagura-dori (Higashi Hiroshima City, Hiroshima Prefecture)



Source) Japan Tourism Agency

Figure 3-2-2 Example of Utilization of the Nighttime Economy



Source) Japan Tourism Agency

■ Island Wind Vision

We are conducting various initiatives to attract people to offshore islands, such as providing hobby tourism depending on the local situation, offshore exchanges where children from elsewhere live on the islands, and satellite offices and

telework centers.

The MLIT promotes the Island Wind Vision, which is an initiative to distribute information on the appeal of offshore islands to cities, etc., (wind from the island) and create a non-resident population, etc., from cities, etc., (new wind to the island) through the creation of portal sites that comprehensively showcase the islands, and the transmission of information through media that reach young people and foreigners, etc. (social media, etc.) (Figure 3-2-3).

■ Promotion of infrastructure tourism

Infrastructure tourism is an initiative that uses infrastructure as regional assets and tourism resources to promote regional revitalization, and is expected to contribute to the promotion of understanding of infrastructure development, maintenance and management.

The MLIT creates plans for facility tours by regional development bureaus and conducts tie-ups with private sector travel agencies, as well as opening a tourism portal site that showcases tours and observations, etc., and distributes information as required (Figure 3-2-4).

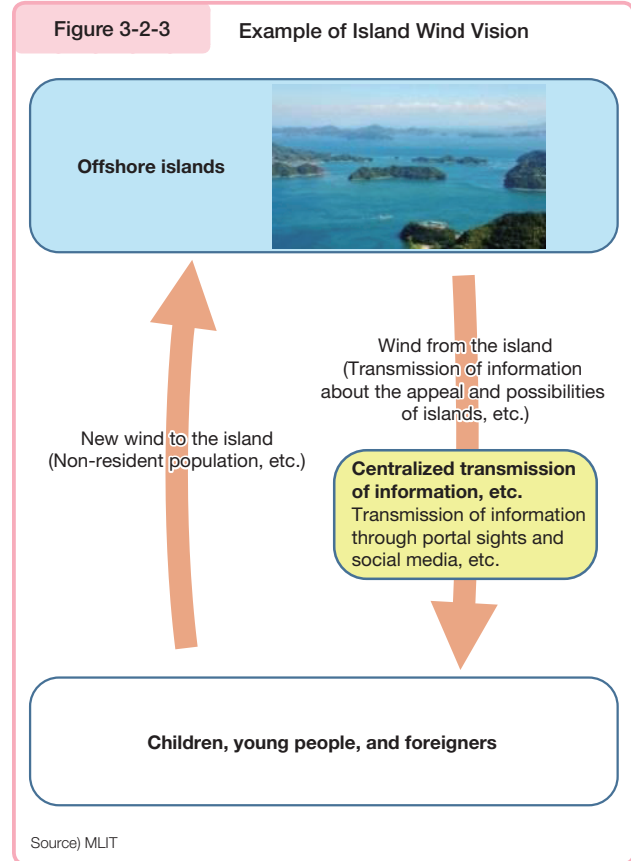
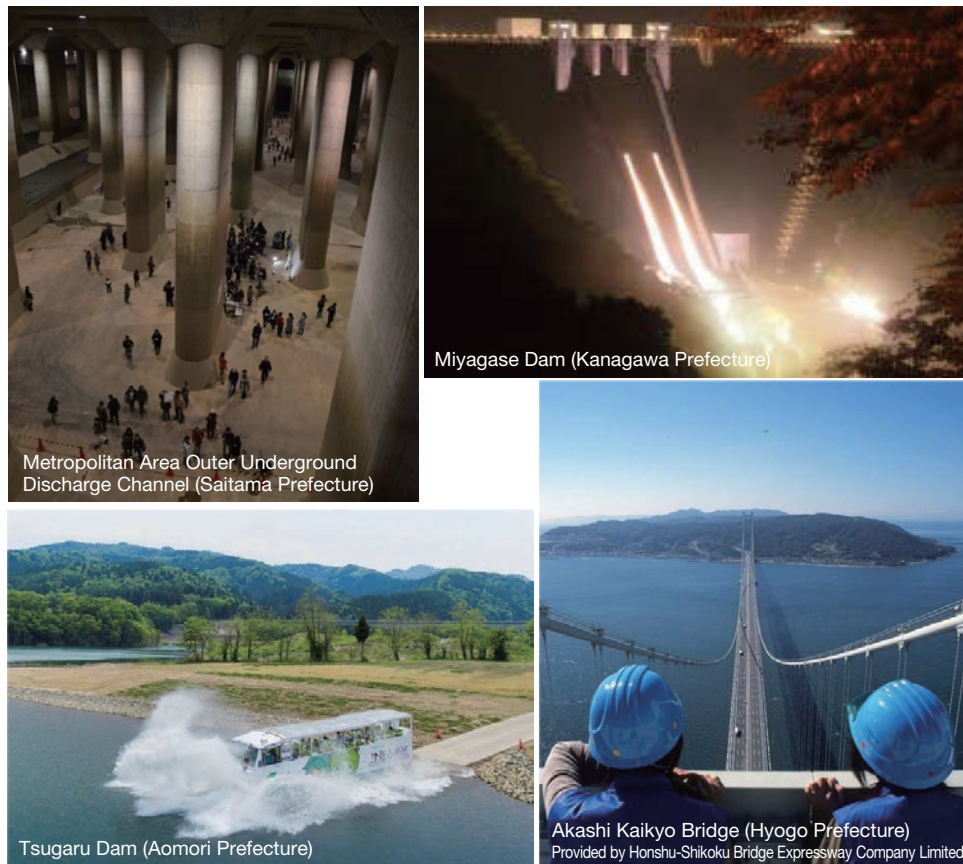


Figure 3-2-4 Example of Infrastructure Tourism



Source) MLIT

■ Support for the creation of tourism areas

It is necessary to promote visits and stays by tourists in collaboration with interested local parties in order to promote tourist travel to each region, including by foreign tourists visiting Japan.

The Japan Tourism Agency develops strategies in cooperation with various interested parties as a guide for the creation of tourism areas, and has established a Japanese DMO, which is a corporation that plays the role of a coordinator to implement these strategies. The DMO provides support, etc., for creating accommodation programs that leverage the appeal of local resources when tourism area plans are created, such as holding conventions and sales fairs, etc. (Figure 3-2-5).

Figure 3-2-5 Japanese DMO

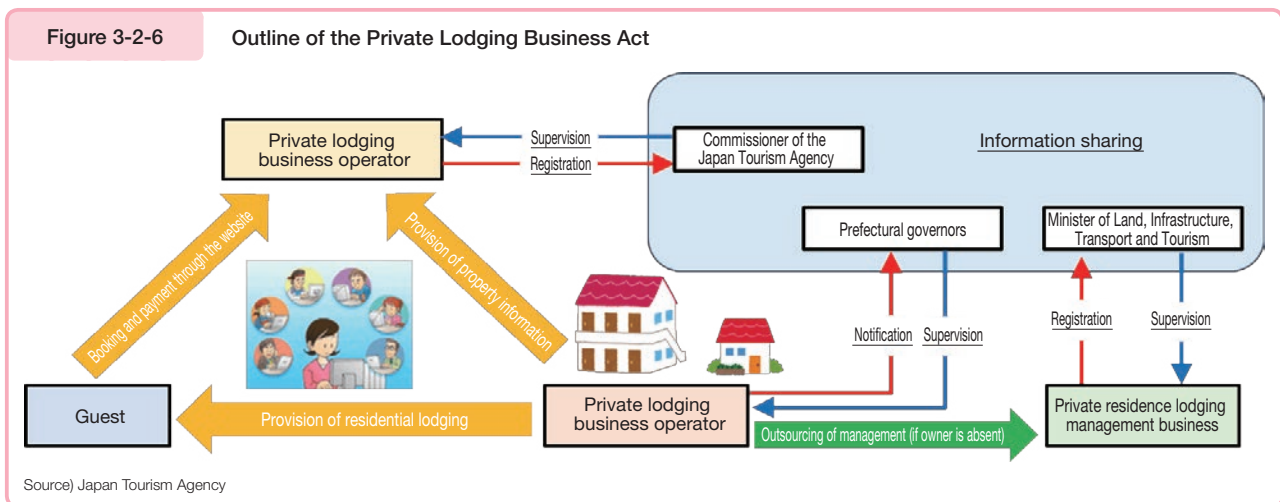


Source) Japan Tourism Agency

■ Spreading sound minpaku (Private Residence Accommodation) Services

For several years, so called minpaku services have rapidly spread in Japan. It is important to utilize minpaku services in order to cater to the diversification of accommodation demand from the rapidly increasing numbers of foreign tourists in Japan, as well as domestic tourists. Conversely, urgent attention must be paid to creating rules to ensure public health and prevent issues with local residents, etc., when utilizing said services.

With this in mind, the MLIT is working to spread sound minpaku services under the Private Lodging Business Act enacted in 2017 (Figure 3-2-6).



2 Initiatives Related to Utilization of Leisure

(Initiatives to create places that produce connections between people and leverage them in social contribution activities)

■ Promotion of area management

For many people, participation in social contribution activities creates a sense of worth, and is a joyful aspect of life. We must cater to these desires and utilize them for community development, etc. One of the initiatives that we hope will achieve this is “area management,” which actively seeks to conduct community development and regional management in a defined area, under the leadership of private citizens.

As initiatives to promote area management, the MLIT has amended the Act on Special Measures Concerning Urban Reconstruction and provides support for granting of official status, etc., to companies that bear the burden of community development by designating them as action groups. Sapporo Odori Machizukuri Co., Ltd., comprises six shopping districts and retail facilities, etc., in the Odori district of the city of Sapporo, and is the first urban revitalization promotion corporation. This company values connections, makes use of car-free malls, encourages open cafes, conducts civic events and beautification activities, etc., forms a network among organizers, and brings together many young participants to create a space of enjoyment with the concept of wanting people to utilize the city (Figure 3-2-7).

Figure 3-2-7 Area Management Initiatives by Sapporo Odori Machizukuri Co., Ltd.



Source) Sapporo Odori Machizukuri Co., Ltd.

■ Conservation of the river environment through volunteer activities

Social contributions involving coming into contact with the local natural environment and conducting regular maintenance activities may also provide a sense of worth and lead to a joyful lifestyle.

The MLIT has revised the River Act to promote these activities, and because of this, river administrators may designate private organizations such as NPOs that conduct activities related to active river maintenance and conservation of the river environment, etc., as being part of the River Cooperative Organization System, and provide assistance for river management projects. Ecology Research Club Hiroshima, which is a river cooperative organization, conducts activities such as participating in activities to beautify the Ota River, providing hands-on learning for children under the themes of “let’s study,” “let’s touch” and “let’s enjoy,” training instructors, and observing tidal flats at discharge channels (Figure 3-2-8). Initiatives such as these are expected to create a better river area and lead to social contribution activities by increasing communication between river administrators and river cooperative organizations, etc.

Figure 3-2-8 Group River Activities at the Ota River by Ecology Research Club Hiroshima

FY2014 Cooperative Group River Activities Report (Ota River) Designated Number 1 Ecology Research Club Hiroshima



[July 20]

● Participating in Clean Ota River



[September 28]

● Organized by Ota River Seseragijuku (Koikko Fureai Coastline)



[November 3]

● RAC instructor training



[October 3]

● Tidal flat observation at discharge channel

Source) MLIT

Section 3 Initiatives Related to Housing

As observed previously, there are many uncertainties and needs related to housing as Japan’s aging population and low birth rate continue and the population continues decline nationwide. Against this backdrop, initiatives to provide regional and residential comfort, such as sustainable regional development and creating an environment in which people can feel secure to continue to live, and initiatives, etc., to respond to the diversification of lifestyles, such as supporting lifestyles involving human movement, including relocation to regional areas, are required.

1 Initiatives for Regional and Residential Comfort

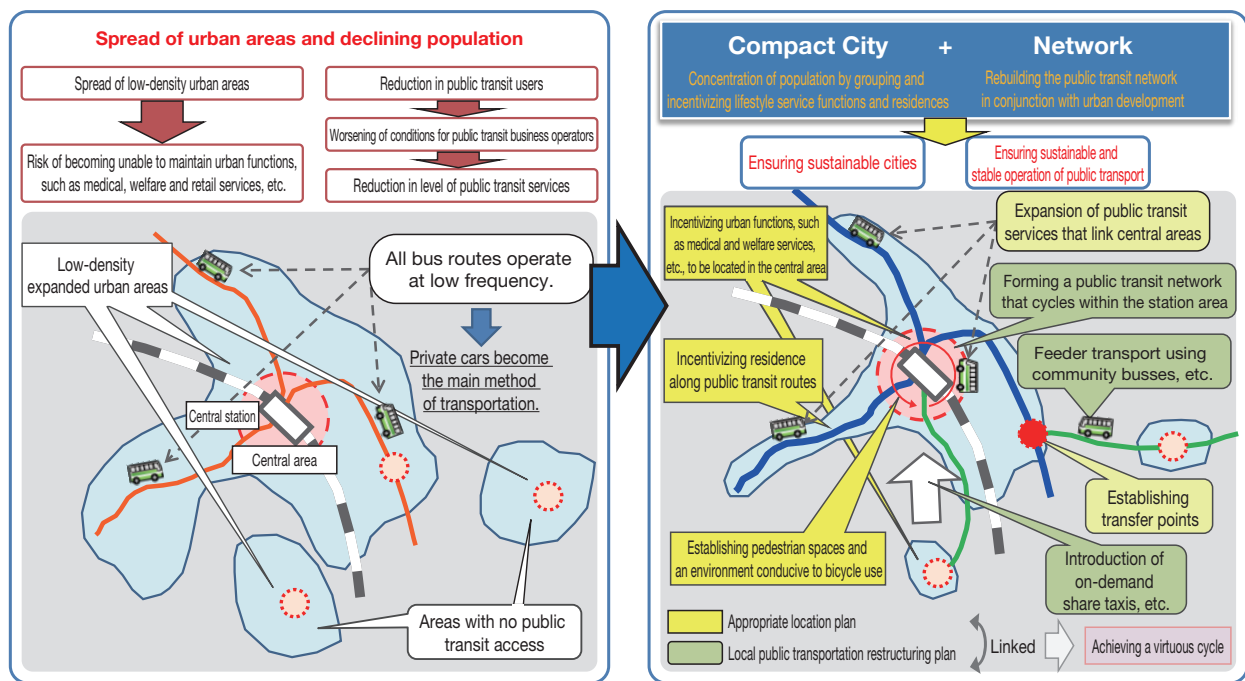
(Initiatives related to urban functionality, public transit, and community maintenance, etc.)

■ Compact Plus Network

Going forward, if urban areas with low population density continue to expand, there is a risk that maintaining lifestyle service facilities such as medical and retail facilities and public transit will become more difficult, and make it difficult to conduct daily life by walking or public transport as the population continues to decline in Japan.

In response to this, the MLIT is promoting the Compact Plus Network. This initiative concentrates and guides urban functions such as medical and retail functions and residences, etc., to a central area, with the aim of creating more compact cities, and conducts restructuring of public transit networks in conjunction with community development. Through this, maintenance and improvement of lifestyle convenience, revitalization of the local economy, reductions in administrative costs, and reduced impact on the global environment, etc., are anticipated (Figure 3-3-1).

Figure 3-3-1 Compact Plus Network

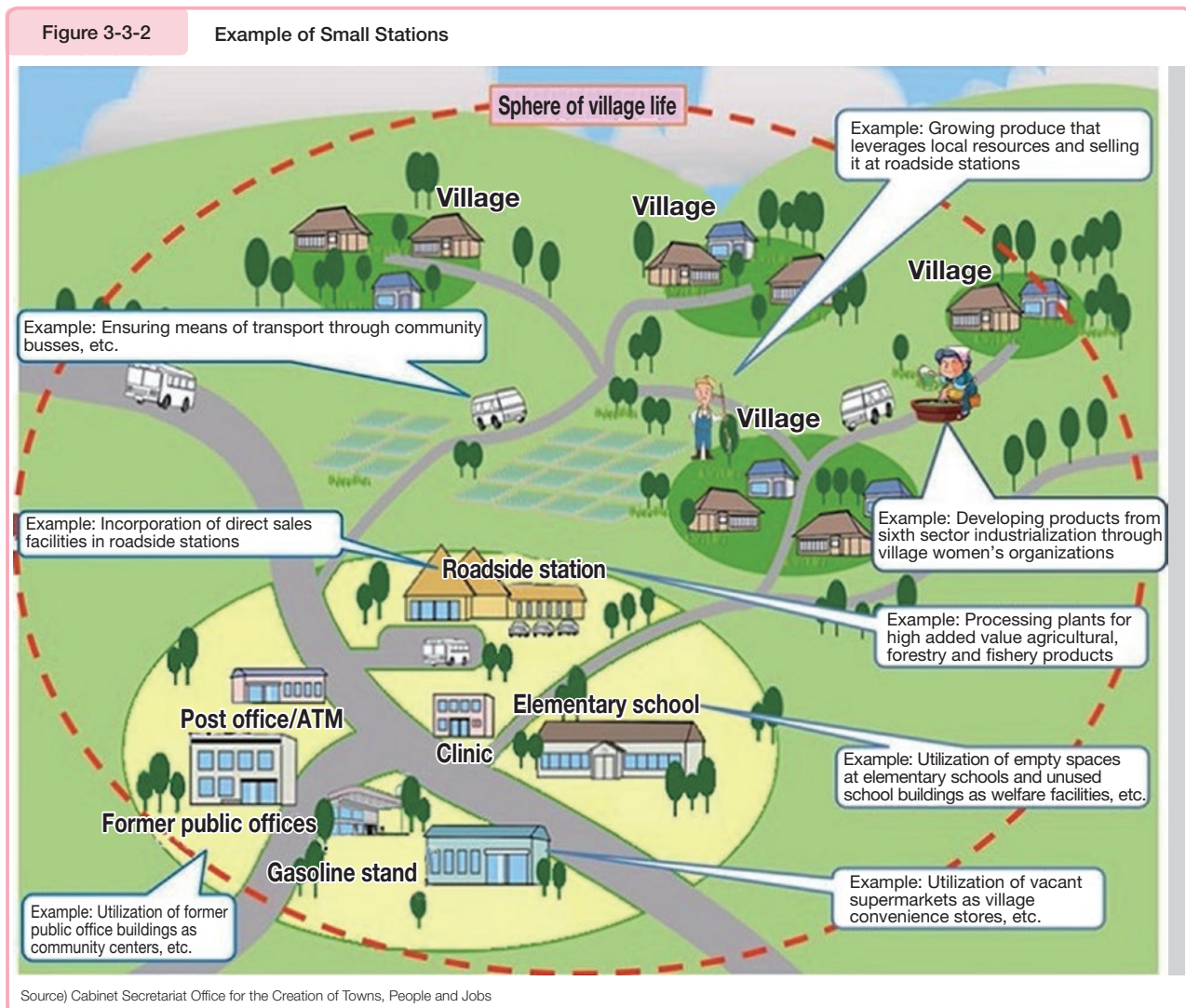


Source) MLIT

■ Small stations

In small villages in underpopulated areas with a declining and aging population, it is difficult to continue living due to the loss, etc., of services that are necessary for day-to-day life, such as stores and medical facilities. Going forward, there are concerns that trends such as this will further spread around Japan.

With this in mind, the MLIT is promoting the creation of “small stations.” This initiative aims to create new living areas and revitalize the areas around villages by concentrating services that are necessary for day-to-day life, such as stores, medical facilities and local activities within walking distance and linking that village with nearby villages by community busses, etc., in areas with groups of small villages such as elementary school districts (Figure 3-3-2).



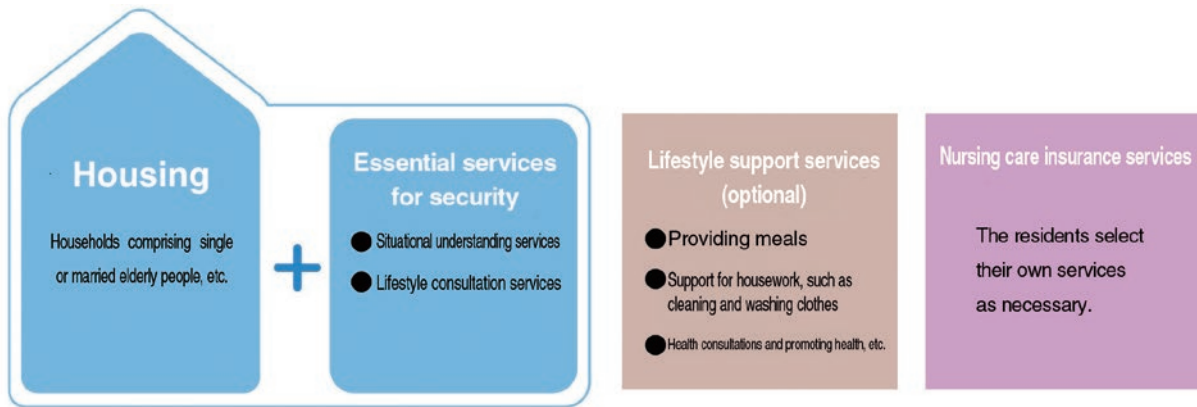
(Initiatives for housing in which the elderly, etc., feel confident conducting their daily lives)

■ Promotion of proliferation of serviced housing for the elderly

As the population ages rapidly, the number of households comprising only single elderly people or elderly couples is increasing, and providing services that support the elderly in their homes in conjunction with nursing and medical treatment is becoming more and more important.

In response to this, the MLIT, in conjunction with the Ministry of Health, Labour and Welfare, is providing financial support for serviced housing for the elderly, which incorporates barrier-free construction, etc., and services to assist the elderly, such as services to confirm safety, and we are promoting the proliferation of this type of housing (Figure 3-3-3).

Figure 3-3-3 Serviced Housing for the Elderly



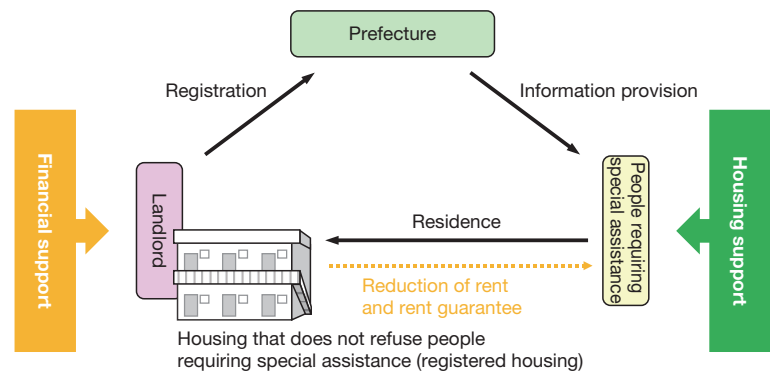
Source) MLIT and MHLW Guide to Serviced Housing for the Elderly

■ Housing Safety Net Scheme

It is important to ensure housing in which people requiring special assistance^{Note 22}, including the elderly, etc., can feel secure.

In order to achieve this, the MLIT has established the Housing Safety Net Scheme. This scheme comprises (1) registration of landlords with local governments, (2) financial support for landlords to renovate registered premises and (3) financial support for residences for people requiring special assistance in securing housing, with regard to rental housing that does not refuse people requiring special assistance (Figure 3-3-4).

Figure 3-3-4 General Depiction of the Housing Safety Net Scheme



Source) MLIT

(Initiatives to support work-life balance for the child-rearing generation, etc.)

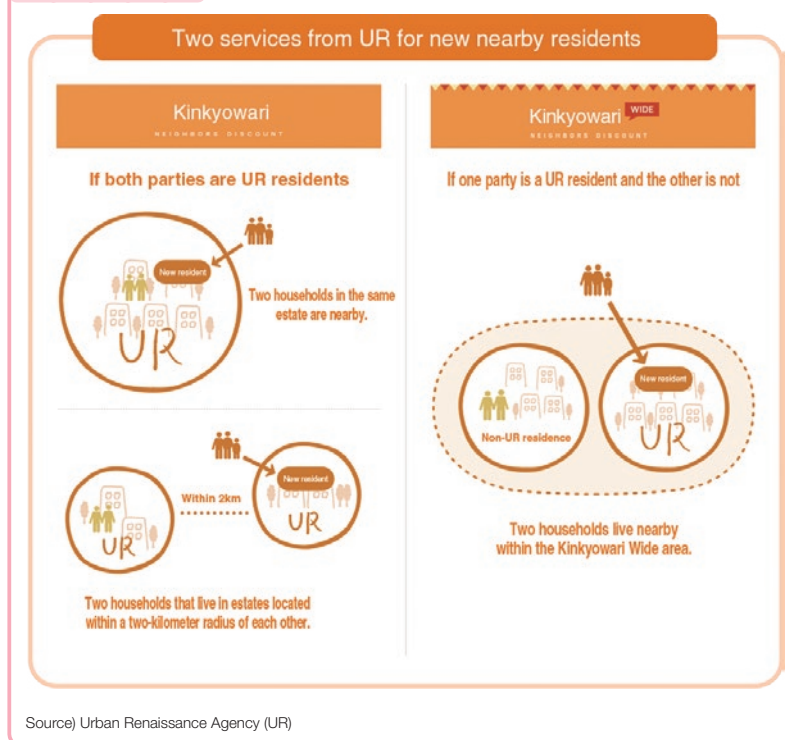
■ Promotion of three-generation neighborhoods to support child-rearing and nursing care

As the declining birthrate and aging population progress rapidly and the population becomes concentrated in urban centers, issues have arisen, such as childcare waiting lists in urban areas and insufficient nursing care staff in suburban areas. Against this backdrop, “neighborhoods” within one hour by car or train for the parents’ and children’s generations are thought to loosely connect nuclear families and lead to the alleviation of issues facing the child-rearing and elderly households.

In response to this, the Urban Renaissance Agency (UR) has established a rent discount scheme to promote “neighborhoods.” Specifically, the scheme conducts rent discounts for households for which it is necessary to provide support, such as child-rearing and elderly households and the households that support them, namely (1) the “Kinkyowari” rent discount for new resident households if households begin living in the same neighborhood and both live in UR rental residences, and (2) the “Kinkyowari Wide” rent discount for new resident households in UR rental residences if households begin living in the same neighborhood, but one household lives in a residence other than a UR rental residence (Figure 3-3-5).

Note 22 Low income earners, the elderly, people with disabilities child-rearing households with single parent or multiple children, etc., recipients of public financial support, foreigners, homeless people, etc.

Figure 3-3-5 Example of Kinkyowari and Kinkyowari Wide

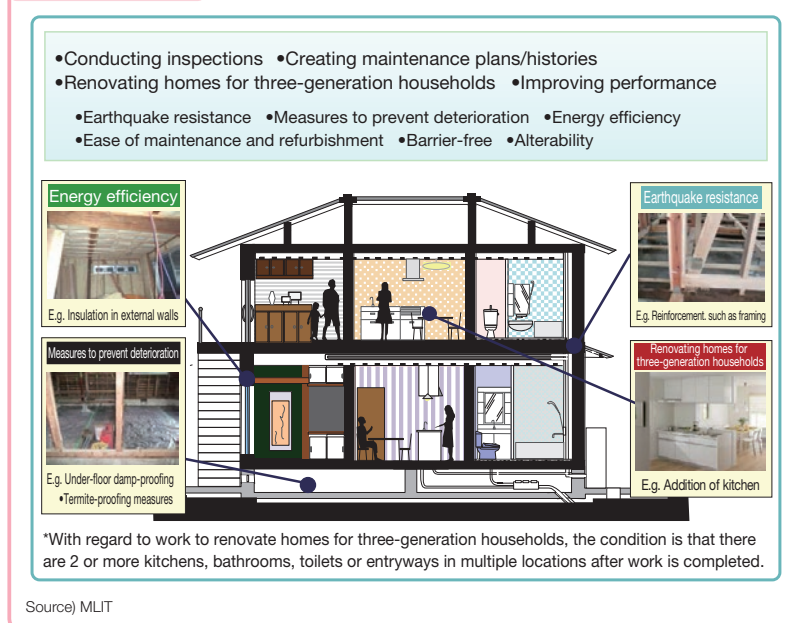


■ Project to promote renovation to improve housing to the level of Long-life Quality Housing

Renovations that contribute to the achievement of long-life housing and cohabitation of multiple households, such as three-generation households, are necessary to create high-quality existing residences and an environment that is conducive to child-rearing.

In response to this, the MLIT is promoting renovation to the level of Long-life Quality Housing by supporting renovation projects that contribute to improved earthquake resistance, etc., and businesses that conduct renovation projects for three-generation households (Figure 3-3-6).

Figure 3-3-6 Project to Promote Renovation to Improve Housing to the Level of Long-life Quality Housing



2 Initiatives to Respond to Diversification of Lifestyles

(Initiatives to support living with more human interaction)

■ Promotion of residence in two regions

It is necessary to secure personnel who will shoulder the burden of regional development in order to shape sustainable regions with diverse appeal. In order to do this, it is necessary for residents of cities to not only move to regions such as rural villages, but also to promote diverse lifestyles such as living in two regions, whereby a household will simultaneously maintain life bases in a city and a regional area (Figure 3-3-7).

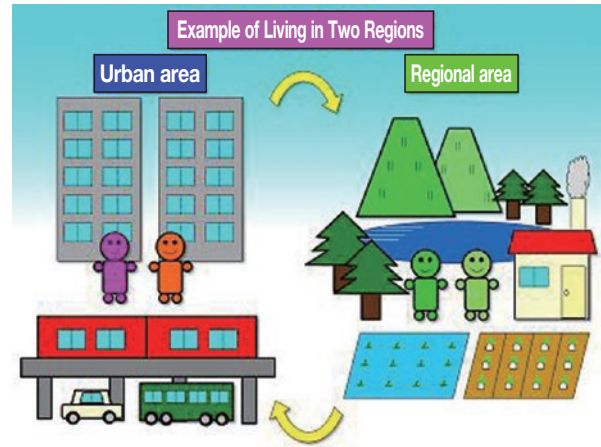
The MLIT is conducting investigations related to pioneering initiatives through public-private cooperation to work toward the promotion of living in two regions. These investigations provide support for initiatives selected by the committee comprising intellectuals, such as advice from intellectuals and assistance for costs to conduct initiatives. Furthermore, we examine the results of initiatives, etc., and consider issues, etc., that must be dealt with to promote living in two regions going forward.

■ Promoting circulation and utilization of vacant homes and vacant land nationwide

The Vacant Homes/Vacant Land Bank is an initiative that posts information about properties such as vacant homes on the websites of local public institutions, etc. It is gradually being implemented as a measure to deal with vacant homes, which will lead to regional revitalization through support for relocation or living in two regions, with approximately 40% of local governments having already set one up and another 20% either preparing to set one up or with plans to set one up in the future (Figure 3-3-8). However, an issue that has been pointed out is that the matters that are disclosed by each local government differ and searching and comparing can be difficult for users.

In response to this, the MLIT has standardized and collected the information on vacant homes, etc., provided by each local government, and commenced trial operation of the National Vacant Homes/Vacant Land Bank in October 2017 to enable users to easily access and search for information from anywhere in the country. In April 2018, we commenced full operation with further increased functionality, such as displaying hazard information focusing on properties such as vacant homes, as well as lifestyle support information, etc., on maps, in addition to introducing the appeal of the region (Figure 3-3-9).

Figure 3-3-7 Example of Living in Two Regions



(Source) MLIT

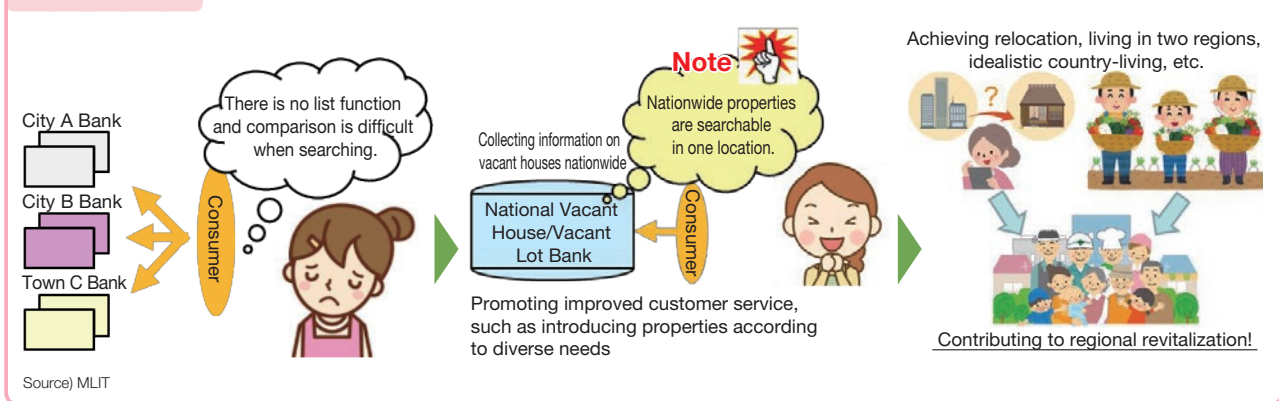
Figure 3-3-8 Example of Relocation Using a Vacant House Bank (Shiso City, Hyogo Prefecture)



(Source) MLIT



Figure 3-3-9 Example of the National Vacant House/Vacant Lot Bank



Section 4 Initiatives Related to Mobility

As observed previously, with regard to mobility, in cities, and in the Tokyo area in particular, crowding of public transport and traffic congestion have become issues, as have reliance on cars and securing means of transport as aging of the population progresses in regional areas. Against this backdrop, initiatives to make movement more pleasant, such as easing of crowding on public transport and easing of traffic congestion, are required in cities, and initiatives to make movement possible, such as maintaining public transport systems and developing autonomous driving technology are required in regional areas. Furthermore, the elderly and child-rearing generations need stations and sidewalks to become more barrier-free, irrespective of their place of residence, and it is necessary to secure ease of mobility for the elderly, etc.

1 Initiatives for comfortable mobility in the city

(Initiatives to ease crowding of public transport and traffic congestion)

■ Improvement of transport services using ICT

In the Tokyo area's rail system, there have been chronic short delays due to crowding, etc., and longer delays due to abnormal weather events, which means that it has become important to expand the information provided to passengers.

Against this backdrop, Tokyu Corporation and others have developed an application to display information on the train's position in real time and transmit crowding information for each car through the recent progress made in the field of ICT (Figure 3-4-1), and aims to improve transportation services by providing detailed information to each passenger.

Figure 3-4-1 Example of Tokyu Line App



Displays level of crowding for each car on the Den-en-toshi Line

Train location

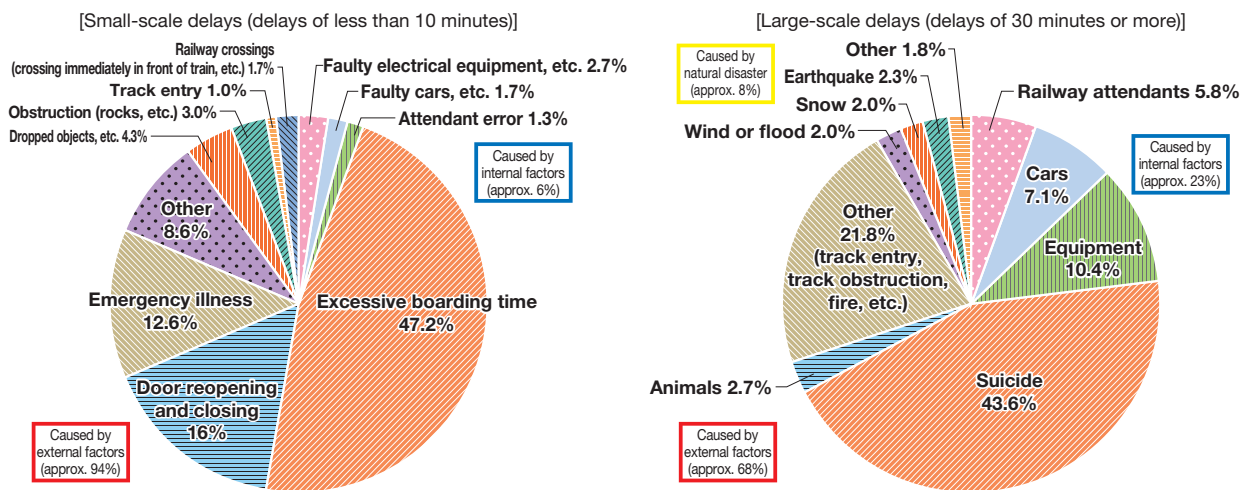
Source) Tokyu Corporation

■ Indication of delays

The Tokyo area's rail network has become far more extensive than it was, with approximately 1,000 km more rails in 2015 than in 1956, for example, but easing of crowding, etc., remains an issue to be addressed.

In order to do so, the MLIT is conducting initiatives to indicate delays on 45 lines in the Tokyo area. These initiatives gather information on delays on each line and put that information on a map, classify the delays as large or small, and analyze the cause of the delays (Figure 3-4-2), as well as investigate strategies to combat delays by each operator, and publish them. Through these initiatives, it has become clear that the main causes of delays vary according to the size of the delays and other factors.

Figure 3-4-2 Causes of Delays in the Tokyo Area



*Answers indicating that the delay was caused by a delay on another line were proportionally allocated to factors other than the factor in question.

*Proportion of causal factors for 396 cases of small-scale delays that occurred on 45 lines in the 20 business days of November 2016

*Proportion of causal factors for 477 cases of large-scale delays that occurred on 45 lines in fiscal 2015 (26 cases per 20 business days)

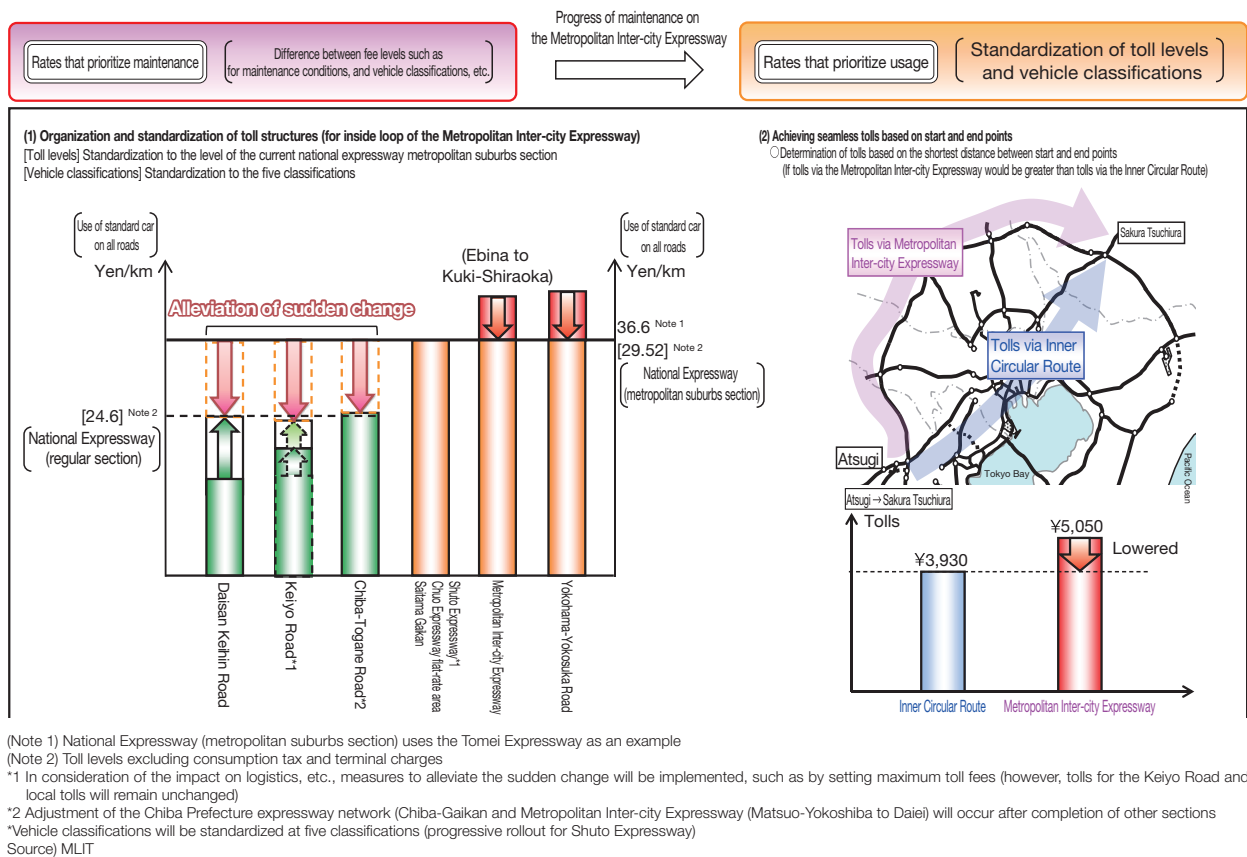
Source) MLIT

Intelligent road use initiatives

Roads are a basic form of infrastructure that supports Japan's economy and the lifestyles of citizens, so it is extremely important to ease or eliminate congestion.

In order to achieve this, the MLIT is revising the toll structure in the Tokyo and Osaka areas, in order to optimize travel on existing networks, designating areas of congestion through big data related to traffic congestion through the use of ICT, and easing or eliminating road congestion through effective pinpoint measures to combat congestion, etc., as intelligent road use initiatives.

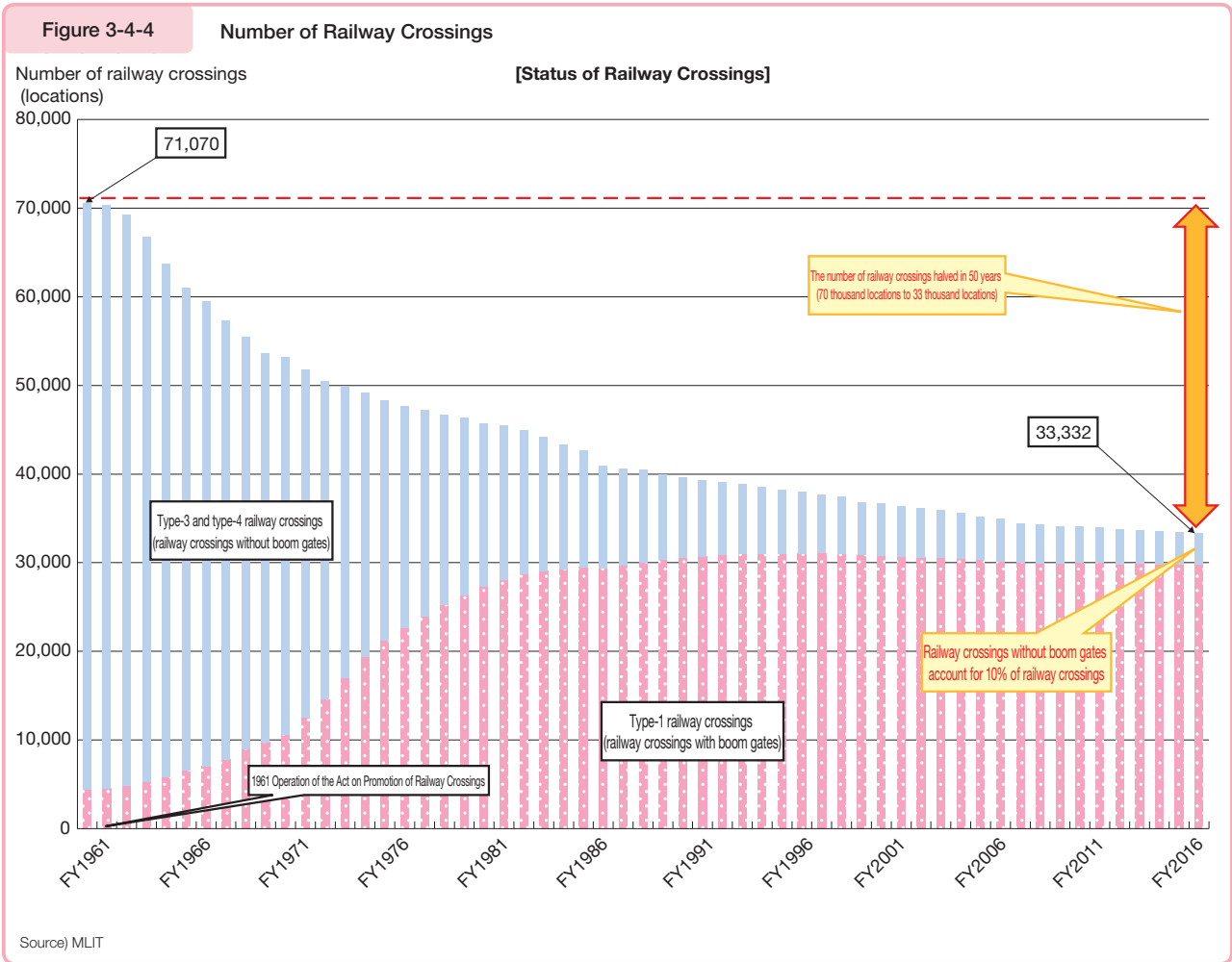
Figure 3-4-3 Toll Structure for Intelligent Use of Expressways in the Tokyo and Kinki Regions



Railway crossing measures

Railway crossings are locations in which roads intersect with train tracks. They are locations in which traffic accidents are likely to occur, and failure of crossings to open may cause traffic congestion.

The MLIT is promoting both soft and hard measures around railway crossings in all possible ways, based on the Act on the Promotion of Railway Crossings, such as by creating multi-level railway crossings and widening railway crossings, etc., as well as using colored pavement and implementing measures in the vicinity of railway crossings and stations. It is believed that initiatives such as these have led to more efficient transport, such as the prevention of accidents and alleviation of congestion, by halving the number of railway crossings and reducing the number of railway crossings without crossing gates to approximately 10% in the 50 years since the Improving the Railway Crossings Act came into force.



2 Initiatives to Secure Mobility in Rural Areas

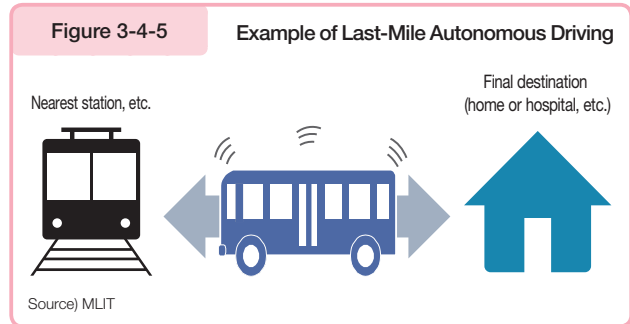
(Initiatives to ensure movement mechanisms through autonomous driving technology, etc.)

Autonomous driving technology is expected to have a major impact on the issues of reducing traffic accidents and ensuring movement mechanisms, etc., for the elderly, etc., and it is a goal for the government as a whole to achieve autonomous driving on highways and driverless transport services in limited areas by 2020. In order to achieve this goal, the MLIT established the MLIT Autonomous Driving Strategy Headquarters in December 2016, and promoted initiatives from the three perspectives of creating an environment for autonomous driving, promoting development and proliferation of autonomous driving technology, and demonstrations and social implementation of measures to achieve autonomous driving.

■ Last-mile autonomous driving

With regard to last-mile autonomous driving, which serves as a link between the closest station and the final destination, demonstrations began in Wajima City, Ishikawa Prefecture, in December 2017 and in Chatan Town, Okinawa Prefecture, in February 2018, in collaboration with the Ministry of Economy, Trade and Industry.

In FY2018, Eiheiji Town, Fukui Prefecture, and Hitachi City, Ibaraki Prefecture, were added, meaning demonstrations are now being conducted in four locations around Japan. It is planned to hold trials and evaluate the social acceptance, etc., of autonomous driving technology that allows a single remote observer/controller to be responsible for multiple trains.

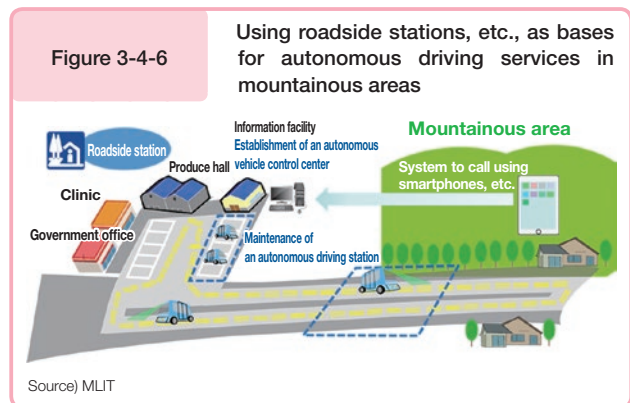


■ Using roadside stations, etc., as bases for autonomous driving services in mountainous areas

In mountainous areas, including underpopulated areas, ensuring the movement of people and the distribution of goods in daily life has become a pressing issue as the aging of society has progressed. Conversely, of the 1,134 roadside stations nationwide, most are in mountainous regions, and these roadside stations are gradually integrating services that are necessary for daily life, such as shopping, medical examinations, and government administrative services.

Using regional bases such as these roadside stations, etc., as focal points, we conducted demonstrations of autonomous vehicle services in 13 locations around Japan in fiscal 2017 with the aim of maintaining regional lifestyles and building a transportation system that links roads and vehicles in order to achieve regional revitalization through the use of autonomous vehicles, for which technology is progressing.

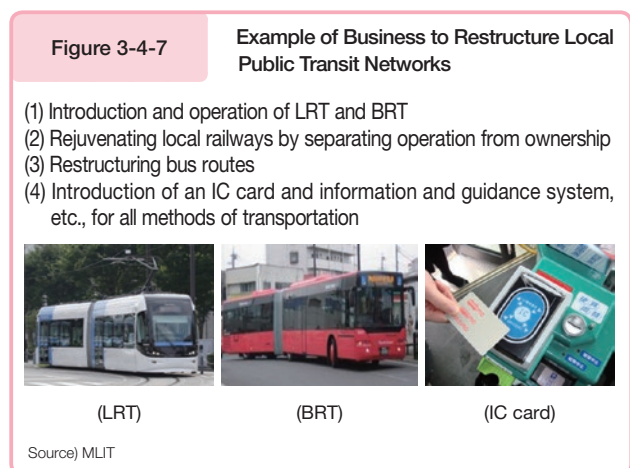
In these demonstrations, trials were conducted, such as delivering produce and processed goods, etc., by mixed freight and delivering produce collected by autonomous vehicles to the city in collaboration with highway busses using roadside stations, etc., as bases, in order to consider business models that are suited to the characteristics of the region. In FY2018, we plan to focus on long-term trials in order to create business models based on the results of these demonstrations.



(Initiatives to maintain and revitalize public transit)

As the population declines and the declining birthrate and aging population progress, it is extremely important to maintain and revitalize public transit in regional areas, and in order to do this, we must build efficient and sustainable regional public transit networks.

With this in mind, the MLIT is promoting assistance for the restructuring of regional public transit networks, based on the Act on Revitalization and Rehabilitation of Local Public Transportation Systems. Specific initiatives include restructuring bus routes for driving efficiency, etc., introducing diverse services, such as on-demand taxis, providing LRT^{Note 23}/BRT^{Note 24}, and maintaining the operation of regional rails with operation separated from ownership (separation of operation and infrastructure).



Note 23 Abbreviation of Light Rail Transit (a next-generation streetcar system). One of the features of the cars is being easy to get on and off due to having low floors, etc.

Note 24 Abbreviation of Bus Rapid Transit (bus rapid transit system). This system makes it possible to ensure speed and punctuality and increase transport capacity through busses running on dedicated bus roads, etc.

3 Ensuring Transport that Is Friendly to the Elderly, etc.

(Promoting barrier-free public spaces)

It is necessary to create an environment in which all people, including the elderly, people with disabilities, and the child-rearing generation, can live and move with confidence. In order to achieve this, it is essential to make public spaces barrier-free.

With this in mind, the MLIT has put in place standards for ensuring that public transit facilities and buildings are barrier-free, and is encouraging compliance with these standards (Figures 3-4-8). We are also supporting initiatives aimed at priority development districts designated by municipalities, such as open spaces in front of stations (Figure 3-4-9).

Furthermore, in February 2018, the Act to Partially Revise the Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc. was submitted to the Diet. The main content of this act is to (1) promote initiatives that integrate hard and soft approaches through public transport operators and (2) enhance regional initiatives, etc., to create barrier-free towns and cities, in order to realize the dynamic engagement of all cities and use the 2020 Olympic and Paralympic Games as an opportunity to create a tolerant pluralistic society.

Figure 3-4-8

Public Transit Facilities and Buildings that Must Comply with Barrier-free Standards

1. Promotion of barrier-free public transit facilities and buildings, etc.

Compliance with the Accessibility Standards for Public Transportation is mandatory for new facilities and best efforts are mandatory for existing facilities. Irrespective of whether facilities are new or existing, the Basic Policy sets development targets for each type of facility, and promotes development in accordance with them.

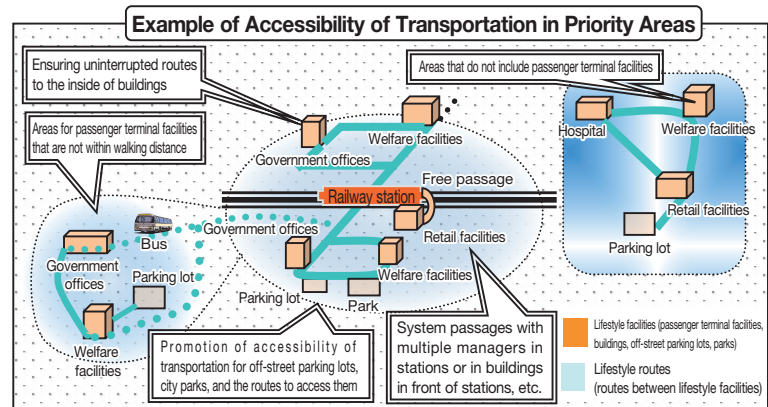
Mandatory best efforts for public transit business operators with regard to provision of information and education and training of staff

Passenger terminal facilities and vehicles, etc.	Roads and off-street parking lots	City parks	Buildings
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(Source) MLIT

Figure 3-4-9

Example of Accessibility of Transportation in Local Regions, etc., Focusing on Stations



(Source) MLIT

Part I Summary

The arrival in Japanese society of full-scale depopulation, birthrate decline and population aging is expected to create various issues and major changes to life in Japan. When that happens, we must do what it takes to be a society in which each and every citizen can lead fulfilling daily lives—where everyone can shine.

Part I of this white paper presented an overview of changes in the form of Japanese society and land, and the corresponding issues. This part of the white paper also presented research and analyses as to citizens' awareness and ideal visions in four lifestyle categories: how Japanese people work, have fun, live and move. This part of the paper also presented efforts in national land and transportation related to those categories.

In light of the above and to summarize Part I, let us review issues in terms of the four lifestyle categories, the path ahead, the form of lifestyles and the role of the MLIT in moving toward the future.

1 The Path Ahead and the Form of Lifestyles

In terms of how Japanese people work, as the workforce dwindles and other problems persist, we must find ways to engage women and elderly people, help the child-raising generation achieve work-life balance, improve productivity and more. The path ahead for addressing these issues includes finding new employment for women and elderly people, helping the child-raising generation achieve work-life balance, diversifying work styles based on life stages, and streamlining work by reforming attitudes and innovating technology.

In terms of how Japanese people have fun, issues include finding ways to fully capitalize on elderly people's strong motivation to contribute to society, increasing leisure hours for the working generation, finding places for young people to enjoy themselves, and creating recurrent education opportunities. The path ahead for addressing these issues includes creating leisure time through such efforts as continuing to promote work style reform, improving the appeal of tourism, creating opportunities for social participation and other means of diversifying and intensifying fun.

In terms of how Japanese people live, issues include dealing with elderly people living alone or with a spouse only—a segment that is expected to increase in urban areas—and maintaining community functions in rapidly depopulating rural areas. The path ahead for addressing these issues includes building sustainable communities, securing housing and otherwise creating environments in which elderly people and others can continue to live free of worry, and supporting ways of living that increase interaction between people, such as moving to the countryside or spending part of retired life in the countryside.

In terms of how Japanese people move, issues include traffic on roads and congestion on public transportation in urban areas, and the progression of automobile dependency and situations that force elderly people to continue driving in rural areas. The path ahead for addressing these issues includes mitigating traffic on roads and congestion on public transportation in urban areas, maintaining and reinvigorating public transportation and securing modes of transportation using autonomous driving and the like in rural areas, and using universal accessibility to ensure that elderly people and others can move around easily in both urban and rural areas.

Lifestyles should change significantly as progress is made in addressing these issues. As both structural and non-structural elements are made more universally accessible in the future, elderly people will be able to live with fewer worries; we will achieve secure living. By giving the child-raising generation, women and elderly people access to more flexible work styles, we will achieve diverse ways of living. By creating many places for enjoyment, activities that benefit society and other opportunities, we will achieve fulfilling lives. Finally, achieving these kinds of lifestyles should help us become a society in which everyone can shine.

2 The Role of the MLIT in Moving Toward the Future

Because national land and transportation are such important elements of the lifestyles of each and every person in Japan, they contribute largely to lifestyle changes. In light of this fact, moving toward the future, the MLIT will work diligently in its administration of national land and transportation to make infrastructure safer and more convenient in support of secure living, to promote work style reform through productivity revolution and other efforts that lead to diverse

ways of living, and through policies for diversifying and intensifying fun to create fulfilling lives, thereby making Japan a society in which everyone can shine.



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Part II

Trend in MLIT Policies

Chapter 1

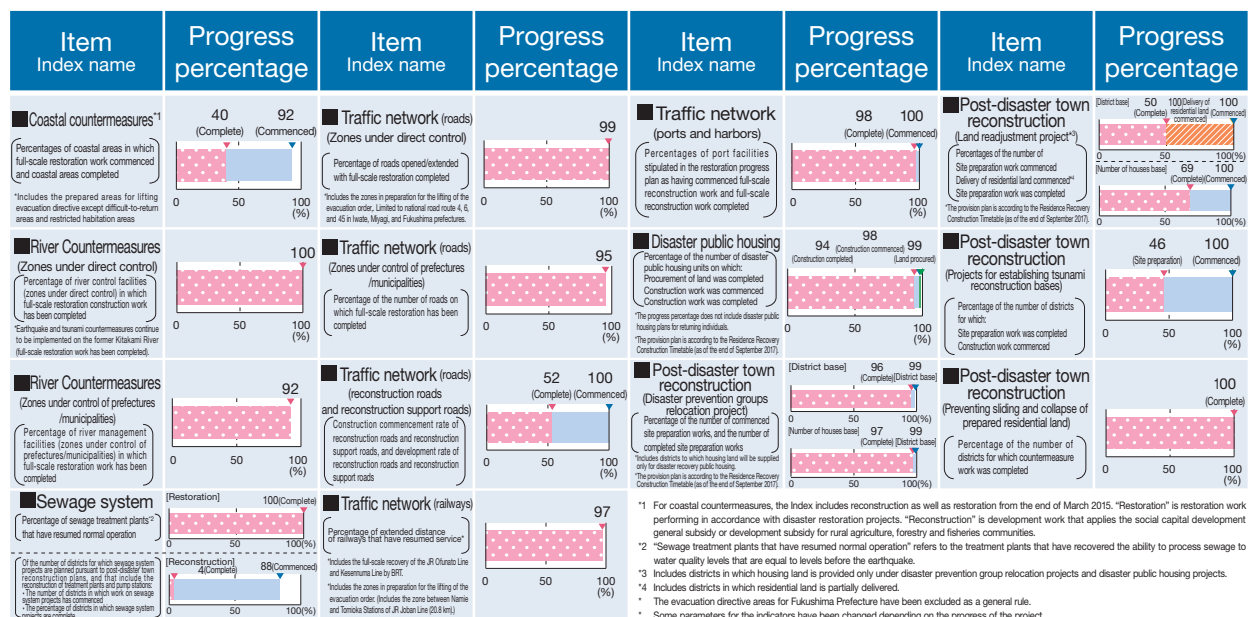
Initiatives towards Restoration and Reconstruction from the Great East Japan Earthquake

Section 1 Current Status and Measures Towards Restoration and Reconstruction

Accelerating restoration from the Great East Japan Earthquake is one of the top priorities of the MLIT. Although the number of refugees has decreased from the initial 470 thousand individuals at the time of the earthquake, around 71 thousand people^{Note 1} currently lead lives in evacuation in approximately 1,044 municipalities^{Note 2} throughout 47 prefectures. Although infrastructure-related recovery efforts, such as the completion of permanent housing, are progressing steadily, many people are still forced to lead a life of inconvenience, and it is necessary to support them to rebuild their lives and livelihoods as quickly as possible. MLIT will come together as a united body to be attentive to voices from disaster-affected areas through the Regional Development Bureau, the District Transport Bureau, the Japan Meteorological Agency, and the Japan Coast Guard, etc. in order to give people in disaster-affected areas a sense of having recovered by the completion of the recovery period in 2020.

Restoration and reconstruction of basic infrastructure such as ports and roads, and reconstruction of houses is progressing steadily and we will continue to ensure we promote these measures. Furthermore, in order to promote the return of residents and improve their quality of life, we will provide indirect support, such as by creating sustainable public transport networks. In order to restore livelihoods in disaster-affected areas, it is important to promote tourism, so we have been engaging in careful and detailed initiatives to encourage visitors to Tohoku according to the situation in each prefecture, such as initiatives to eradicate rumors. We are providing support as necessary to establish special reconstruction and revitalization zones, etc., for the recovery and reconstruction of Fukushima.

Figure II-1-1-1 Status of Progress Towards Full-scale Restoration and Reconstruction of Public Infrastructures (as of the end of January 2018)



Note 1 71,365 people. As of March 15, 2018. Reconstruction Agency study.

Note 2 As of March 15, 2018. Reconstruction Agency study.

Section 2 Steady Recovery and Reconstruction of Infrastructure and Transportation

(1) Outline

For the public infrastructure under the jurisdiction of the MLIT, we are steadily working toward transitioning to full-scale restoration and reconstruction based on the project plan and progress schedule. We will continue our endeavors now and in the future to achieve a full recovery of northeastern Japan as soon as possible, while staying mindful of requests from other disaster-stricken areas.

(2) Coastal Countermeasures

In terms of full-scale restoration and reconstruction work of coastal levees, etc., of the shores of the 677 districts where restoration and reconstruction work is to be done, construction has begun in 649 districts and had been completed in 320 districts as of the end of March 2018. Of these, the approximately 40 km of national construction area (including the section for which the national government will cover disaster recovery) had been completed along its entire length as of the end of March 2017.

In proceeding with construction, whenever possible we are incorporating structures where the effects of the levees will persistently demonstrate their capabilities, even when they are struck by tsunamis. In Iwanuma City and Yamamoto Town, Miyagi, we have established a model in which the coastal levees are integrated with green coastal levees comprised of coastal levees with vegetation planted throughout. We also actively use disaster waste for coastal levee material, while paying careful attention to the surrounding landscape and natural environment during reconstruction.

(3) River Countermeasures

Full-scale restoration work to secure pre-earthquake safety levels has been completed for the affected river management facilities in zones managed by the national government. Building on this, we are implementing the necessary earthquake and tsunami countermeasures, and aim to complete them by the end of FY2020. In addition, full-scale restoration work has been completed in approximately 90 percent of locations in zones under control of prefectures/municipalities.

(4) Sewage System

With regard to wastewater treatment plants, Minami-Gamo Wastewater Treatment Plant in Sendai, which was severely damaged, had been restored by the end of FY2015, and all 124 damaged plants have now been restored (excluding three plants within the Fukushima evacuation order area and two plants that have been abolished). In regards to the 962 km of sewer pipes affected by the disaster, 842 km was fully restored as of the end of March 2018. We will continue to work in accordance with the reconstruction plan and aim for the earliest possible restoration and reconstruction.

(5) Countermeasures against Sediment Disasters

We will push ahead with countermeasures against sediment disasters in Iwate, Miyagi and Fukushima Prefectures, where sediment disasters occurred at the time of the Great East Japan Earthquake.

(6) Roads

(1) In regard to expressways, the Joban Expressway, which was fully opened to traffic on March 1, 2015, is frequently used. The Joban Expressway also encourages companies to move in the area along this expressway in Hamadori, Fukushima, which generates employment in this area. Work on the conversion of parts of the Joban Expressway into a four-lane highway and the addition of lanes is expected to be completed within the Reconstruction and Revitalization Period. Additional interchanges, Okuma IC and Futaba IC, were newly planned to develop on June 12, 2015. (2) In regard to the national highways that are under direct control of MLIT, full-scale reconstructions were basically completed by the end of FY2012. Furthermore, the major disaster areas were reconstructed based on the restoration plan, including the bridges on national road route 45 and other structures. (3) In regard to the reconstruction of roads/support roads, to contribute to the post-disaster reconstruction of afflicted areas, the goal is to complete reconstruction as soon as possible by using the Project Promotion Process (PPP), which makes use of the private sector's technological skills. Projects were planned for a total of 550 km of roads and support roads, including the section opened after the Great East Japan Earthquake. Over

90% (503 km) of the roads have opened or have moved a step forward toward reopening. In FY2017, we opened a total of 29 km that was planned as a new project after the earthquake including the Sanriku Coastal Road (Yamada to Miyako-Minami).

(7) Railroads

Of the railways that were damaged by the Great East Japan Earthquake, the Sanriku Railway resumed full operations in April 2014, the Ishinomaki Line in March 2015, and the Senseki Line in May 2015. Regarding the Ofunato Line and the Kesenuma Line, the BRT^{Note} has been operated as a temporary restoration measure to secure public transportation, and acceptance of full-scale restoration by BRT was agreed for the Ofunato Line in December 2015 and for Kesenuma Line in March 2016. As a result, the only railway lines with zones where service is still suspended are two of Japan Railways East Japan lines (Yamada Line and Joban Line).

As for the Yamada Line, JR East and relevant parties, including local government bodies, agreed to transfer the management of the line from JR East to Sanriku Railway in February 2015. Restoration work commenced in March 2015, and is proceeding with an eye to the scheduled reopening date of March 23, 2019.

In regards to the Joban Line, the policy to resume operations for the entire line in the future was decided in March 2015. In March 2016, the goal became to open the entire line by the end of FY2019. Of the sections that were not operating, the section between Haranomachi and Odaka stations reopened in July 2016, the section between Soma and Hamayoshida stations reopened in December 2016, the section between Odaka and Namie stations reopened in April 2017, and the section between Tomioka and Tatsuta stations reopened in October 2017. In addition, the goal is to open the remaining section between Namie and Tomioka Stations by the end of FY2019.

(8) Ports/Harbors

With regard to ports and harbors, the breakwaters at the ports of Soma and Kamaishi, and disaster restoration of major port facilities, was completed in FY2017. Port/harbor facilities that are foundational to the economic recovery, such as quay walls and breakwaters, have been repaired.

The Japan Coast Guard plans to complete the restoration of incomplete 5 (as of March 2018) of the 158 aids to navigation that were damaged by the Great East Japan Earthquake in concert with the restoration of ports and harbors and breakwaters.

Meanwhile, the sea area landfill sites of the Sendai Shiogama and Ishinomaki ports zone and the Ibaraki and Hitachi-Naka ports zone are undergoing maintenance in order to advance the disposal of disaster waste produced by the Great East Japan Earthquake. Landfill disposal has started in the Sendai Shiogama and Ishinomaki ports zone in February 2013 and in the Ibaraki and Hitachi-Naka ports zone in July 2012.

Section 3

Promoting Post-Disaster Town Reconstruction and Securing Stability of Residency

To give the disaster victims a prospect as to when they will be able to secure a residence, we are working on the promotion of post-disaster town reconstruction and securing the stability of residency, taking into account the “Residence Recovery Construction Timetable” that organizes the prospects for the provision of building lots for private residences and the completion of disaster public housing based on reports from local governments. As the reconstruction projects progress full-scale in the disaster affected areas, we need to compensate for the lack of personnel and know-how in the disaster affected municipalities to help the projects progress smoothly.

For these reasons, in addition to supporting the progress of projects by providing personnel support to disaster affected local governments, implementing procurement methods for relieving the burden of procurement operations in disaster affected local governments, and utilizing the Urban Renaissance Agency, we also disseminate information by providing technical support through notifications regarding procedures for the efficient execution of reconstruction projects and by posting the “Reconstructive City Development Index”, an online website for compiling support initiatives.

Note Abbreviation for Bus Rapid Transit, meaning a bus transportation system that is faster and more punctual than regular route buses by operating trains on bus-only roads.

(1) Promoting Post-disaster Town Reconstruction

For post-disaster town reconstruction, various projects are being carried out, such as the Disaster Prevention Group Relocation Project, which helps people whose homes are in zones considered unsuitable for residence, and the Disaster Urban Area Land Recovery and Readjustment Project, which supports comprehensive town building by combining work on public facilities, such as building sites and roads, with site reconstruction work on tsunami disaster-affected urban areas, as well as the preparation of building sites for relocation to higher ground.

As of the end of March 2018, the Disaster Prevention Group Relocation Project had secured the consent of the Minister, which is a statutory procedure required for starting the project, for all 330 districts in which implementation of the project was planned under the Residence Recovery Construction Timetable; almost all districts have started site preparation work and 321 districts have completed such work. As for Disaster Urban Area Land Recovery and Readjustment Project, project approval was obtained and construction work started in all 50 districts under the Residence Recovery Construction Timetable, and 29 of those districts have completed site preparation work.

(2) Securing Stability of Residency

For victims who are able to build or obtain housing on their own, interest rates are lowered for disaster recovery housing loans provided by the Japan Housing Finance Agency. Disaster recovery housing loans are also provided to victims who only suffered damage to real estate. Pre-existing loans are given up to five-year extensions on payments and payment deadlines, and interest rates are lowered for such loans when the borrowers meet certain criteria.

Victims who face difficulties in building or obtaining housing on their own are being provided public housing (disaster public housing) by local governments. In addition to distributing grants to offset the cost of maintenance in these facilities and expenses resulting from lowering rent for victims, we are devising special arrangements concerning the requirements for occupant qualification and assignment of housing facilities.

Moreover, in response to the Fukushima No. 1 Nuclear Power Plant accident, we plan to secure stability of residency for refugees residing in evacuation order areas (evacuees or returnees) by providing them the same accommodations as disaster victims, such as moving into disaster public housing.

Figure II-1-3-1 Development Status of Disaster Public Housing (March 31, 2018)

Prefecture	Procuring of land	Design started	Construction started	Construction completed	Overall plan
Iwate Prefecture	5,700 houses 212 districts	5,865 houses 215 districts	5,577 houses 204 districts	5,284 houses 186 districts	5,865 houses
Miyagi Prefecture	15,823 houses 443 districts	15,823 houses 443 districts	15,675 houses 440 districts	15,415 houses 433 districts	15,823 houses
Fukushima Prefecture	8,040 houses 184 districts	7,965 houses 183 districts	7,797 houses 178 districts	7,797 houses 178 districts	8,066 houses ^(Note)

(Note) - The plan number is from the Residence Recovery Construction Timetable (as of the end of March 2018).

- Regarding Fukushima's disaster public housing, the overall plan is not finalized for disaster public housing for returnees from evacuation due to the nuclear disaster.

Source) MLIT

Section 4 Securing Local Public Transportation and Promoting Tourism

(1) Securing Local Public Transportation

In regards to local public transportation, which suffered damage from the Great East Japan Earthquake, we are implementing exceptional measures, such as mitigating the auxiliary requirements for the Regional Public Transportation Securement, Sustainment, and Improvement Projects to support the securing and maintaining of local public transportation systems, such as buses, and to share taxis in disaster affected areas.

Specifically, these measures support the securing and maintaining of inter-regional mainline bus transportation networks, as well as community bus transportation for daily commutes between evacuation shelters, temporary housing, remaining settlements, and hospitals, shops, and public agencies.

(2) Reviving Tourism

According to the Overnight Travel Statistics Survey by the Japan Tourism Agency, the total number of guest nights of international visitors in 2017^{Note 1} was 275.9% of the level of 2010, which was before the earthquake, while the total number of guest nights of international visitors in the six prefectures of the Tohoku region^{Note 2} was 187.1% of pre-earthquake levels. Although this level exceeds the level prior to the earthquake, growth has been limited in comparison to the national level.

In response, following on from its efforts in 2016, the Japan Tourism Agency and the Japan National Tourist Organization (JNTO) conducted intensive promotion of the Tohoku Region, including showing footage that highlights the appeal of the Tohoku region on major international broadcasters, inviting media influencers and travel agents from each market to the region, conducting joint advertising campaigns, and encouraging online travel agents to send tourists to the region, as a global destination campaign, in collaboration with Tohoku Tourism Promotion Organization, local governments, and people in the tourism industry.

In addition, initiatives to attract tourists from overseas by capitalizing on the effects of the rapid increase in inbound tourism to Japan, in order to accelerate the recovery of disaster-affected regions through tourism, are supported by the Subsidy for Tohoku Tourism Revival established in FY2016. Initiatives include providing more fulfilling activities during tourists' stay (e.g. experiential programs conducted according to proposals made by the local communities), enhancing promotion, and creation of an environment suitable for receiving foreign travellers. In addition, to facilitate the earliest possible recovery of tourism in Fukushima Prefecture, we have supported tourism-related businesses that contributed to the efforts for disaster recovery and reputation damage control, such as domestic promotions implemented by the prefectural government, and a project to revive educational travel. Additionally, we have supported community efforts to create far-ranging sightseeing routes throughout Tohoku.

Section 5 Ensuring the Smooth Execution of Reconstruction Projects

The restoration/reconstruction projects for the disaster areas are moving forward steadily and the home rebuilding/town reconstruction is basically progressing according to the "Residence Recovery Construction Time Table".

MLIT has been taking necessary measures to assist the smooth execution of reconstruction projects by cooperating with the institutions concerned and related industries in "Restoration Acceleration Meetings" (held 8 times since March 2013) and the "Council to Secure Execution of Reconstruction Projects" (held 8 times since December 2011). In order to set predetermined prices that reflect current market prices, the unit price of design work for public works in the three affected prefectures has been raised six times since April 2013, and reconstruction production rates, which are based on construction works conducted, and the reconstruction coefficient were introduced. Also, the national and prefectural governments established public ready-mixed concrete plants.

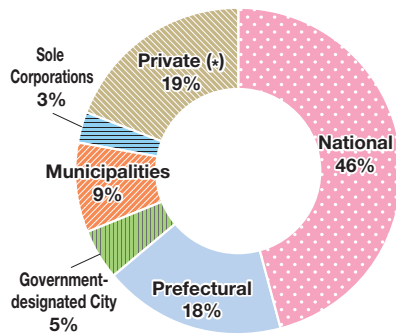
Furthermore, the MLIT is also working on measures to ensure smooth execution of projects for public building construction, such as disaster public housing, schools, government offices, and hospitals. These measures include the reflection of current market prices and the actual status of construction sites at predetermined prices, such as by continuing the special measure on standard construction expenses for disaster public housing and promoting the use of the construction and repair cost estimation method developed by the MLIT for the reconstruction of public buildings, as well as by providing individual consultation with care at the public buildings construction inquiry desk.

Note 1 Preliminary figures.

Note 2 The six prefectures in Tohoku Region: Aomori, Iwate, Miyagi, Akita, Yamagata, and Fukushima.

Figure II-1-5-1 Consultation at Public Buildings Construction Inquiry Desk (Nationwide Total)

Breakdown of Organizations using Consultation Service (April 2017 to March 2018) (nationwide)



Breakdown of Use of Consultation Service by Content (April 2017 to March 2018)

Content of Consultation	Total Number of Consultations (nationwide)	Total Number of Consultations (Tohoku jurisdiction)
Planning and budget measures	337	124
Order and implementation (design, quantity survey, bidding process and construction administration)	1,241	28
Conservation	491	60
Other	145	3
Total	2,214	215

Inquiries on consultations should be directed to the public buildings construction inquiry desk on the MLIT website or to eizen@mlit.go.jp.

* Private: Private orderers, design offices, construction business operators, etc.

Source) MLIT

Section 6 Reconstruction and Revitalization of Fukushima

After the Tokyo Electric Power Fukushima No. 1 Nuclear Power Plant accident, the number of people instructed to evacuate from the evacuation zones was approximately 24,000 individuals^{Note 1} (according to studies by the Cabinet Office), while the total number of refugees in Fukushima Prefecture, including self-imposed evacuees, climbed to approximately 50,000 individuals^{Note 2} (according to studies by Fukushima Prefecture). Evacuation directives have been lifted in most restricted residential zones and zones that are ready for the lifting of the directives. It is necessary to promote the creation of an environment conducive to return and further deepen strategies to support return and support for new lifestyles, as well as to expand initiatives aimed at rebuilding businesses, livelihoods and lives, and achieving self-sufficiency.

In areas where return has been deemed to be difficult, a system of plans has been established under the Revised Act on Special Measures for the Rebirth of Fukushima, which was promulgated and enacted in May 2017, to promote the rebuilding and recovery of Special Reconstruction and Revitalization Zones, with the aim of lifting evacuation orders and making resettlement possible within about five years. In September 2017, Futaba, Okuma, Namie, and Tomioka towns became subject to reconstruction plans for Special Reconstruction and Revitalization Zones, and work has commenced in some areas. It is necessary to promote the creation of an environment conducive for evacuees to return to their homes as soon as possible and further deepen strategies to support return and support for new lifestyles, as well as to expand initiatives aimed at rebuilding businesses, livelihoods and lives, and achieving self-sufficiency.

The MLIT strives to restore and reconstruct infrastructures in accordance with the Timetable, implement measures for the toll-free use of expressways for refugees, and overcome harmful rumors. In addition, within the framework of the amended Act on Special Measures for the Rebirth of Fukushima, measures are taken so that we can carry out infrastructure improvement projects on behalf of municipalities and provide support for the establishment of new downtown areas in Special Reconstruction and Revitalization Zones, so that allowing people to live in them.

Section 7 Building Tsunami-resistant Communities by Learning from the Great East Japan Earthquake

Based on the lessons learned from the Great East Japan Earthquake, in December 2011 the Law for Tsunami Disaster Prevention District Building was established and put into effect. This law is based on the thinking that even when a maximum level tsunami occurs, people's lives are the number one priority, and the promotes building districts that are well fortified against tsunami disasters with the concept of multiple defenses that combine structural and non-structural measures.

Note 1 As of April 1, 2017.

Note 2 As of February, 2018.

The MLIT provided technical advice related to the enactment of the aforementioned law to support local governments in building communities resistant to tsunamis, published guidance documents regarding the settings for tsunami flood suppositions, and opened a consultation desk for inquiries related to tsunami flood suppositions. Also, in order to configure a maximum class tsunami fault model for the Sea of Japan where the accumulation of scientific knowledge is insufficient, the MLIT is providing technical support by publishing reports of the Study Commission of a Large Scale Earthquake in the Sea of Japan.

As of the end of March 2018, 34 prefectures had announced tsunami flood suppositions for maximum class tsunamis. Furthermore, tsunami disaster prone areas have been designated in nine prefectures, and of these, Izu City in Shizuoka Prefecture has been designated a special disaster prone area. Plans (promotion plans) have been created to generally promote the creation of tsunami disaster caution zones in 10 municipalities.

In the disaster affected areas, 24 districts are proceeding with recovery efforts using the Law concerning the Construction of Tsunami-resistant Communities, like making city planning decisions regarding the Tsunami-resistant Urban District Forming Facility by Building a Housing Complex (as of the end of March 2018).

Going forward, we must take into consideration the characteristics of the entire region and using the existing public facilities to combine 'structural' measures like sea embankments with 'non-structural' measures like evacuation drills to further proactively advance the construction of tsunami-resistant communities to protect the lives of citizens.

Chapter 2

Deploying Land, Infrastructure, Transport and Tourism Administration Tailored to Urges of the Times

Section 1

Driving the Implementation of a National Land Policy Package

In order to respond to drastic changes in the situations surrounding national land, including rapidly declining population, low birth rates, and a possibly imminent large-scale disaster, the MLIT published the “Grand Design of National Spatial Development Towards 2050” in July 2014 to share the sense of crisis with the public and show the principles of national land and regional development with a medium- to long-term view (generally 2050 in sight). Taking this into consideration, in August 2015, changes to the Second National Spatial Strategy (National Plan) and the National Land Use Plan (National Plan) for roughly the next 10 years were adopted through a Cabinet decision. In March 2016, the National Spatial Strategies (Regional Plans) were adopted through a decision of the Minister of Land, Infrastructure Transport and Tourism.

The National Spatial Strategies (National Plan) have the basic vision of building convection-promoting national land that creates active movements of people, goods, money, and information between regions (convection) by refining regional individualities that are varied. Also, as national and regional structures for creating convection, the idea of compactness and networks—consolidating various functions that include life services into certain regions in a compact manner and connect regions with networks—was laid out. The building of the convection-promoting national land and compactness and networks for that purpose should contribute to realization of the balanced development of national land that is suitable in the coming age and leveraging the unique individualities of nature, culture, and industries specific to each region.

The Fifth National Land Use Plan (National Plan) aims at land use to enhance resilience, sustainability and prosperity in our country.

In order to give consideration to effective comprehensive policies under both plans, the four technical committees that were established within the National Land Development Council plan promotion task force considered policies for national land that promotes convection, and reported their findings to the National Land Development Council and plan promotion task force. In addition, promotion of Regional Cooperation Projects based on characteristics and resources of each of the eight regional blocks around Japan, as defined in the National Spatial Strategies (Regional Plans), is ongoing, and support is being provided for the creation of early examples.

Furthermore, the formulation and modification of the National Land Use Plan (prefectural and municipal plans) continues to progress, and investigations and assistance are being implemented toward their promotion.

Section 2

Measures, etc. against Aging Social Infrastructures

(1) Measures against aging social infrastructure

Going forward, it is anticipated that Japanese infrastructure that was built during or after the period of rapid economic growth will deteriorate simultaneously (Figure II-2-2-1). It is necessary to ensure the safety and security of citizens, and to reduce and standardize the total cost of maintenance and replacement, by maintaining and replacing infrastructure that will simultaneously deteriorate in a systematic manner.

With this in mind, in November 2013, the Basic Plan for Extending Service Life of Infrastructure was devised as a whole of government initiative. It is a basic plan to indicate courses of action for systematic maintenance and replacement, etc.

Based on this plan, MLIT devised the MLIT Plan for Extending Service Life of Infrastructure (action plan) in May 2014 ahead of all other ministries and agencies, which emphasizes preventative maintenance, as a plan to clarify medium to long-term courses of action, in order to thoroughly promote maintenance and replacement of infrastructure under the

jurisdiction of MLIT.

At present, according to the action plan, managers of each facility conduct inspection and repairs, etc., and strive to conduct systematic maintenance and replacement, such as by devising life extension plans (individual facility plans) that include specific policies for each individual facility.

MLIT will continue to work on measures to tackle aging infrastructure in a focused and systematic manner so that the required infrastructure will be sustainably maintained.

(2) Development and Expansion of the Maintenance Industry

Based on the report “Recommendations on Maintaining, Managing and Renewing Social Infrastructures” compiled in December 2013, in FY 2014, the Social Infrastructures Maintenance Strategy Subcommittee under the Infrastructure Development Council and the Traffic Policy Council investigated and deliberated matters that require continued discussions for the development of specific measures, and compiled recommendations on future directions concerning:

1. Establishment of a qualification system for inspections and diagnoses
2. Framework for conducting maintenance and management smoothly and measures for supporting local governments
3. Sharing and visualizing information pertaining to maintenance, management and renewal.

With regard to “1. establishment of a qualification system for inspections and diagnoses”, required knowledge and skills were set forth according to job descriptions, a system for registering private qualifications was introduced, and the registered qualifications on inspections, diagnoses and the like have been used since the ordering activity of FY2015.

With regard to “2. framework for conducting maintenance and management smoothly and measures for supporting local governments,” we are having discussions in cooperation with local governments on the methods of comprehensively outsourcing maintenance and management work to the private sector for multiple areas and facilities.

With regard to “3. sharing and visualizing of information pertaining to maintenance, management and renewal,” information on maintenance and renewal that is especially important, such as the status inspections at each facility, will be made visible via infrastructure maintenance portal sites.

Also, in an effort to take advantage of technology and know-how from various industries in each stage of the infrastructure maintenance cycle, while striving to cultivate and revitalize the maintenance industry, we established the Japan

Figure II-2-2-1 Present Status of Aging Social Infrastructure

Of all the infrastructure that was built after the rapid growth period of the nation's economy, including highway bridges, tunnels, rivers, sewage systems and ports and harbors, the proportion of those facilities that will reach 50 years of age or older will expand at an accelerating pace.

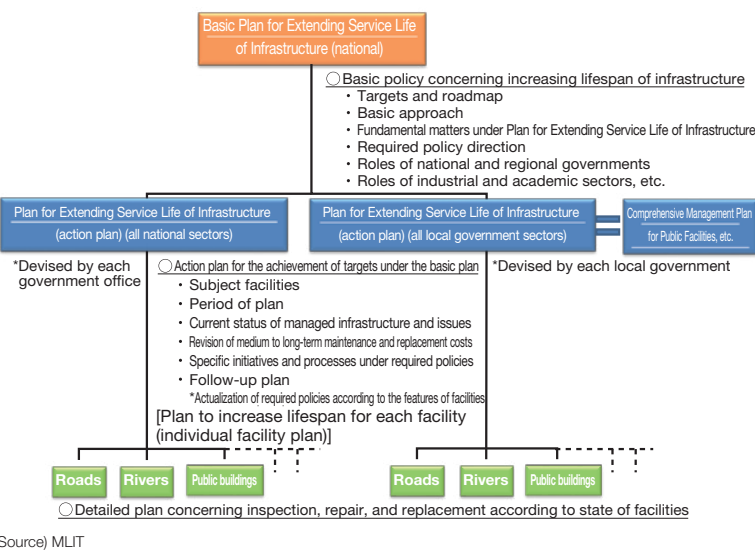
* The status of aging facilities is not uniformly determined by when they were initially built, but varies depending on where they are located, how they have been maintained and managed and so on. For convenience's sake, an actual age of 50 years after initial construction is used as a measure of aging.

<<Percentage of social infrastructure that is 50 years old or older>>

	March 2018	March 2023	March 2033
Highway bridges [about 730,000 bridges ^{Note 1} (2 m long or longer)]	Approx. 25%	Approx. 39%	Approx. 63%
Tunnels [about 11,000 tunnels ^{Note 2}]	Approx. 20%	Approx. 27%	Approx. 42%
River management facilities (such as water gates) [about 10,000 facilities ^{Note 3}]	Approx. 32%	Approx. 42%	Approx. 62%
Sewerage pipes [Total distance: approx. 470,000 km ^{Note 4}]	Approx. 4%	Approx. 8%	Approx. 21%
Port and harbor quays [Approx. 5,000 facilities ^{Note 5} (4.5 m deep or deeper)]	Approx. 17%	Approx. 32%	Approx. 58%

Note 1: Of the approximately 730,000 highway bridges, approximately 230,000 bridges for which the year of initial construction is unknown have been excluded from the calculation of percentage. (FY2017 total)
 Note 2: Of the approximately 11,000 tunnels, approximately 400 tunnels for which the year of initial construction is unknown have been excluded from the calculation of percentage. (FY2017 total)
 Note 3: State-managed facilities only, including approximately 1,000 facilities whose year of initial construction is unknown. (Since records generally exist for facilities built within the last 50 years, facilities whose year of initial construction is unknown are sorted out as being approximately 50 years of age or older.)(FY2017 total)
 Note 4: Including approximately 20,000 km of piping whose year of initial construction is unknown. (Since records generally exist for facilities built within the last 30 years, facilities whose year of initial construction is unknown are sorted out as being approximately 30 years of age or older and their length proportionally distributed in the ratio of construction by documented number of years elapsed.)(FY2017 total)
 Note 5: Approximately 100 quays whose year of initial construction is unknown have been excluded from percentage calculations. (FY2017 total)
 Source) MLIT

Figure II-2-2-2 System of Plans to Increase Lifespan of Infrastructure



Congress for Infrastructure Management in November 2016 as a platform for people in government, industry, academia and the private sector to mobilize their knowledge and technical skills, and we created the Infrastructure Management Award to recognize outstanding efforts and excellent technical development regarding infrastructure maintenance. In FY2017, we worked to supplement and expand the activities of the Japan Congress for Infrastructure Management to regional areas, and we held the first Infrastructure Management Award presentation ceremony in July 2017.

In addition, in December 2017, we convened the Social Infrastructures Maintenance Strategy Subcommittee (third meeting), which investigated the progress of policies based on the responses and recommendations referred to above and the attitudes, etc., of local governments,

reviewed initiatives implemented up to this point, and gave consideration to the future direction of initiatives.

We will continue to work toward the realization of steady, efficient infrastructure maintenance and regional revitalization by enhancing the efforts described previously, and by developing and revitalizing the maintenance industry.

Figure II-2-2-3 Creation of a Maintenance Cycle Centering on Individual Facilities Plans

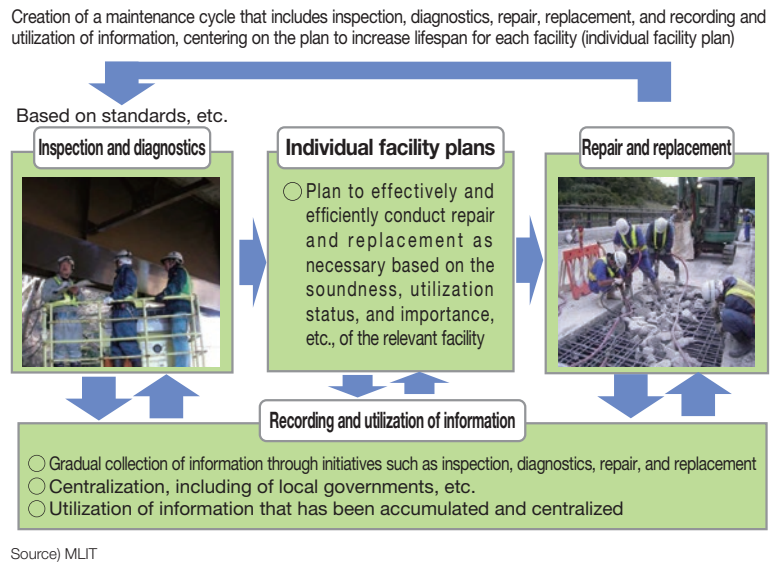
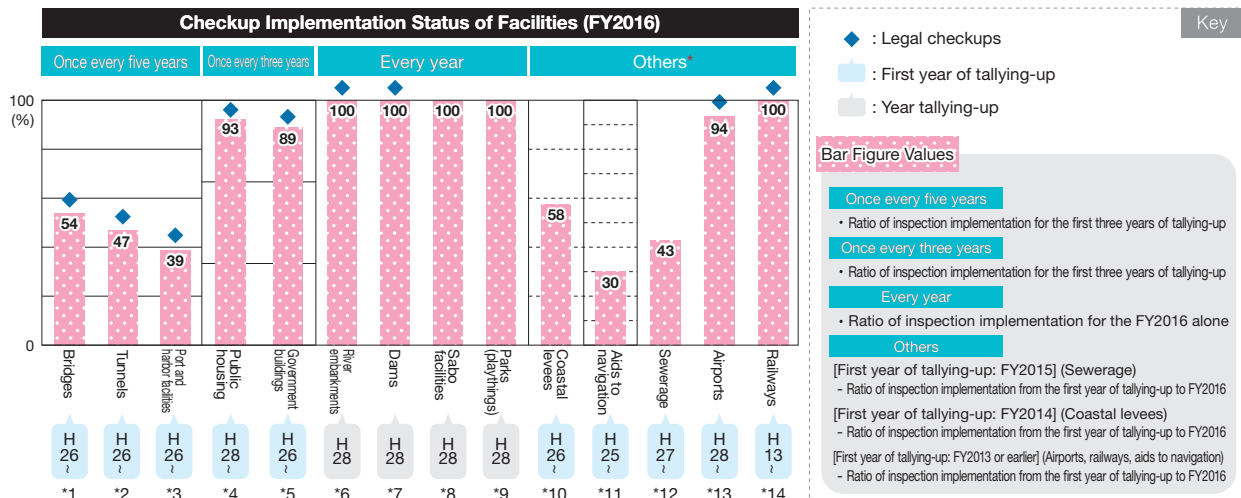


Figure II-2-2-4 Publication of Checkup Implementation Status in Each Field



*1 Bridges specified in the Road Act. The total number of bridges within the scope of the inspection: 723,495 (as of December 31, 2014)

*2 Tunnels on roads specified in the Road Act. Total number of tunnels within the scope of the inspection: 10,878 (as of December 31, 2014)

*3 Limited to key port and harbor facilities (mooring facilities, outlying facilities and port transport facilities). The total number of facilities within the scope of the inspection: 43,000

*4 Facilities to be inspected under the Building Standard Act (sites and structures only). Implementation status of 605 business entities that have facilities within the scope of the inspection (excluding three quake-stricken prefectures, Kumamoto Prefecture and municipalities under then).

*5 Facilities to be inspected under the Building Standard Law (sites and structures only). Total number of facilities within the scope of the inspection: 5,652 facilities.

*6 River management facilities, excluding river embankments (sluiceway dams, locks, floodgates, intake and waste ports for irrigation/drainage pump stations, sluiceways and sluice pipes, and floodwall gates). Total number of facilities within the scope of the inspection: 29,133.

*7 Dams in river management facilities. Total number of facilities within the scope of the inspection: 556.

*8 Regarding Sabo-related facilities (Sabo facilities, landslide control facilities), the ratio of Sabo facility construction project sites under direct control in which inspections based on individual facility plans are conducted. 44 Sabo facility construction projects. Approximately 62% of local governments out of 47 prefectures conduct inspections based on individual facility plans.

*9 City parks in which playground equipment is set up. Number of parks within the scope of the inspection: 82,848.

*10 Coastal levees in areas within the scope of the plan to increase lifespan by MLIT (embankments, revetments, parapets). Total length within the scope of the inspection: approximately 5,700 km.

*11 Limited to aids to navigation of reinforced concrete structure (lighthouses, offshore fixed lights, and so on). Total number of aids to navigation within the scope of the inspection: 2,400 (scheduled for completion by FY2023)

*12 Ratio of local governments that are periodically inspected based on the business plan.

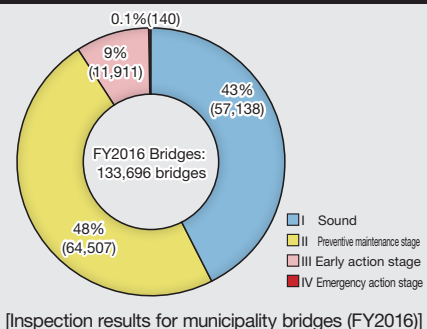
*13 Limited to airport facilities (runways, taxiways, aprons). Number of facilities within the scope of the inspection: 114.

*14 Railway structures that are periodically inspected pursuant to the Technical Standard Ministerial Ordinance (enforced in FY2001). Number of business operators within the scope of the inspections: 188

[Coastal levees, aids to navigation: No statutory requirements for frequencies. As a guide, frequencies are indicated by - - - - - .]
[Sewer piping systems, airports, railways: Frequencies to be set by facility manager or entity manager.]

Source) MLIT

Publication of Inspection Results Tallies (Example of annual reports on road maintenance)



(3) Development and Introduction of Monitoring Technologies

Bracing for the development and introduction of monitoring technologies that provide an efficient insight into the conditions of social infrastructures, the MLIT has directed studies on the field verification of monitoring technologies to match field needs and seeds and to assess and analyze their effectiveness at the Committee for Exploring and Promoting Usage of Social Infrastructure Monitoring Technologies in October 2013. Monitoring technology hopefuls have been sought from the general public since September 2014, and their field verifications, etc. are now underway.

(4) Development and Introduction of Robots

The MLIT promotes the development and introduction of robots of practical usefulness that are capable of checking up growing volumes of infrastructures effectively and efficiently while probing disaster sites that are hardly accessible by human beings and expediting recovery quickly and precisely.

Section 3

Driving the Social Infrastructure Development

Priority Plans for Social Infrastructure Development are formulated to drive the efficient and prioritized implementation of social infrastructure development projects in accordance with the Act on Priority Plan for Social Infrastructure Development.

In September 2015, the Fourth Priority Plan for Social Infrastructure Development (FY2015–2020) was adopted through a Cabinet decision. The Fourth Plan has the basic principles of maximizing stock effects of social infrastructures in order to address the following four structural issues under severe fiscal constraint: (i) possibly imminent massive earthquakes and increasingly severe weather disasters, (ii) accelerating aging of infrastructures, (iii) battered countryside in association of declining population, and (iv) intensifying international competitions. Based on the basic principles, the Plan aims to ensure selection and concentration on projects whose stock effects are high while pushing forward the effective use (smart use) of existing facilities, as well as their consolidation and realignment. Also, the plan includes the positioning of the stable securing and development of on-site and skilled human resources for supporting social infrastructure development, stating that it is important to ensure stable and sustainable prospects for public investment in light of systematic implementation of social infrastructure development and securing and developing personnel to conduct it. Furthermore, in order to develop social infrastructures with medium- to long-term prospects, the Plan set four priority goals (implementing strategic maintenance and renewal of social infrastructure; mitigating disaster risk in accordance with characteristics of disasters and vulnerabilities of regions; building sustainable local communities that respond to declining/aging population; inducing private investments and enhance infrastructures that support economic growth) and 13 policy packages, and positioned typical indicators as key performance indicators (KPIs).

The Planning Task Force under the Panel on Infrastructure Development and the Transport System Subcommittee of the Council of Transport Policy conducts investigation and deliberation with regard to methods of identifying and “visualizing” stock effects from the perspective of generating ideas from the perspective of smart investment and utilization, as well as mechanisms, etc., to promote systematic initiatives to this end. The committee compiled its findings in A Proposal of Practical Strategy for Maximizing the Stock Effect (November 2016). We will continue to make efforts to specifically implement these policies and steadily promote the Fourth Priority Plan for Social Infrastructure Development based on the committee’s proposals.

Furthermore, the Priority Plans for Social Infrastructure Development of Regional Blocks was established in March 2016 based on the Fourth Priority Plan for Social Infrastructure Development as plans for developing social infrastructure in a focused, efficient and effective manner in accordance with the characteristics of each region. Additionally, we commenced the Infrastructure Future Map Project in August 2016, which creates a map (visualization) based on the timeline of future infrastructure management, and we are considering how to achieve it.

Figure II-2-3-1 The Fourth Priority Plan for Social Infrastructure Development

1. Four Structural Issues of Social Infrastructure Development

(1) Increasingly aging infrastructures

(2) Vulnerable land (possibly imminent massive earthquakes, severer weather disasters)

(3) Exhaustion of the countryside due to population declines

(4) Intensifying international competitiveness

Based on the National Spatial Plan (adopted on August 14, 2015, by a Cabinet decision), systematically implement social infrastructure development toward the realization of the Plan.

2. Basic policy toward the realization of sustainable social infrastructure development

Toward strategic infrastructure management aimed at maximizing stock effects of social infrastructure

Thorough management to maximize stock effects of social infrastructure

(i) Strategic maintenance of existing facilities including consolidation and realignment

- Securing infrastructure safety by building maintenance cycles
- Cutting and leveling total costs in the medium to long term (including creation of proper sizes through consolidation or other means)
- Strengthening competitiveness of the maintenance industry

(ii) Effective use of existing facilities (efforts for smart use)

- Maximizing the functions of existing facilities (Example: expanding the processing capacity of Haneda Airport by reviewing its flight routes)
- Enhancing and advancing the functions of existing facilities (Example: establishing welfare facilities in association with public housing consolidation)
- Increasing the functions of existing facilities (Example: establishment of power generation facilities using the upper space of wastewater treatment facilities)

(iii) Ensuring selection and concentration according to the purposes and roles of social infrastructure (considering priorities and time horizon)

Safe and secure infrastructure

Focus on projects for protecting human lives and properties with all-out efforts from both structural and non-structural perspectives, such as countermeasures against the Nankai Trough, Tokyo Inland earthquake, and increasing concentration and severity of precipitation.

Life infrastructure

Focus on projects to secure sustainable and effective local community services and enhance the quality of life.

Growth infrastructure

Focus on projects that boost the production expansion effect by strengthening competitiveness with international strategies and enhanced coordination with private business operators.

Clear time horizon

- Set the to-be state in the medium to long term (roughly 10–20 years), priority measures and numerical targets to achieve during the plan period (by FY 2020).

Revitalization of economy and fiscal improvement

- Support stable growth around the consumption tax increase in FY 2017, 2020, and onwards, contributing to economic revitalization and fiscal improvement.

Active use of PPP/PFI

Structural reforms concerning workers on the ground and skilled talents who support social infrastructure development

- Secure and foster workers on the ground and skilled talents, who are the guardians of the region, in a stable manner.
- Conduct structural reforms by increasing on-site productivity.
- Promote initiatives by orderers to ensure the quality of public works and secure bearers of the works.
- Secure and develop various talents involved in social infrastructure development (personnel who engage in maintenance and PPP/PFI)

Necessity for stable and sustainable prospects of public investments

- Sudden increases/decreases in public investments in the past gave rise to various problems (Example: many cases of unqualified entrants and dumping, leaving talent).
- It is necessary to ensure stable and sustainable public investments suitable to the size of the economy to underpin sustainable economic growth so that social infrastructure development, including maintenance, will be conducted in a systematic and steady

Source) MLIT

Column

Promotion of the Infrastructure Future Map Project: Release of Kamaishi City, Iwate Prefecture Edition - Infrastructure Future Map Kamaishi (Trial Edition)

MLIT commenced the Infrastructure Future Map Project in 2016, which creates a map (visualization) based on the timeline of future infrastructure management, and we are now considering how to proceed.

The Priority Plan for Social Infrastructure Development of Regional Blocks, which was established in March 2016, contains some 2,800 projects, and unlike previous plans, specifies the slated date of completion of major projects to the extent possible, to facilitate understanding of the outlook of infrastructure management plans along a time axis.

By creating a map of such information and visualizing the future management of infrastructure, the Infrastructure Future Map Project will provide a useful reference for creating life plans or making investment decisions, such as deciding the location of residences and plants, or planning a store opening, with hopes of contributing to attracting greater private investment and promoting regional revitalization.

In FY2017, we unveiled Infrastructure Future Map Kamaishi (Trial Edition), which enables consideration of overlaid information using Kamaishi City, Iwate Prefecture as a model.

<https://www.geospatial.jp/ckan/dataset/sougouseisaku-miraimap-kamaishi>

In addition to being able to check management information for infrastructure such as the Sanriku Expressway and the new Kamaishi City Hall, as well as Kamaishi Unosumai Memorial Stadium, which will be one of the venues of the 2019 Rugby World Cup to be held in Japan, it is possible to overlay various information using GIS (Geospatial Information System) for use by private enterprise to draft investment plans for

new locations, etc., and it is expected that even greater stock effects will become apparent.

We will continue to pursue the Infrastructure Future Map Project, and promote visualization of information concerning infrastructure management.



Source) MLIT

Column

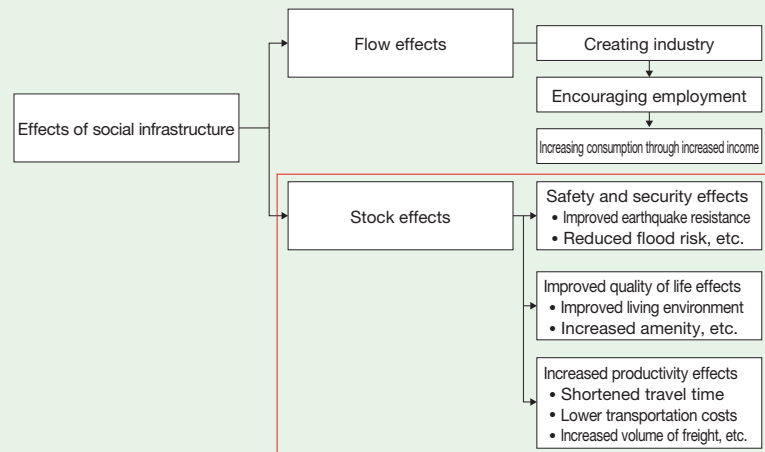
Aiming to Maximize Stock Effects

Management of social infrastructure has flow effects and stock effects. Flow effects are effects that invigorate the economy through public investment in the enterprise itself, such as employment, temporarily growing the entire economy. On the other hand, stock effects are ongoing effects that are seen in the medium to long term through the accumulation and operation of social infrastructure.

In addition to “safety and security effects,” such as increasing earthquake resistance and reducing flood risk and “improved quality of life effects,” such as improving the living environment and increasing amenity, stock effects include effects “increased productivity effects” that increase the productivity of society by shortening travel time, etc. (Figure 1).

Shortening travel time, etc., through the creation of the Ken-O Expressway is a specific example of a stock effect. At the same time, establishment of large-scale logistics facilities, etc., in municipalities along the route has been encouraged as doing so leads to increased logistics efficiency. Such facilities have created local employment with the number of employees increasing by 9,000 people over 5 years, and they have increased tax revenue for local governments located along the route due to the establishment of businesses, etc.

Figure 1 Stock Effects of Social Infrastructure



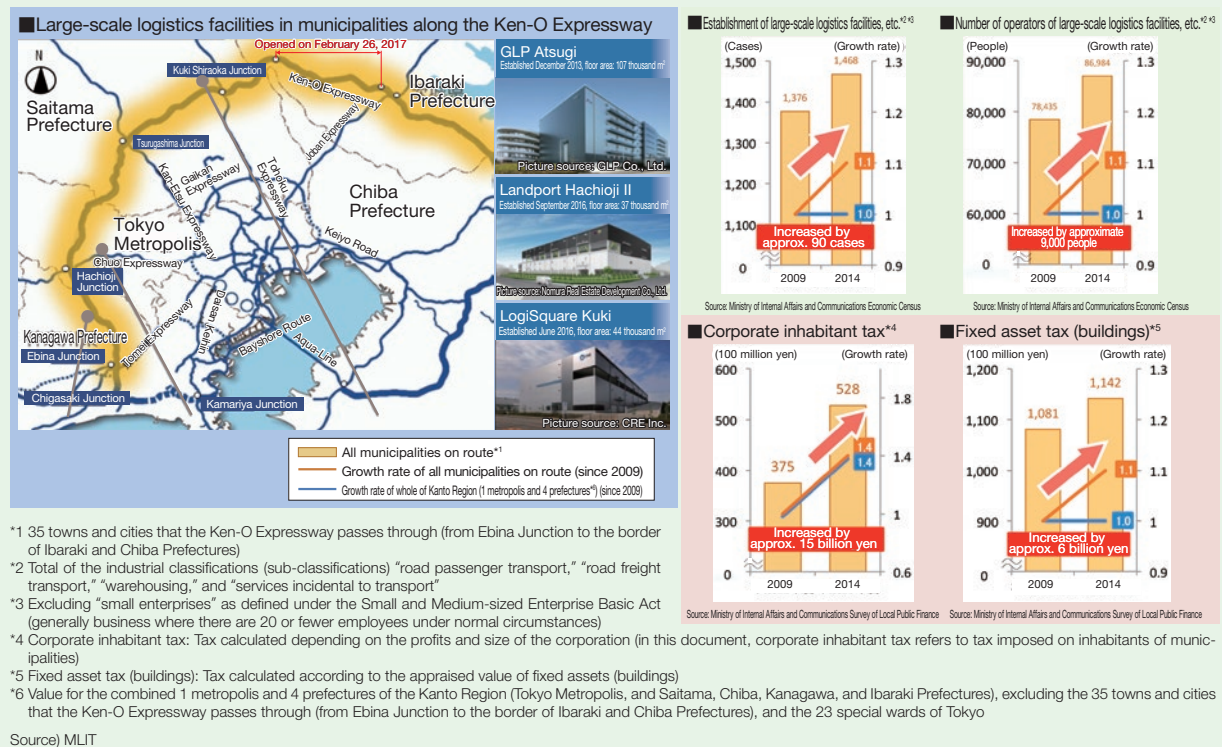
Source) MLIT

(Figure 2).

Even though Japan's population is shrinking, creation of social infrastructure that maximizes stock effects is needed, in order to ensure economic growth, safety, and security and achieve sustainable improvements in the quality of life of citizens.

To this end, MLIT aims to actively grasp the wide range of stock effects that occur and to visualize them, as well as to ensure smart investment and utilization to further maximize stock effects, such as by promoting initiatives including pinpoint measures to combat traffic congestion, effective utilization of existing infrastructure through rejuvenation of dams, and all-out hard and soft measures to prevent or mitigate disasters, etc.

Figure 2 Examples of Stock Effects



Section 4 Promoting the Implementation of Transport Policy

1 Developing Policies Based on the Basic Act on Transport Policy

Based on the Basic Act on Transport Policy, the Basic Plan on Transport Policy was adopted through a cabinet decision in February 2015. The Basic Plan on Transport Policy defines the period from FY2014 to FY2020 as the period of operation and provides for basic policies, goals, and measures, etc., to be taken by the government on a comprehensive and systematic basis.

More specifically, three basic policies have been set forth as follows: (A) Realize easy-to-use transportation conducive to a wealthier national livelihood; (B) Create international and inter-regional passenger transportation and logistics networks to underlie growth and prosperity; and (C) Develop infrastructures for sustainable, safe and secure transportation. For each of these basic policies, four measure goals have been presented along with specific measures to approach them.

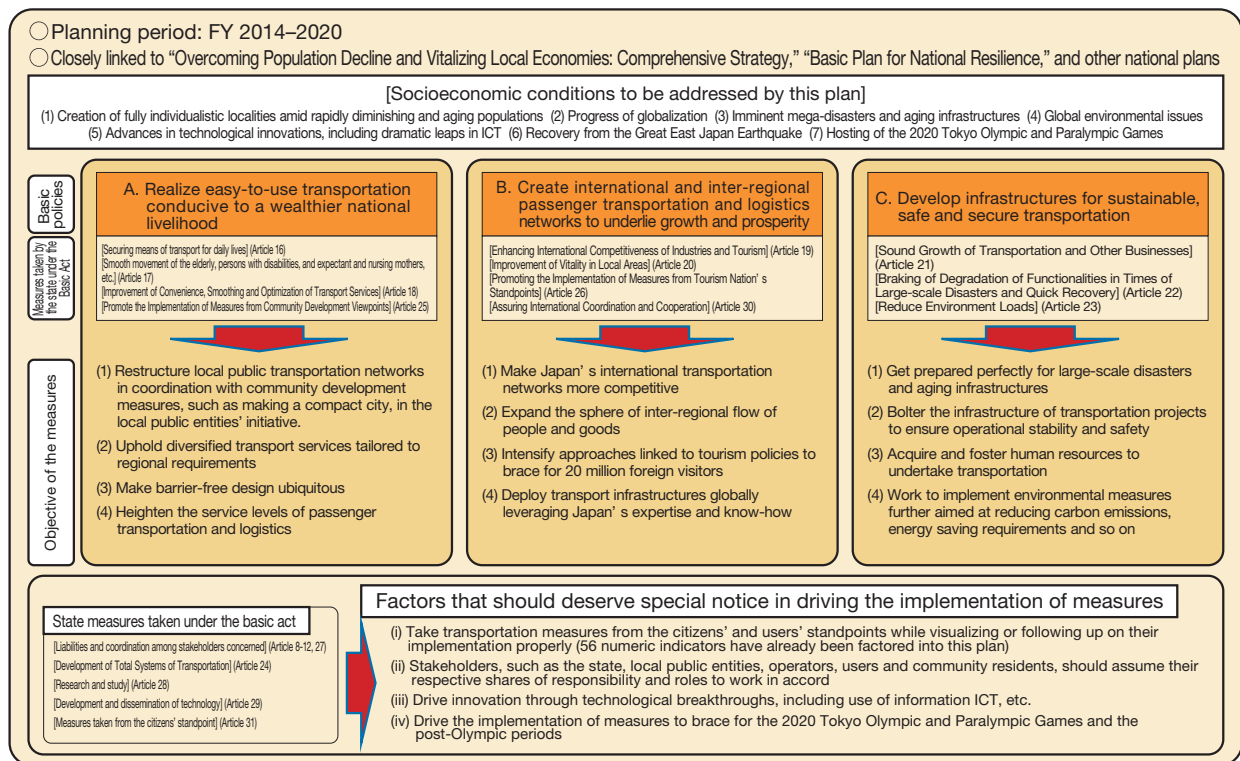
Numeric indicators have also been defined to verify the progress of initiatives to follow up said plan, and to indicate factors for consideration in implementing measures in accordance with the three basic policies above. We are promoting policies accordingly.

In May 2017, the 2017 Transport Policy White Paper based on the Basic Act on Transport Policy was approved by a

Cabinet decision and reported to the Diet. The Transport Policy White Paper is to report annually to the Diet on transport trends and measures taken, and to be taken, by the government concerning transport, and the Paper follows up on the progress of measures and numerical targets stated in the Basic Plan on Transport Policy.

Continuously, leveraging the Transport Policy White Paper that is prepared annually, we will appropriately follow up on the Plan to ensure the steady progress of the Plan.

Figure II-2-4-1 Summary of the Basic Plan on Transport Policy



Source) MLIT

2 Reconstructing Local Public Transportation Networks

While population progresses to decline in an aging society with falling birthrates, concerns grow over downsized public transport networking and a degraded quality of services particularly in rural areas. In the meantime, local public transportation is of vital importance particularly to those who are unable to drive car, such as students and elderly people. To contribute to the realization of regional communities that are full of vitality, it is important to collaborate with efforts to create compact towns, and strive to revitalize and revive local public transportation.

Based on these circumstances, the Act on Revitalization and Rehabilitation of Local Public Transportation was amended in 2014, thereby establishing a framework for achieving the formulation of optimum public transportation networks and services for each region in agreement with relevant personnel, led by local governments in charge of regional administration with appropriate division of roles among relevant parties, and in collaboration with town development, tourism revitalization and other regional strategies.

Under the amended Act, 410 local public transportation networking plans were submitted to the Minister of Land, Infrastructure, Transport and Tourism by the end of FY 2017, and 23 local public transportation restructuring plans received the Minister's approval. This indicates that efforts toward the formation of sustainable local public transportation networks are gathering momentum.

Furthermore, the Japan Railway Construction, Transport and Technology Agency established a program for investing in new companies that engage in businesses relating to rebuilding local public transportation networks, in order to diver-

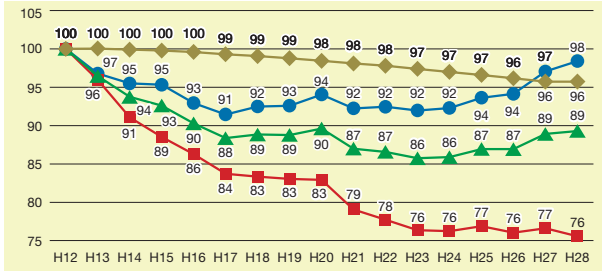
sify and enhance support.

The MLIT will also continue to provide necessary support to the initiatives of local governments.

Figure II-2-4-2 Status of Local Public Transportation and Related Issues

- Passengers carried by regional public transit was on a long-term declining trend; however, in recent years, a recovery has been observed, centered on the three major metropolitan areas. The wide-ranging declining trend is also grinding to a halt in regional areas.
- Regional public transport operators are in a difficult position, as local public transportation networks shrink due to withdrawing from unprofitable routes, particularly in regional areas, and service levels such as the number of trains/busses per day decline greatly.

Users of Local Public Transportation Services
(with Users in FY2000 Given a Value of 100)



Legend:
 ● Users (three major metropolitan areas)
 ■ Users (outside three major metropolitan areas)
 ▲ Users (nationwide)
 ◆ Population (outside three major metropolitan areas)

*Figures for passenger vehicle ownership are as of the end of March in each year and figures for passenger buses (users) are those for each fiscal year
 **Three major metropolitan areas* refers to Saitama, Chiba, Tokyo, Kanagawa, Aichi, Kyoto, Osaka, and Hyogo prefectures
 *Source: Prepared by MLIT, based on the "Annual Report of Motor Vehicle Transportation Statistics" and the "Materials Released by the Automobile Inspection & Registration Information Association"

	1991	2000	2010	2016
Passenger bus services	6.5 billion	4.8 billion	4.2 billion	4.3 billion (34% decrease from 1990)
Local railways	510 million	430 million	380 million	410 million (20% decrease from 1990)

Source) Annual Report on Road Transport Statistics, Annual Report on Railway Transport Statistics, and surveys by MLIT

Decline of Local Public Transportation Services

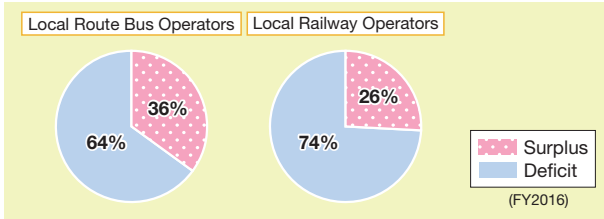
- Roughly 8,392 km of local bus routes were completely eliminated in the seven years from FY2010 to FY2016. 39 railways (roughly 771 km) became defunct in the 17 years from FY2000 to FY2016.

- Existence of Areas Not Served by Public Transportation

	Land Area of Unserved Area	Population of Unserved Area
Nearest bus stop: 500 m+	36,477 km ² (Approximately 30% of Japan's inhabitable land area)	7,351 people (5.8% of Japan's population)
Nearest train station: 1 km+		

Source) MLIT survey in FY2011

- Over 60% of local route bus operators and over 70% of local railway operators are operating at a loss



(Operators that own at least 30 vehicles (FY2016))

The impending precipitous decline in population is expected to further restrict the regional public transportation situation.

Source) Materials created by the MLIT Policy Bureau, Public Transportation Policy Department

Source) MLIT

Figure II-2-4-3 Outline of the Revision of the Act on Revitalization and Rehabilitation of Local Public Transportation Systems, etc.

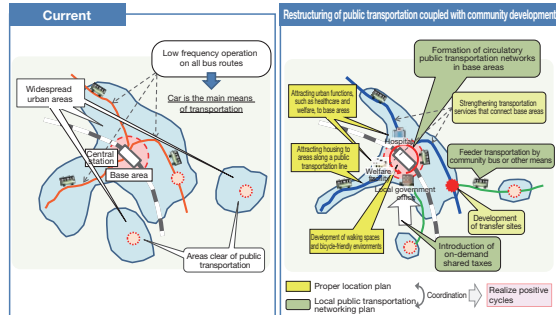
○Act on Partial Amendment of the Act on Revitalization and Rehabilitation of Local Public Transportation Systems (promulgated in May 2014, enacted in November 2014)

Maintaining and enhancing the vitality of local communities in a society whose population is in serious decline

Points

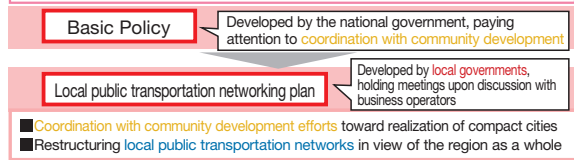
- ➔ (i) Local governments led (ii) Community development efforts to (iii) Restructure local public transportation networks

Example of restructuring public transportation in unified efforts to create compact cities

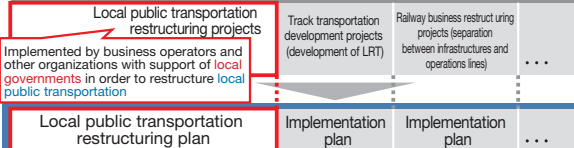


*Prepared in reference to initiatives by Toyama City, Kumamoto City, Toyooka City, Sanjo City and other municipalities

Principal scheme of the Amended Act on Revitalization and Rehabilitation of Local Public Transportation Systems



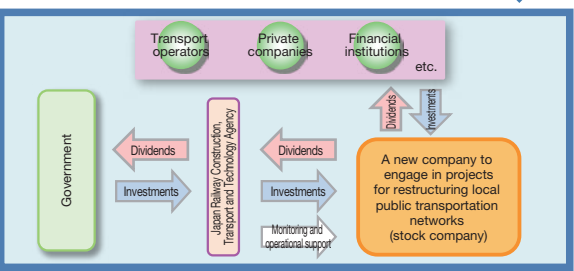
Local public transportation designating projects



Approval of MLIT Minister to support realization of the plan

○Act on Partial Amendment of the Act on Revitalization and Rehabilitation of Local Public Transportation Systems and the Act on Japan Railway Construction, Transport and Technology Agency (promulgated in May 2015, enacted on August 2015)

Enhance and diversify support by creating a framework for investing through Japan Railway Construction, Transport and Technology Agency, by way of industrial investments in projects for restructuring local public transportation networks approved by the Minister of Land, Infrastructure, Transport and Tourism under the Act on Revitalization and Rehabilitation of Local Public Transportation Systems.



Source) MLIT

3 Promotion of Comprehensive Logistics Policy

Japan has high-standard logistics services in terms of punctuality, safety, and conformity with shippers' orders and the like mainly through track transportation, which underpinned the just-in-time system of the manufacturing industry, and contributed to the development of the distribution industry and the improved convenience of daily lives of citizens through delivery and other services. On the other hand, in recent years, the socioeconomic circumstances surrounding logistics are changing dramatically, including declining/aging population, innovations in such areas as information communication technology (ICT), heightening disaster risk, increasingly frequent deliveries of smaller goods, and diversification of customer needs. Moreover, labor shortages are especially evident and posing challenges in the logistics sector, with aging truck drivers and possibilities of increased difficulties in securing personnel in the medium to long term; therefore, actions need to be taken as early as possible.

Based on these circumstances, we are working to promote the "Logistics Productivity Revolution" project, which was selected as one of the productivity revolution projects of the MLIT Productivity Revolution Headquarters in April 2016.

Its aim is to improve the productivity of logistics operations by 20% by FY2020, by promoting the approval of general efficiency plans covering joint transportation, modal shifts, consolidation of the transportation network to warehouses that have introduced truck reservation systems, etc., as well as promoting initiatives that contribute to increased efficiency and high added value by reducing re-delivery by home-delivery services and promoting international standardization of logistics systems, based on the Act on Advancement of Integration and Streamlining of Distribution Business, which was revised in 2016 (Act No. 85 of 2005) (the Revised Act on Advancement of Integration and Streamlining of Distribution Business) for the purpose of supporting a range of initiatives relating to integration and streamlining of logistics, in partnership with interested parties.

Initiatives under this “Logistics Productivity Revolution,” have been positioned as whole-of-government initiatives, and the Comprehensive Logistics Policy Guidelines (FY2017-2020) received cabinet approval in July 2017, in order for multiple ministries and agencies to promote these policies in partnership. The guidelines set out goals for future logistics policies from six perspectives, incorporating new perspectives such as work style reforms and utilization of new technology, in order to achieve resilient logistics to sustainably realize social infrastructure functions that will support Japanese economic growth and the lifestyles of citizens as the social makeup surrounding logistics changes.

Furthermore, in January 2018, we developed the General Logistics Policy Promotion Program, based on the policy direction indicated by these guidelines, to systematically conduct specific policies as whole-of-government initiatives.

Column

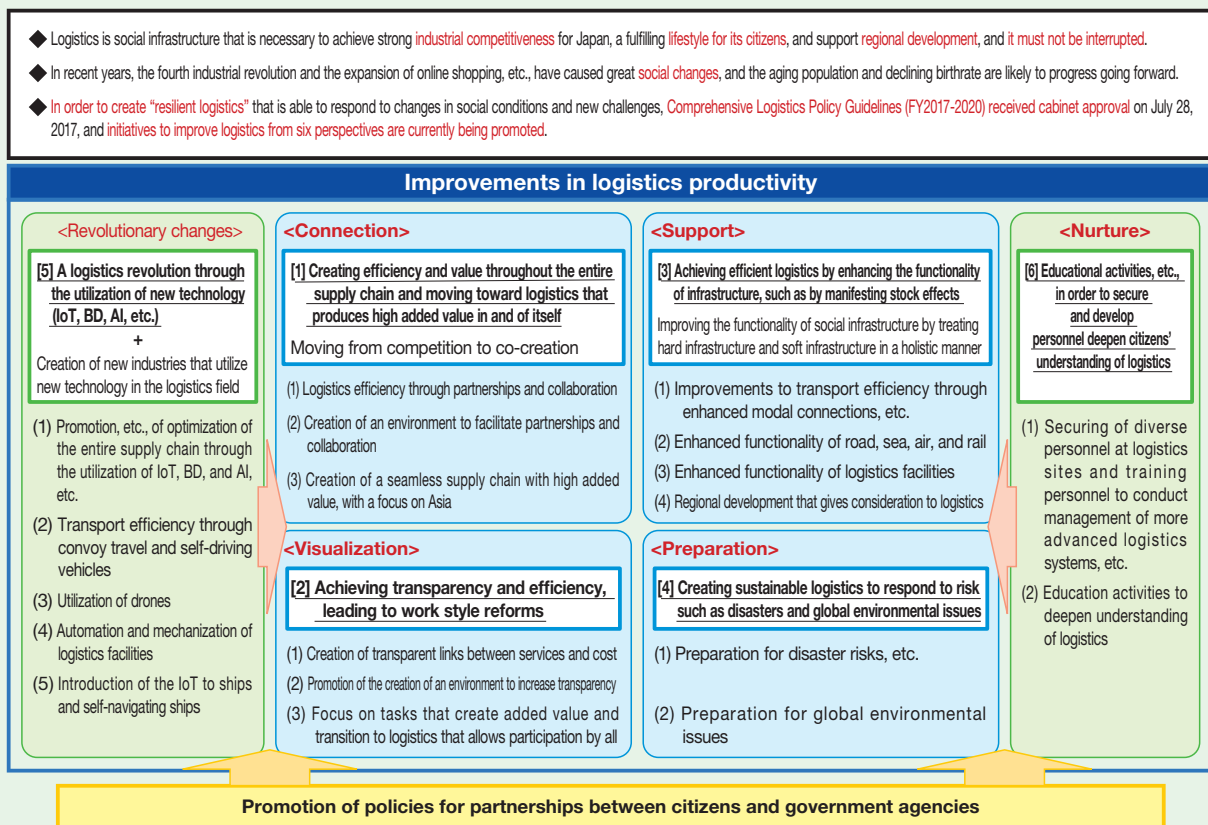
New Comprehensive Logistics Policy Guidelines (FY2017-2020): Working to Achieve Resilient Logistics

In July 2017, new Comprehensive Logistics Policy Guidelines (FY2017-2020) received cabinet approval.

High-quality and low-cost logistics which was aimed for as part of the Comprehensive Logistics Policy Guidelines initially developed in 1997, has supported Japanese economic growth; however, issues relating to sustainability and stability in the logistics industry have become apparent, such as the aging and workforce and labor shortages, etc. In addition, increasing the productivity of logistics has become a pressing need, in order to respond to increasingly complicated needs such as small-lot high-frequency transport and tight time constraints, due to the rapid expansion of the EC market, etc.

These guidelines set out goals for future logistics policies from six perspectives, including work style reforms and utilization of new technology, in order to achieve resilient logistics to sustainably support Japanese economic growth and the lifestyles of citizens.

- (1) “Creating efficiency and value throughout the entire supply chain and moving toward logistics that produces high added value in and of itself” (=connection): Moving from competition to co-creation
- (2) “Achieving transparency and efficiency, leading to work style reforms” (=visualization)
- (3) “Achieving efficient logistics by enhancing the functionality of infrastructure, such as by manifesting stock effects” (=support): Improving the functionality of social infrastructure by treating hard infrastructure and soft infrastructure in a holistic manner
- (4) “Creating sustainable logistics to respond to risk such as disasters and global environmental issues” (=preparation)
- (5) “A logistics revolution through the utilization of new technology (IoT, big data, AI, etc.)” (=revolutionary change)
- (6) “Educational activities, etc., in order to secure and develop personnel deepen citizens’ understanding of logistics” (=nurture)



Source) MLIT

Through these initiatives, we aim for logistics that is able to respond to structural changes and new challenges, as well as catering to a range of different needs, while also achieving work style reforms for workers.

In January 2018, we developed the General Logistics Policy Promotion Program, which contains specific measures based on the guidelines, and relevant government agencies are promoting comprehensive and integrated policies based on the guidelines and this program.

Section 5 Driving the Implementation of a Tourism Policy Package

1 Steady Promotion of the "New Tourism Strategy to Invigorate the Japanese Economy"

In March 2016 "Meeting of the Council for a Tourism Vision to Support the Future of Japan," chaired by the Prime Minister, drafted the "New Tourism Strategy to Invigorate the Japanese Economy," which aims to achieve new goals such as attracting 40 million international visitors to Japan and achieving tourism consumption by international visitors to Japan of 8 trillion yen in 2020.

We have formulated the "Tourism Vision Realization Program 2017" as a government action plan aimed at one year from now, in order to ensure the achievement of the goals laid out in the Tourism Vision in May 2017. Specifically, it includes policies based on the 3 themes of (1) "increasing the level of protection and utilization of tourist resources" such as by boldly opening attractive public facilities, (2) "achieving 'Enjoy My Japan'" through development of new tourism resources that are not limited to history or culture, and (3) "boldly reforming JNTO," such as by following separate strategies to promote Japan to each country.

Through initiatives based on the Tourism Vision, etc., in 2017, we achieved a 19.3% increase in international visitors to Japan at 28.69 million visitors, and a 17.8% increase in tourism consumption by international visitors to Japan at 4.4162

trillion yen, which were the highest figures ever. The number of international visitors has increased 3.5-fold and consumption has increased 4-fold over the most recent 5-year period.

Going forward, we will devote all of our resources to implementing more high-level tourism policies in order to achieve the 2020 goals of 40 million international visitors and 8 trillion yen of tourism consumption by international visitors to Japan, etc., listed in the Tourism Vision, and become a “world-class tourist destination”.

Section 6 Driving the Implementation of Ocean Policy (Oceanic State)

1 Steadily Driving the Basic Plan on Ocean Policy

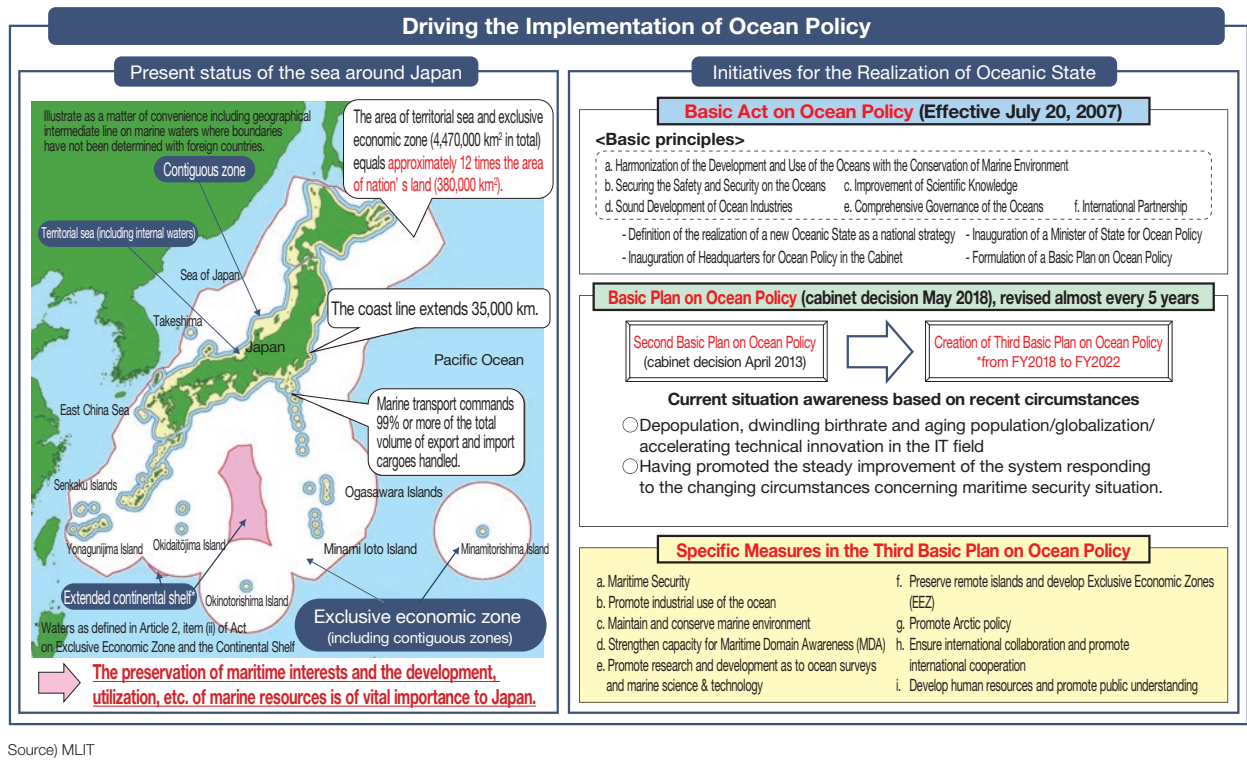
A nation surrounded by sea on its four sides, Japan recognizes the vast expanses of surrounding sea as a frontier, which urges the nation to grow into an “oceanic state” in its true sense. The Ministry of Land, Infrastructure, Transport and Tourism has been driving the implementation of ocean policies by working in conjunction with the governmental agencies concerned pursuant to the “Basic Plan on Ocean Policy,” based on the “Basic Act on Ocean Policy,” as many of the administrative fields relevant to oceans fall under its jurisdiction.

Specifically, we are working on, among other efforts, the use of marine renewable energy, development and use of marine resources, fostering of human resources in ocean development, efficient marine transportation of energy resources, and promotion of marine industries. Furthermore, we are promoting the development of strategic maritime safety and security systems, dealing with natural disasters originating in the ocean, conservation of Okinotorishima Island, preservation of the low-tide lines, and developing and managing bases of activities on specified remote islands.

In addition, Act on Special Measures concerning Conservation of Inhabited Remote Border Islands and Maintaining Local Communities on Specific Inhabited Remote Border Islands was enacted in April 2017, and we developed Basic Policy on Conservation of Inhabited Remote Border Islands and Maintaining Local Communities on Specific Inhabited Remote Border Islands in accordance with the Act. Based on the Act and the Policy, we are proceeding with development of ports, etc., that play an important role as operating bases on inhabited remote border islands. In a message to herald Marine Day in 2017, Prime Minister Abe announced the importance of all of Japan’s municipalities, etc., working together to further implement maritime education and the global coast guards working together to realize open and stable oceans. In light of these announcements, we are proceeding with creation of maritime education programs for primary and secondary school education, and implementing efforts to encourage occupational outlooks (career education) to ensure that Japan has the human resources to run maritime industries in the future. In September 2017, the world’s first Global Coast Guard Summit was held in Tokyo, which was participated in by heads of coast guards from countries and regions around the world.

Furthermore, a new Basic Plan on Ocean Policy received cabinet approval in May 2018, and MLIT will continue to steadily promote ocean policies under this plan.

Figure II-2-6-1 Driving the Implementation of Ocean Policy



2 Protecting Our Country's Interests in Maritime Rights and Interests

(1) Promoting Ocean Surveys in Territorial Sea and the Exclusive Economic Zone and Integrating Marine-related Information

In our country's territorial sea and the exclusive economic zone there are waters lacking adequate survey data and the Japan Coast Guard has been conducting intensive ocean surveys in these waters including sea bottom topography, crustal structure, and the low-water lines to strategically and continuously implement the development of basic information that will contribute to the safety of vessel traffic, protecting our country's maritime rights and interests, and development in the sea.

Also, under the comprehensive coordination of the Cabinet Secretariat for the Promotion of General Ocean Policy, the Marine Information Clearinghouse, which centrally gathers, manages, and provides sources of marine information, and the Marine Cadastre, which is a web service that overlays various natural information (sea bottom topography, ocean currents, water temperature, etc.) and social information (port areas, fishing rights areas, etc.) on maps, are being operated. Furthermore, based on "Efforts to Consolidate the Capability of Maritime Domain Awareness," which was adopted in July 2016 by the Headquarters for Ocean Policy, we are promoting the establishment of the Maritime Situation Indication System, which is an information system for aggregating, sharing and providing marine-related information, including satellite information.

(2) Initiatives to Delineate the Limits of the Continental Shelf

On April 20, 2012, the UN "Commission on the Limits of the Continental Shelf" adopted the recommendations on the limits of the continental shelf beyond 200 nautical miles in regard to the submission made by Japan in November 2008 in accordance with the United Nations Convention on the Law of the Sea. Since the recommendation granted an extension to Japan's continental shelf with an area equivalent to approximately 80% of her land area, the Shikoku Basin sea area and the Oki-Daito Ridge sea area were newly designated as Japan's continental shelf by a cabinet order in October 2014. In the meantime, since the review of some sea areas has been postponed, the Japan Coast Guard is working towards the establishment of the extended continental shelf in those areas by partnering with the ministries and agencies concerned under coordinated supervision of the National Ocean Policy Secretariat of Cabinet Office.

(3) Conservation of Okinotorishima Island, Preservation of the Low-Tide Line and Developing the Base of Activities**(i) Conservation and Maintenance of Okinotorishima Island**

Okinotorishima Island is Japan's southernmost territory and is a very important island that forms the foundation of the 400,000-km² area exclusive economic zone, which exceeds the area of national land, so the observation and gathering of basic data, checkups of damages, and repairs are carried out. The state is taking direct control to ensure adequate measures to preserve the entire island.

**(ii) Preservation of low-tide lines**

In accordance with the Law on the Development of Base Facilities and Preservation of the Low-Tide Line for the Promotion of Use and Conservation of the Exclusive Economic Zone and Continental Shelf (Low-Tide Preservation Act), 185 domestic locations are designated by government decree as low-tide lines preservation areas to implement restrictions on excavation in the area. Furthermore, surveys are conducted on low-tide lines and the surrounding conditions, using patrols by disaster prevention helicopters and ships, as well as satellite images, in order to check whether any restricted activities took place or any topographical changes were caused by natural erosion. Also, information related to the low tide lines is appropriately managed so that preservation activity will be carried out in a steady and efficient manner.

Figure II-2-6-3 Preservation of the Low-Tide Lines

Promoting Measures Regarding the Law on the Development of Base Facilities and Preservation of the Low-Tide Line for the Promotion of Use and Conservation of the Exclusive Economic Zone and Continental Shelf (Low-Tide Preservation Act) (effective in June 2010)

<<Preservation of Low-Tide Lines>>

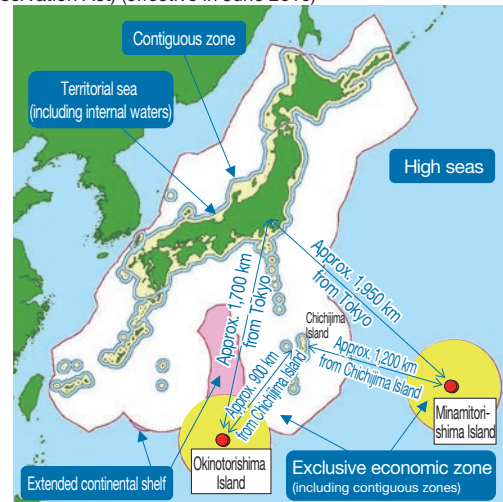
- In the waters surrounding the low-tide lines that form the basis for demarcating the limits of the exclusive economic zone and others, areas requiring conservation are specified as the low-water line preservation areas (185 areas) where activities are restricted.
- Satellite images, disaster prevention helicopters, and ships are used to monitor and research the conditions of the low-tide line and any artificial damages or natural erosion.

<<Developing and Managing Bases of Activities on Specified Remote Islands>>

- In order to ensure that the development and usage of maritime resources and maritime research activities are implemented safely and steadily in waters located far away from the mainland, the MLIT Minister implements the development and management of port facilities (the development details are stated in the basic plan based on the Low-Tide Preservation Act).

(Minamitorishima Island) Project started FY2010

(Okinotorishima Island) Project started in FY2011



<Exclusive Economic Zone and position of Minamitorishima Island and Okinotorishima Island>
(Quoted from the website of the marine information division of the Japan Coast Guard, with additions made)



Source) MLIT

(iii) Developing and managing bases of activities on specified remote islands (Minamitorishima Island and Okinotorishima Island)

In accordance with the Low-Tide Preservation Act, port facilities are being developed on Minamitorishima Island and Okinotorishima Island, which are located in areas remote from the mainland, to enable the mooring and berthing of vessels and cargo handling as operational bases for the conservation and usage of the exclusive economic zone and continental shelf, with management of the ports by the government.

Section 7 Protecting Territorial Land and Territorial Waters Firmly

(1) Situation in Recent Years

Since September 2012, Chinese government-owned vessels have navigated into the contiguous zone around the Senkaku Islands almost every day, except in bad weather, and have repeatedly intruded into Japanese territorial waters at a frequency of about three times per month. Increases in the size, armament, and number of Chinese government-owned vessels has been confirmed recently. We must remain vigilant, as there have been cases such as Chinese government-owned vessels repeatedly intruding into Japanese territorial waters following Chinese fishing vessels in August 2016, an object that appeared to be a drone being spotted above a Chinese government-owned vessel in Japanese territorial waters in May 2017, and Chinese naval vessels repeatedly entering Japan's contiguous zone in January 2018.

Under the policy of protecting Japan's territories and waters at all cost, the Japan Coast Guard is responding to these circumstances in a calm but firm manner by taking such measures as deploying patrol vessels in the waters so that the

situation will not escalate.

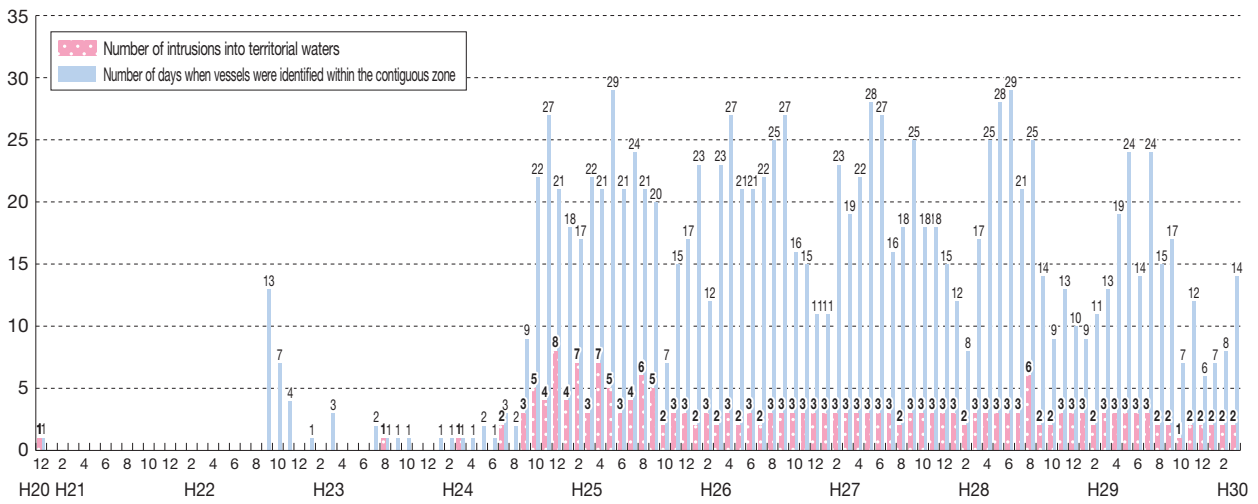
In addition, in Japan's exclusive economic zone around the East China Sea, surveys and other activities of foreign ocean survey vessels without Japan's consent were found. The Japan Coast Guard is taking appropriate measures on a case-by-case basis according to the situation, such as by requesting suspension of such activities and ongoing monitoring by patrol vessels in coordination with relevant organizations. Furthermore, in addition to the illegal operation of foreign fishing vessels, North Korea's repeated nuclear tests and ballistic missile launches and other developments have increased the seriousness of the situation surrounding not only the Senkaku Islands, but all Japanese territorial waters.

Figure II-2-7-1 Patrol Boat Guarding the Territorial Sea



Source) MLIT

Figure II-2-7-2 Number of Chinese Government Vessels Entering the Contiguous Zones and Intruding into Territorial Waters



Status of Chinese government vessels intruding into territorial waters (as of the end of March 2018)
 • Intrusion into territorial waters: 215 cases (217 days) • Vessels intruding into territorial waters: 689
 • Maximum number of vessels intruding into territorial waters: 8 • Longest duration of intrusion into territorial waters: 28 hours 15 minutes
 Source) MLIT

(2) Promotion of Strengthening the Maritime Security System

Based on the increasing severity of the situation in Japanese territorial waters, the Ministerial Council on the Strengthening of the Coast Guard System held on December 21, 2016. The Council adopted the Policy on Strengthening the Coast Guard System, which is based on the following five pillars, in order to enhance the maritime law enforcement, maritime monitoring and marine research capabilities. The Japan Coast Guard has been promoting enhancement to the maritime security system according to the policy.

- Strengthening of the security system of the territorial sea around the Senkaku Islands and the improvement of systems to respond to simultaneous occurrences of large-scale incidents (cases)
- Strengthening of the maritime monitoring systems capable of monitoring the vast sea area around Japan
- Strengthening of the response system for important cases such as countermeasures against terrorism and security of the

territorial sea in the remote islands and in areas of ocean far from the land

- Strengthening of the marine research system to protect our marine interests
- Improvement of the infrastructure such as training human resources to support the above systems

With regard to the recent status of Japanese territorial waters, Chinese official vessels in the waters surrounding the Senkaku Islands have been growing in size and armament. With regard to North Korea, it has been confirmed that there have been many North Korean fishing boats in the waters surrounding the Yamatotai in the Sea of Japan, and wooden boats supposed to be from Korean Peninsula have been successively drifting/drifted ashore.

Under these conditions of increasing severity, the second Ministerial Council on the Strengthening of the Coast Guard System was held on December 18, 2017. The Council confirmed that the necessity to promote the strengthening of the Coast Guard System, such as by increasing the number of large patrol vessels including patrol vessels that carry helicopters, new-model jets, and large hydrographic survey vessels, and securing necessary personnel. In addition, it also confirmed that the necessity to promote international collaboration for a free and open maritime order that is based on the rule of law.

Furthermore, the next Basic Plan on Ocean Policy newly included policies relating to maritime security, as well as policies based on the Policy on Strengthening the Coast Guard System and international collaboration, etc. Therefore, the Japan Coast Guard will implement these policies steadily.

(3) Holding the Global Coast Guard Summit

In recent years, there have been environmental changes on a global scale, and the scale of natural disasters has increased due to climate change, while dramatic changes in the navigation environment have occurred in regions around the world. Furthermore, the social environment is changing on a global scale, and the threat of terrorism and extremism is growing in regions around the world, so the importance of cooperation between coast guards that operate on the front line is increasing.

The Japan Coast Guard jointly held the world's first Global Coast Guard Summit with the Nippon Foundation in September 2017, inviting heads of coast guards, etc., of 34 countries, one region, and three international organizations, in order for coast guards from around the world to tackle the issue of global climate change without being bound by regional borders.

Figure II-2-7-3

The Ministerial Council on the Strengthening the Maritime Security System



Source) MLIT

Figure II-2-7-4

Global Coast Guard Summit



Welcome reception



Japan Coast Guard and Nippon Foundation logos



Source) MLIT

The Summit involved presentations and discussions of leading initiatives under the three themes of “maritime safety and marine environmental protection,” “maritime security,” and “human resources development,” and the chairman’s summary confirmed the importance of strengthening cooperation and expanding dialog, etc., to overcome the issues facing the world today.

Furthermore, prior to the Summit, a welcome reception was held at the State Guest House in Akasaka, which was attended by Prime Minister Abe. Prime Minister Abe gave a speech in which he stated that coast guards play an important role in achieving maritime peace and safety, and that it is extremely valuable for coast guards around the world to form connections across the sea, deepen mutual understanding, and concentrate their capabilities to solve difficult issues.

Section 8 Protecting Territorial Land and Territorial Waters Firmly

1 Developing Policies Based on the Basic Act on Water Cycles

The Basic Act on Water Cycle, which was promulgated in April 2014 and enacted in July of the same year, stipulates the establishment of the Basic Plan on Water Cycle in order to promote water cycle measures in a comprehensive and systematic manner. The Water Cycle Basic Plan was adopted through a Cabinet decision on July 10, 2015.

The Basic Plan on Water Cycle sets out nine measures, including “promotion of river basin coordination,” to serve as a framework for the comprehensive and integrated management of river basins, and as “measures for the government to undertake comprehensively and systematically regarding measures regarding the water cycle,” and relevant ministries and agencies are engaged in efforts based on this plan.

Furthermore, in May 2017, the 2017 White Paper on Water Cycles, based on the Basic Act on Water Cycles, was approved by a Cabinet decision and reported to the Diet. The White Paper on Water Cycles stipulates measures to be undertaken by the government and reported to the Diet each year with regard to water cycles.

Part 1 contains simple explanations, including examples, such as the relationship between people and water, as well as recent initiatives and future developments relating to water cycles, etc., and it can be used as a teaching resource.

2 River Basin Management Promotion

River basin management is defined as the coordinated activity of relevant government and other public agencies, businesses, groups, residents and others through water cycle-related measures aimed at maintaining and improving natural environments that concern human activities, water volume and quality and water in forests, rivers, agricultural land, cities, lakes, coastal area and the like in river basins, and we are promoting further dissemination of information and revitalization of activities.

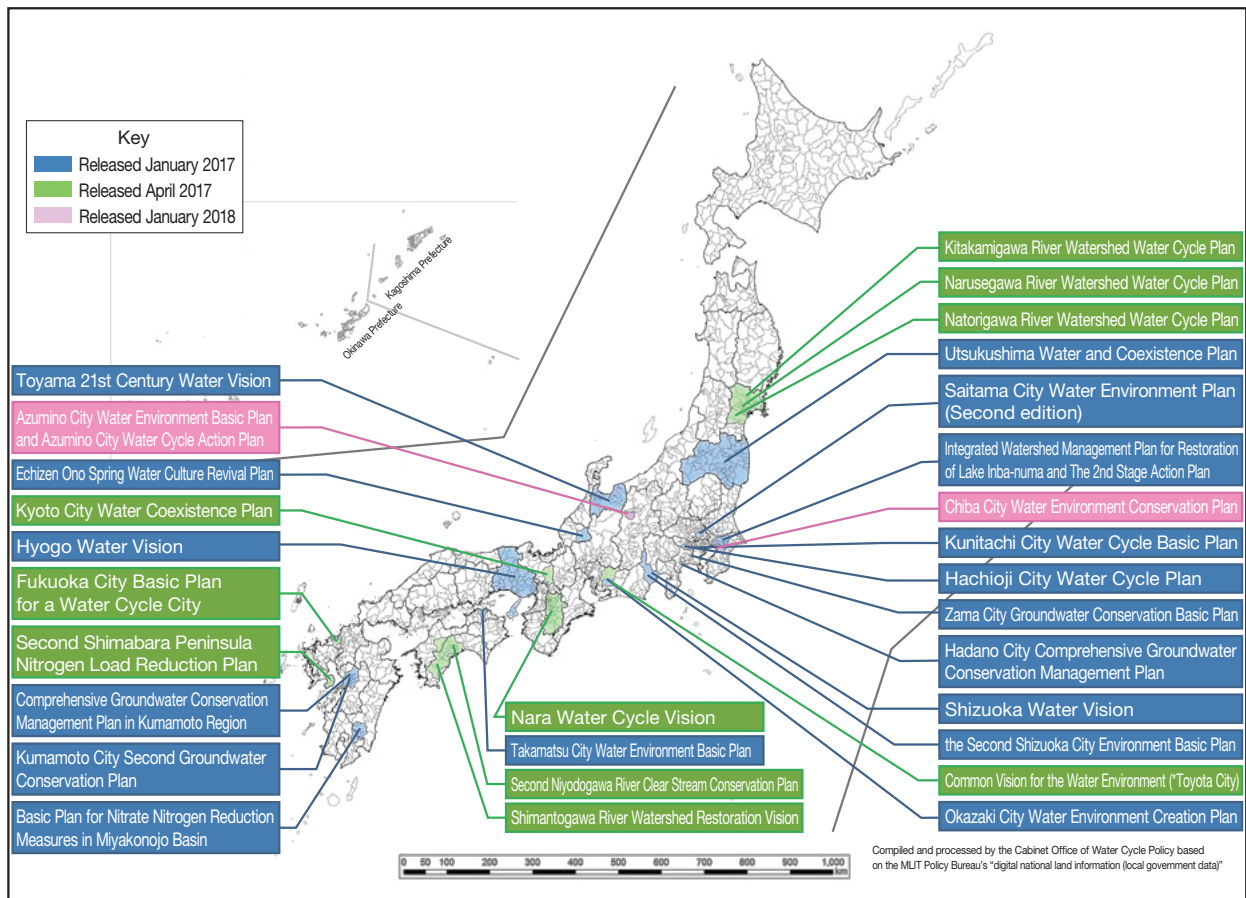
In FY2017, we implemented the “Model Study Regarding Visionary River Basin Management,” which comprised activity support and fact-finding surveys in collaboration with six groups, and released 10 plans in April 2017 and two plans in January 2018 (for a total of 29 plans as of March 2018) as River Basin Water Cycle Plans for various regions to work toward maintenance and recovery of healthy water cycles.

Furthermore, in March 2018, we established the River Basin Water Cycle Councils and released River Basin Management Procedures, which showcase River Basin Water Cycle Plan planning knowhow, and Examples of River Basin Management Initiatives, which showcases key points of river basin management initiatives using specific examples.

Furthermore, with the allocation of the General Grant for Social Infrastructure Maintenance from FY2018, which will be our first ever financial support, we will give a certain amount of consideration to whether maintenance plans include projects based on a River Basin Water Cycle Plan.

In addition, with regard to public awareness, the Cabinet Office of Water Cycle Policy held its first ever symposium (Water Cycle Symposium 2017) on November 24, 2017, which gathered suggestions to accelerate initiatives to strengthen cooperation between organizations and managers that conduct initiatives relating to water cycles throughout Japan.

Figure II-2-8-1 FY2017 River Basin Management Promotion Measures (Model Study/River Basin Water Cycle Plan)



Source) MLIT

Section 9 Promotion of Policies to Increase Bicycle Use

1 Development of the Plan to Promote the Use of Bicycles Based on the Act on Promotion of Use of Bicycles

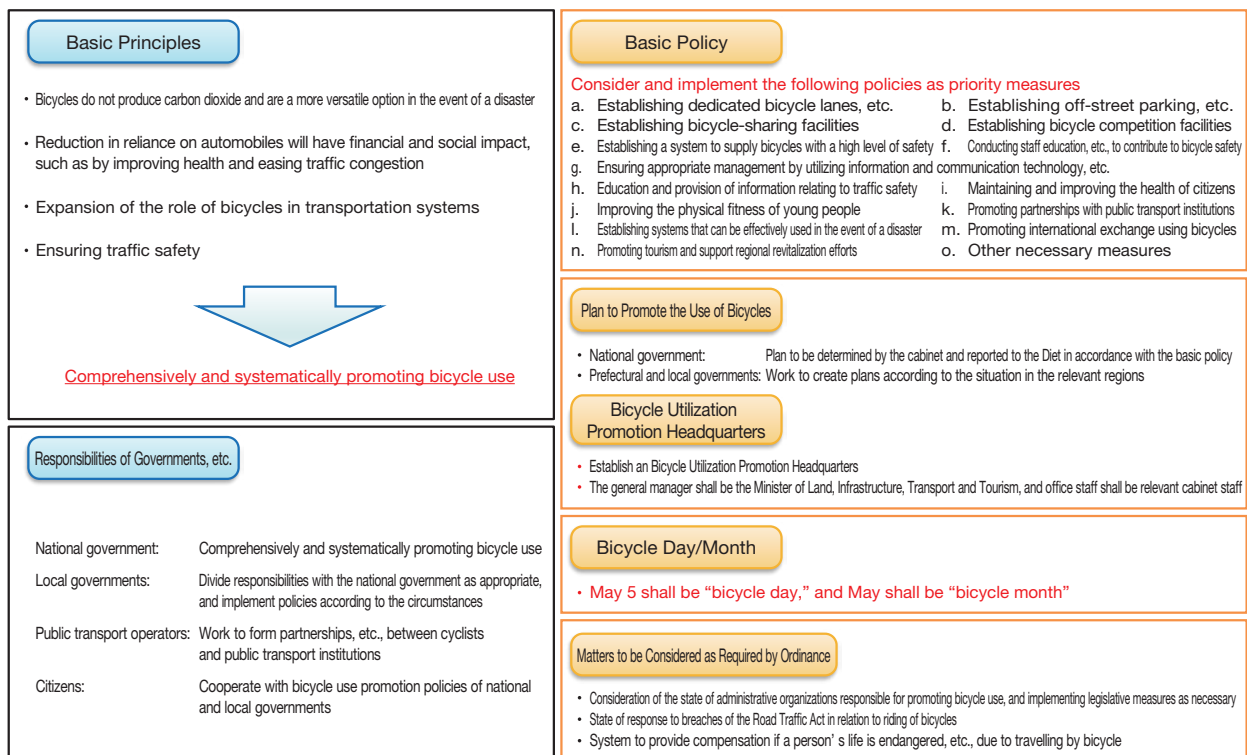
Bicycles are an environmentally-friendly means of transportation, and it is more important than ever to have policies to further promote their use in Japan, where the environment, traffic, and improving health, etc., are all important issues, as they provide transport and delivery in the event of a disaster, improve the health of citizens, and contribute to easing traffic congestion, etc.

To this end, the Act on the Promotion of Use of Bicycles (Act No. 113 of 2016) was enacted on May 1, 2017, and the Bicycle Utilization Promotion Headquarters was established at MLIT with the Minister as the general manager, to promote comprehensive and systematic planning as a government, with regard to the use of bicycles.

A basic principle under the Act is that we must promote the use of bicycles by expanding the role that bicycles play in transportation systems, while ensuring traffic safety, with the fundamental awareness that promotion of the use of bicycles contributes to the public good. Furthermore, there are 15 basic policies that must be given priority when considered and implemented, including the establishment of bicycle lanes, and bicycle-only times, etc.

Based on the Act, the Bicycle Utilization Promotion Headquarters is going to draft a Plan to Promote the Use of Bicycles, which includes targets and measures to be taken to promote bicycle use by the summer of 2018, in accordance with these basic policies.

Figure II-2-9-1 Outline of the Act on Promotion of Use of Bicycles (Promulgated on December 16, 2016, Enacted on May 1, 2017)



Source) MLIT

2 Creation of a Safe and Comfortable Environment for Bicycle Use

While the total number of traffic accidents has decreased by 40% over the last 10 years, the number of accidents involving both bicycle and pedestrian has decreased only by 10%, which calls for a creation of a safer and more comfortable bicycle usage environment. To this end, we published the Guidelines for Creating a Safe and Comfortable Cycling Environment in conjunction with the National Police Agency, and we are promoting creation of bicycle network plans, establishment of bicycle lanes in spaces that are generally utilized by automobiles, and effectively raising public awareness of complying with bicycle traffic rules.

3 Promotion of Cycling Tourism by Improving the Cycling Environment

Although regional development through cycling is a promising prospect to spread the effects of inbound tourism throughout Japan, the environment for receiving cyclists and the cycling environment are still insufficient. Therefore, we are promoting initiatives including selected routes that will serve as models in each region, creating a cycling environment through public-private partnership, and establishing an environment for receiving cyclists, in order to improve the environment for cyclists.

Section 10 Efficient, Prioritized Deployment of Measures

1 Promoting i-Construction: Improving Construction Site Productivity

The construction industry is not only responsible for the development of social infrastructure, but as the protector of communities, which is a vital role in the conservation of Japanese national land, it is also tasked with ensuring the safety and security of our society. In order for the construction industry to continue to fulfill these roles even as the population continues to decline and age, they must reform the way they work by raising the level of wages or increasing holidays, and in addition, it is crucial to improve productivity. The MLIT is continuing its work on i-Construction, an initiative that incorporates the use of ICT and other technologies to drastically improve productivity in all construction and manufacturing processes, from studies and surveying to designing, execution of construction work, inspections, maintenance and renovations.

From FY2016, ICT has been introduced to earthworks, and we have confirmed that this has reduced hours by approximately 30%. Since FY2017, we have extended ICT into the fields of paving and dredging, and we have been conducting trials in the field of bridges through i-Bridge. In FY2017, we undertook 815 earthworks projects, 79 paving projects, 24 dredging projects, and used CIM for 35 i-Bridge projects.

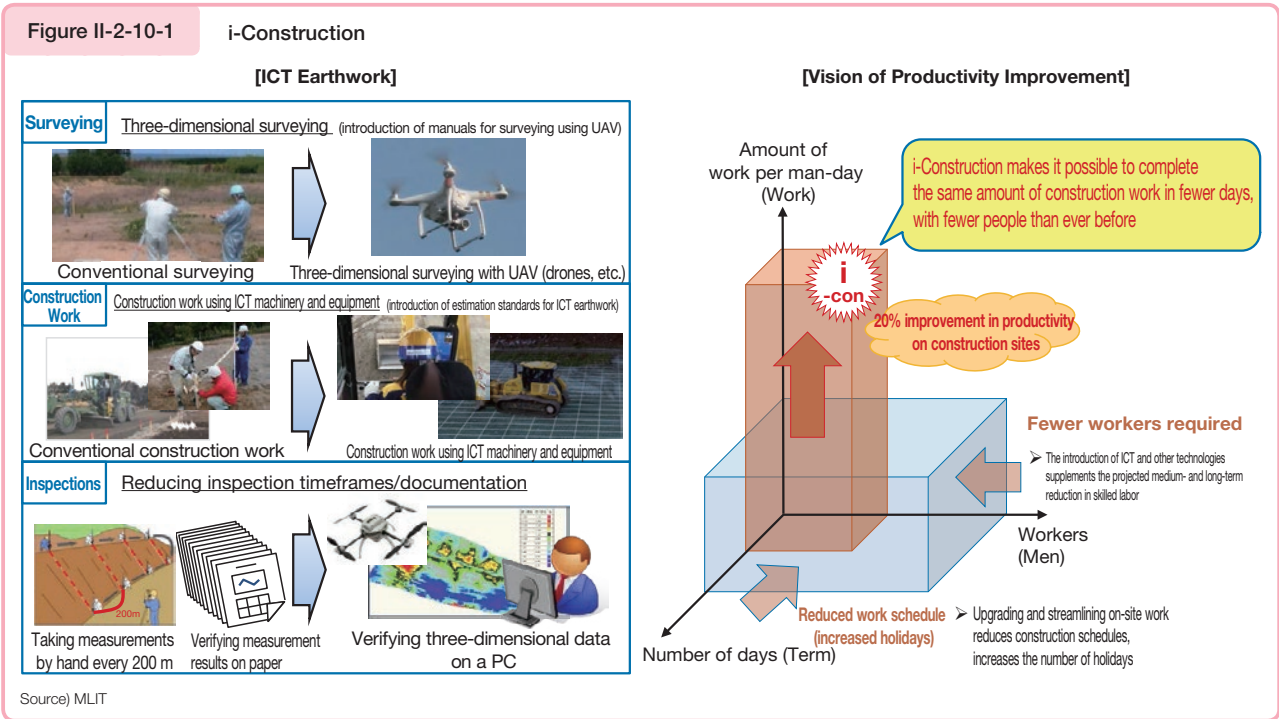
Furthermore we are working towards leveling construction time through standardization of concrete construction standards, and acts incurring treasury liability, etc. With regard to leveling, we confirmed that projects in the off-season, from April to June 2017, were up by a factor of 1.2 year on year.

With regard to utilization of three-dimensional data, which is important for the on-site introduction of new technology such as ICT and robots, we developed the 3D Data Utilization Policy in November last year, which indicates methods and future initiatives for the utilization of three-dimensional data at each stage of the construction process.

Additionally, the i-Construction Promotion Consortium, which was established in January last year through a collaboration between industry, academia and government and has over 800 members is working to accelerate the development and introduction of technology by matching on-site needs with technological seeds in five projects.

In addition, we instituted the i-Construction Award, which recognizes initiatives that have led to improved productivity at construction sites. The first award was granted to a total of 12 organizations (Minister of Land, Infrastructure, Transport and Tourism Award x 2 and Award for Excellence x 10) as an initiative to spread and promote i-Construction.

Going forward, we will further promote the initiatives we have promoted until now and engage in expanding the introduction of ICT to the maintenance and construction fields, expanding three-dimensional design for large-scale construction, etc., promoting the introduction of new technology to create innovation in public projects and providing comprehensive support to accelerate the initiatives of small and medium sized businesses. We will also further extend i-Construction initiatives to create attractive construction sites that are conducive to participation in work by young and female workers.



2 Assuring Public Works Quality and Securing and Developing Leaders

With the aim of ensuring the present and future quality of public works and securing and developing leaders of public works over the medium to long term, the Act for Promoting the Assurance of Quality of Public Works (Public Works Quality Assurance Act), the Act for Promoting Proper Tendering and Contracting for Public Works (Proper Tendering and Contracting Act), and the Construction Business Act were amended in June 2014 (the so-called Three Public Work Bearers Acts), and the amendment of the Basic Policy under Article 9 of the Public Works Quality Assurance Act and the Rationalization Guidelines under Article 17 of Tendering and Contracting Act was adopted by a Cabinet decision in September 2014.

Furthermore, Guidelines on Implementation of Order Administration (Operation Guidelines) (an agreement of an advisory committee of relevant ministries and agencies for promoting quality assurance of public works) pursuant to Article 22 of the Public Works Quality Assurance Act were developed in January 2015 to enable commissioning entities to appropriately and efficiently implement order administration in order to fulfill the “responsibilities of orderers” set out in Article 7 of the Act.

Given the full-scale implementation of the Three Public Works Bearers Acts, the MLIT requires municipalities and all other commissioning entities of public works to move forward with specific efforts based on the Guiding Principles.

Figure II-2-10-2 Key Points of the Guidelines on Implementation of Order Administration (Operation Guidelines)

Key Points of the Guidelines on Implementation of Order Administration (Operation Guidelines)	
<p>The national government prepared the Operation Guidelines under Article 22 of the Quality Assurance Act, listening to the opinions of local governments, academic experts and private business operators and others.</p> <ul style="list-style-type: none"> ➤ The Guidelines were put together in a systematic manner as common guidelines for orderers so that they can operate order administration appropriately and efficiently. ➤ The national government periodically conducts surveys on whether order administration is conducted appropriately in accordance with the Guidelines, and puts together the results for publication. 	
Mandatory action items	Action items to work on
<p>Appropriate setting of predetermined prices</p> <p>In setting predetermined prices, estimates must correctly reflect transaction prices of labor, materials and the like in the market as well as state of affairs of construction so that appropriate profits will be secured. In calculating estimates, the up-to-date estimation standards should be used on the assumption of a proper construction period.</p>	<p>Selection and use of tendering and contracting methods according to the characteristics and other factors of works</p> <p>Orderers select appropriate tendering and contracting methods among various methods according to the characteristics of works and regional conditions, or apply a combination of methods.</p>
<p>Elimination of <i>Bugiri</i> practice</p> <p>The <i>bugiri</i> practice must not be conducted as it violates the provisions of Article 7, Paragraph 1, Item 1 of the Act for Promoting the Assurance of Quality of Public Works.</p>	<p>Leveling of order and construction periods</p> <p>The leveling of ordering and construction periods should be a goal in order to devise better ways to execute budgets, such as by actively leveraging the multi-year budget system and ensuring budget execution from the first fiscal year, as well as devising contracting methods, such as setting leeway periods, and setting construction periods that take into consideration non-operating days by securing two days off a week.</p>
<p>Ensuring setting up and use of survey standards on low bid prices or the lowest price limits</p> <p>In order to prevent the practice of winning orders by presenting extremely low prices, appropriate use of the low bid price survey system or the lowest price limit system must be ensured. In principle, predetermined prices are published after bidding.</p>	<p>Use of quotations</p> <p>In the case of inviting bids, if a gap between a standard estimate and actual situations at construction sites is assumed, such as when there has been no bidder or no successful bid, predetermined prices should be reviewed appropriately using quotations.</p>
<p>Appropriate design changes</p> <p>If construction conditions and actual state of construction sites do not match or there are other similar situations, the design documents and associated contract prices and construction period must be changed appropriately.</p>	<p>Expediting information sharing and discussions with contractors</p> <p>Orderers strive to respond to consultations from contractors speedily and appropriately. Hold meetings of all relevant parties of both orderers and contractors as necessary to discuss and deliberate the appropriateness of the design changes and suspension of construction works and the like with the aim of expediting design change procedures.</p>
<p>Establishment of a system for support among orderers</p> <p>In addition to capturing the order administration status of orderers through the regional council of orderers, orderers make necessary coordination and adjustments, and municipalities and other orderers that require assistance seek support from the national and prefectural governments through the regional council of orderers.</p>	<p>Confirm and evaluate construction status after elapse of specified periods after completion</p> <p>Implement confirmation and evaluation of construction status as necessary after elapse of specified periods after completion.</p>

Source) MLIT

(1) Approaches to Fulfilling Duty of Orders

The MLIT is taking various initiatives for the appropriate implementation of order administration based on the Rationalization Guidelines and Operation Guidelines. In addition, to verify whether orderers are properly implementing order administration based on these Guidelines, we are conducting fact-finding investigations of tendering and contracting procedures pursuant to the Tendering and Contracting Act, and organizing and publicizing the results.

(i) Appropriate setting of predetermined prices

As an effort to eliminate so-called *bugiri*, which is the practice of deducting part of construction specification amounts that are based on fair estimation, the MLIT (with collaboration from the Ministry of Internal Affairs and Communications) has requested that local governments rectify the practice as soon as possible through every opportunity. As a result, all local governments (459 organizations) that engaged in *bugiri* as of January 2015 due to precedents, fiscal reforms of municipalities, and other reasons, decided to abolish the practice as of April 2016. In addition to the popular version of the Implementation Manual for the Repair Cost Estimation Method, which is a compilation of public construction works estimation standards and efforts regarding their implementation that was created in January 2015, we created a version for affected regions in Kumamoto in January 2017, and have continued efforts to develop and spread the word about the latest standards and manuals regarding estimation.

(ii) Measures against dumping

Dumping inhibits the healthy development of the construction industry, and MLIT has been using every opportunity to consider options for the prompt introduction of the low bid price survey system or the lowest price limit system at regional public organizations that have not yet introduced them. As a result, the number of organizations that has not yet introduced these systems has reduced from 181 as of March 2015 to 126 as of March 2017.

(iii) Appropriate design changes

The MLIT aims for the appropriate stipulation of construction conditions in design documents, as well as appropriate changes of design documents if deemed necessary, and has revised the Guidelines on Design Changes to facilitate design change work.

(iv) Leveling of construction work schedules, etc.

We are steadily promoting actively leveraging the multi-year budget system, incorporating and announcing order outlooks on a regional basis, setting appropriate construction work schedules, and using systems that allow leeway. We are working to promote further leveling of construction periods, etc., such as by revising and disseminating The ABCs of Leading Cases of Leveling, which is a collection of forward-thinking examples of efforts by local governments, in March 2017.

(v) Review of varied tendering and contracting options, etc.

New additions to the Public Works Quality Assurance Act include the selection and utilization of various tendering and contracting options, phased screening systems, technical proposal integrated negotiation systems, and systems that contribute to the maintenance and management of regional social capital (multi-year contracts, bulk orders, joint order acceptance). In May 2015, the MLIT drafted Guidelines Regarding the Implementation of Tendering and Contracting Options for Public Works to enable various orderers to select the tendering and contracting options that correspond to the peculiarities of each project.

(2) Coordination and Support Among Orderers

With regard to initiatives to contribute to assuring quality of public works, etc., MLIT is working to share information and achieve further coordination between orderers through the Regional Council of Orderers, the MLIT Committee of Ordering Institutions for Public Works, and the Regional Committee on Public Works Contracts, etc. In addition, in the public construction works sector, we are working toward the uptake of the “Ideal State of Orderers in Public Agency Facility Improvement,” which was released by the Panel on Infrastructure Development in January 2017, and Recommendations and Explanations, etc., which was developed in June 2017 at local government offices and the like based on the “responsibilities of orderers” set out in the Quality Assurance Act.

Section 11 Forming a New Phase of Relationships between the Central and Local Governments and Private Sectors**1 Promoting Public-Private Partnerships, etc.**

In order to promote the formation of public-private partnerships (PPP/PFI), MLIT provides support to local governments, etc., and facilitates the formation of forums for industry-academia-finance-government discussions (regional platforms).

In FY2017, we adopted 25 pioneering public-private partnership projects, including considering rejuvenation and revitalization of city parks through the introduction of Park-PFI, etc.

In addition, within regional platforms established in each of the nine blocks throughout Japan, we are conducting practical training, etc., for the sounding of specific projects and acquisition of knowhow through public private dialogue, and we supported 31 local governments to create local government platforms.

Section 12 Policy Evaluations, Project Evaluations, and Interactive Administration

1 Driving Policy Evaluations

Based on the MLIT Basic Plan for Policy Evaluations under the Government Policy Evaluations Act, the MLIT uses three basic policy evaluation methods—(i) checking policies by periodically measuring and evaluating the achievement of each measure, (ii) reviewing policies by conducting in-depth analysis on specific focused themes and (iii) conducting policy assessment by analyzing the necessity of new measures—and runs management cycles for policies by linking those methods. In FY2017, (i) 13 policy objectives/44 measure goals/141 performance indicators, (ii) 4 themes, and (iii) 12 new measures were evaluated by the respective systems^{Note}.

In addition, policy evaluation of individual public-works projects, individual research and development issues, regulations, and special taxation measures are conducted as a method of policy evaluation according to the characteristics of policies, and the results of the evaluations are reflected in budget requests and the development of new measures.

Also, in accordance with the Act on General Rules for Incorporated Administrative Agencies, performance evaluations of 15 incorporated administrative agencies as the competent minister were performed.

2 Implementation of Project Evaluations

A fully integrated scheme of evaluating individual public-works projects is built in place to enhance the efficiency and transparency of their implementation. Under this scheme, new public-works projects are evaluated upon initial adoption and then reevaluated and post-evaluated upon completion. Project appraisal charts are organized to present a background of the evaluations of public-works projects, including supporting data relevant to their cost effective analyses upon initial adoption, reevaluation, and post-evaluation upon completion, and are posted on the Internet and elsewhere. In addition, MLIT conducts planning-phase evaluations on public-works projects implemented under its direct control as its own approach in the preliminary phase of new project evaluation upon initial adoption.

Furthermore, in FY2017, we revised the business evaluation procedures, such as flexibly conducting reevaluation, having confirmed the progress of the project in a timely and appropriate manner.

3 Driving Administrative Management Open to the Public, and Interactive Administration

(1) MLIT Hotline Station

In driving the land, infrastructure, transport, and tourism administration that has a very close bearing on people's living, it would be essential to gain a broad insight into people's views, requests and so on and deploy administrative actions directly related to the people. To this end, the MLIT has opened the MLIT Hotline Station to receive about 1,100 views on a monthly average.

(2) Keeping Consumers Informed

The MLIT has opened the Negative Information, Etc. Search Site at its website to provide a summary listing of the records of contractors, etc. relating to buildings, such as housing, and public transportation facilities, including administrative dispositions imposed on them, to ensure safety and security through proper selection by consumers, etc. and supervision by markets, as well as by administration as in the past.

(3) Making the Planning Process in the Development of Social Infrastructures More Transparent

In driving the development of social infrastructures, it is important to ensure the transparency and fairness of the planning process and win understanding and cooperation from the local residents. The MLIT is working to make the planning process more transparent by using guidelines that stipulate present key conceptual approaches to formulating plans efficiently with socioeconomic, environmental, and all other relevant perspectives taken into consideration while

Note Ministry of Land, Infrastructure and Transport and Tourism Policy Evaluations Website: <http://www.mlit.go.jp/seisakutokatsu/hyouka/index.html>

encouraging the participation of various entities, including local residents, in the process.

Section 13 Approaches to Hosting Tokyo 2020 Olympic and Paralympic Games

Act on Special Measures for the 2020 Tokyo Olympics and Paralympics was enacted on June 25, 2015, and the government has established promotion headquarters to contribute to smooth preparation toward Tokyo Olympics and Paralympics to be held in 2020. Also, in accordance with the Act, the Basic Policy was adopted on November 27, 2015, by a Cabinet decision.

The MLIT launched the MLIT Preparatory Headquarters for the 2020 Olympic and Paralympic Games headed by the MLIT Minister on April 18, 2014 to render all-out assistance. It will take whatsoever responses necessary to get the Games running smoothly, including assuring safety and keeping lodgings and transportation comfortable. In addition, the Games belong not only to Tokyo, but to the whole of Japan, and MLIT will promote initiatives to lure foreign visitors into every little locality of Japan to create vibrant regional areas.

Specifically, MLIT will work on such measures as the development of road transportation infrastructure, enhancement of the functionality of Tokyo's airports, which are Japan's gateway, enhancement of barrier-free measures, development of an environment for receiving foreign travelers that includes multi-language information signs/maps and free public wireless LAN, strategies to combat heat for athletes and tourists through greening of roadsides and environmentally-friendly paving, etc., improvement of the waterfront environment, disaster-prevention measures against typhoons and other disasters, security measures, such as maritime security, and issuance of special license plates, in coordination with interested parties, including the Games Committee and Tokyo.

Chapter 3

Realizing a World-Class Tourist Destination and Building a Beautiful Nation

Section 1

Trends in Tourism

1 Significance of a Tourism Nation

Tourism is an industrial segment of vital importance to Japan, for it helps the nation maintain regional vitalities to keep up with its social development by capturing global demands, as from rapidly advancing Asian nations, to expand the nonresident population visiting from both at home and abroad in a decreasing population and aging society with falling birthrates, and also consolidate its position in an international community by promoting deeper global mutual understanding through two-way exchanges with the nations abroad.

2 Tourism Situation

(1) Japanese Domestic Tourism Consumption

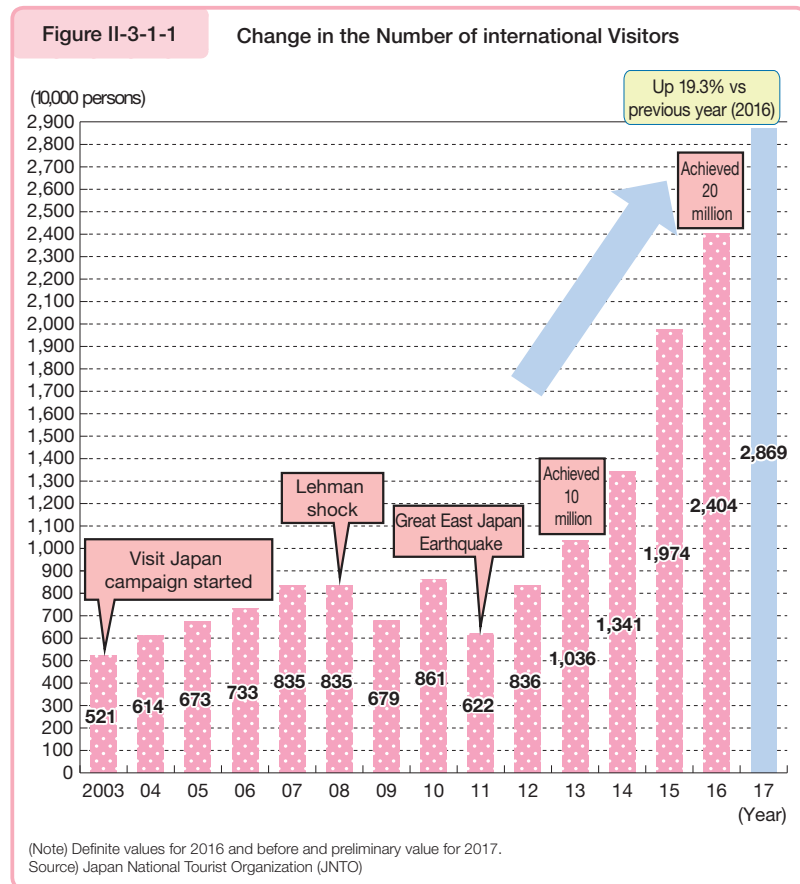
Japanese domestic tourism consumption in 2017, including overnight trips and same-day trips, was 21.1 trillion yen (up 0.8% from the previous year).

Breaking down Japanese domestic tourism consumption, spending on overnight travel was 16.1 trillion yen (up 0.3% from the previous year) and spending on same-day trips was 5.0 trillion yen (up 2.3% from the previous year).

(2) Number of international Visitors to Japan

The number of international visitors in 2017 increased to 28.69 million (up 19.3% from the previous year), and has been reached record high for the fifth consecutive year.

By nationality and region, China accounted for about 7.36 million, followed by South Korea with about 7.14 million. Each number of visitors from China and South Korea exceeded 7 million for the first time ever in all markets. By market, the following 20 markets registered their annual record highs: South Korea, China, Taiwan, Hong Kong, Thailand, Singapore, Malaysia, Indonesia, the Philippines, Vietnam, India, Australia, the United States, Canada, the United Kingdom, France, Germany, Italy, Russia and Spain.



(3) Tourism Consumption by Foreign Visitors to Japan

With the increase in the number of foreign visitors, tourism consumption by foreign visitors in 2017 reached a record high of 4,416.2 billion yen (up 17.8% from the previous year).

By nationality and region, China accounted for 1,694.7 billion yen (up 14.9% from the previous year), followed by Taiwan with 574.4 billion yen (up 9.5% from the previous year), South Korea with 512.6 billion yen (up 43.3% from the previous year), Hong Kong with 341.6 billion yen (up 15.9% from the previous year), and the United States with 250.3 billion yen (up 17.5% from the previous year). These top five countries accounted for 74.6% of total travel spending by foreign visitors in 2017.

(4) Number of Repeaters among Foreign Visitors to Japan

The number of repeaters among foreign visitors in 2017 was 17.61 million (up 23.5% from the previous year).

Taiwan and Hong Kong especially produced high rates of repeaters, with the percentage of travelers in 2017 visiting for their second time or more being 83.4% and 80.1%, respectively.

(5) Total Number of Guest Nights of International Visitors in the Outlying Areas

The total number of guest nights of international visitors in the outlying areas in 2017 (Preliminary figures) was 31.88 million (up 15.8% from the previous year). Year on year, this exceeds that for the three major metropolitan areas (which were up 10.2%), with large increases by prefecture in Aomori (up 60.3% from the previous year), Oita (up 59.3% from the previous year), and Saga (up 51.9% from the previous year).

(6) Percentage of International Conferences of Those Held in Major Asian Countries

The number of international conferences held in Japan in 2017 was 414 (up 1% from the previous year), ranking 7th in the world after France. Japan's share of international conferences out of those held in major Asian countries was 27.8%, remaining in the top position in Asia.

(7) Number of Japanese Going Overseas

The number of Japanese who went overseas in 2017 was 17.89 million (up 4.5% from the previous year), an increase for the second year in a row.

Section 2**Initiatives to Realize a World-Class Tourist Destination**

On May 30, 2017, the Ministerial Council on the Promotion of Japan as a Tourism-Oriented Country decided on a "Tourism Vision Realization Program 2017" as a short-term action plan for the "New Tourism Strategy to invigorate the Japanese Economy." Based on this program, the government made united efforts to promote various measures to realize a world-class tourist destination.

1**Enhancing the Appeal of Tourism Resources as a Cornerstone of Regional Revitalization****(1) Opening Appealing Public Facilities and Infrastructure to the Public**

The MLIT promoted infrastructure tourism to encourage regional promotion by utilizing and opening infrastructure as tourism resources, such as expanding the number of tours held at the Metropolitan Area Outer Underground Discharge Channel.

Column**Promotion of Tourism and Regional Development through Infrastructure Tourism**

There has been a surge of interest in infrastructure tourism, which utilizes dams, bridges, ports, and world-class civil engineering technology as tourism resources to promote tourism and regional development. In addition to its role in revitalizing regions around infrastructure, infrastructure tourism is also expected to contribute to promoting greater understanding of infrastructure development, maintenance and management when visitors observe, experience and enjoy up close infrastructure that are assets specific to each region.

Regional development bureaus and other public agencies are actively organizing facility tours and tie-up schemes with private sector travel agencies, and information on nationwide infrastructure tours is provided through an infrastructure tourism portal site that opened in January 2016. Many people join these tours, as they allow visitors to see things that they cannot see every day. The number of tours offered by private sector companies has increased from 32 in FY2016 to 80 in FY2017, and tours are offered with cooperation between infrastructure and the local community, such as discharge of water from a dam for tourists plus local dining. Additionally, we are incorporating new perspectives, such as through solicitation of ideas from university students around the country, and promoting regional revitalization using infrastructure as tourism resources. We invite you to also participate in an infrastructure tour and see, learn, enjoy and experience infrastructure in Japan.



Yanba Dam (Gunma Pref.)



Amagikita Road (Shizuoka Pref.)



Port of Ube (Yamaguchi Pref.)



Sendohirakomon Lock (Aichi Pref.)

Source) MLIT

(2) Increasing the Attraction of Tourist Sites through the Preservation and Utilization of Tourism Assets with Excellent Scenery

From such viewpoints as creating pleasing landscapes, promoting tourism, keeping the driving environment safe and comfortable, and making roads disaster-ready, we promoted the removal of utility poles by promoting simultaneous development during construction of new roads or widening of existing roads and by implementing model construction works to introduce low-cost methods.

Additionally, based on the Act on Promotion of Utility Pole Removal, we moved forward with the formulation of a plan to comprehensively, systematically, and quickly promote the removal of utility poles.

Furthermore, through workshops for all prefectures and municipalities, we encouraged municipalities that are major tourist sites to develop landscape plans. We also made multilingual information boards in national government parks.

Through cooperation with private-sector operators, we integrated rivers and towns, promoting the formation of favorable spaces that appeal to travelers, such as the establishment of open cafes and riverbeds by private-sector operators using measures to ease permission rules on exclusive use for river sites.

(3) Promoting Tourism Town Development Using Historical Resources such as Japanese Traditional Houses

In order to make use of historical resources such as Japanese traditional houses as an accommodation, etc., which are unused assets in local communities, and connect that to regional revitalization, we cooperated with ministries concerned to respond to inquire from local communities by setting up a consultation hotline about Japanese traditional houses and providing support such as dispatching experts. Also, in order to promote the revival of Japanese traditional houses using small investments, such as through crowd funding, we amended the Act on Specified Joint Real Estate Ventures in December 2017 and worked on spreading and raising awareness of the newly created small-scale specified joint real estate ventures.

(4) Development of New Tourism Attractions

From September 2017, we began holding meetings to consider enhancement of tourism resources to make foreign visitors stay enjoyable and raise their consumption. Then in March 2018, we compiled tourism policies to enhance the experiential tourism and to improve satisfaction of experiences.

(5) Improving Extensive Sightseeing Routes to a World-class Level

In order to encourage the formation of extensive sightseeing routes with themes and stories that help draw foreign visitors to the countryside, we supported initiatives to encourage foreign visitors to tour an area, including enhancement of stay-contents using regional tourism resources and promotion of target cities, focusing on specific model courses in 11 routes across Japan. We also dispatch experts to each region to help identify an area's attractions and challenges, suggest measures, and help improve the skills of relevant persons in the community.

We also used a “Theme-based Tourism Program for Drawing Visitors to the Countryside” to support networked regions, in order to attract visitors to the countryside with specific tourism resources such as sake breweries or movie/TV shooting locations.

Additionally, as part of the promotion of sake tourism, in a 2017 tax system revision we created an “export alcohol market system” that exempts from liquor tax as well as consumption tax alcoholic beverages sold to foreign visitors by alcoholic beverage manufacturers at places of manufacture that have received approval as a location selling for-export alcoholic beverages. The purposes include increasing awareness of alcoholic beverages made in Japan and promoting their export.

Furthermore, in October 2017, we released the latest two-years' (2015 and 2016) of FF-Data, which enables users to grasp the movement of foreign visitors in Japan (modes of transportation used and routes taken within the country). It is expected that this information will be used to analyze sightseeing routes and for the planning and revision of strategic promotion measures.

We also used big data in an effort to strengthen quick-impact congestion measures by making smart use of the capacity and space of existing roads and parking lots. Specifically, in the Furano/Biei region of Hokkaido, we implemented congestion measures using wide shoulders to separate vehicles waiting to park from through traffic as well as a park & bus ride scheme from a temporary parking lot. At the Hitachi Seaside Park in Ibaraki, we conducted a pilot program of a reservation system to encourage the use of surrounding parking lots through smooth, reliable parking during the season when the *Bassia scoparia* (summer cypress) are displaying their autumn colors.

(6) Promoting Formation of “Tourism Nation Showcases”

In order to form model cases for drawing foreign visitors to the countryside, we selected Kushiro City, Kanazawa City, and Nagasaki City and are supporting the promotion of “Tourism Nation Showcase Implementation Plans” which each of the cities formulated through opinion-exchanging meetings for relevant ministries and the three cities.

(7) Revival of Tourism in Tohoku Region and Responses to Natural Disasters such as the Torrential Rain in Northern Kyushu

We designated 2016 as the “First Year of Tohoku Tourism Recovery” and are taking various measures to further promote tourism revival initiatives in Tohoku^{Note}.

In response to the torrential rain that struck northern Kyushu in July 2017, we disseminated information on the allure of tourist sites in northern Kyushu through bloggers and media to Japanese travelers and through travel company solicitations and SNS to foreign visitors.

When Mt. Kusatsu-Shirane (Mt. Moto-Shirane) erupted in January 2018, we disseminated accurate information through the websites of the Japan Tourism Agency and the Japan National Tourist Organization (JNTO) in an effort to prevent reputational damage.

Note Refer to Section 4-2, Chapter 1 for Revival of Tourism in Tohoku.

2 Innovating the Tourism Industry to Boost its International Competitiveness and Develop It into a Core Industry

(1) Comprehensive Review of Tourism-related Regulations and Systems and Response to *minpaku* (Private Lodging) Services

On January 4, 2018, the Act to Amend the Licensed Guide Interpreters Act and the Travel Agency Act went into effect, in order to respond to the overwhelming shortage of interpreter guides and cases such as malicious land operators bringing tourists to souvenir shops on condition of receiving large kickbacks. The act's contents included the abolition of regulations on monopolization of the interpreter guide business while keeping in place a monopoly on the name, ensuring the quality of interpreter guides, introduction of a registration system for land operators, and deregulation of travel services limited to a specific area.

Also, in light of the content of a plan to implement regulatory reform (approved by the Cabinet on June 2, 2016) and of the final report of the review meeting on *minpaku* services (compiled in June 2016), the Private Lodging Business Act was established in June 2017 to promote *minpaku* services that meet needs under appropriate regulations, and we prepared governmental and ministerial ordinances.

Column

Spread of Sound *Minpaku* through Enactment of the Private Lodging Business Act

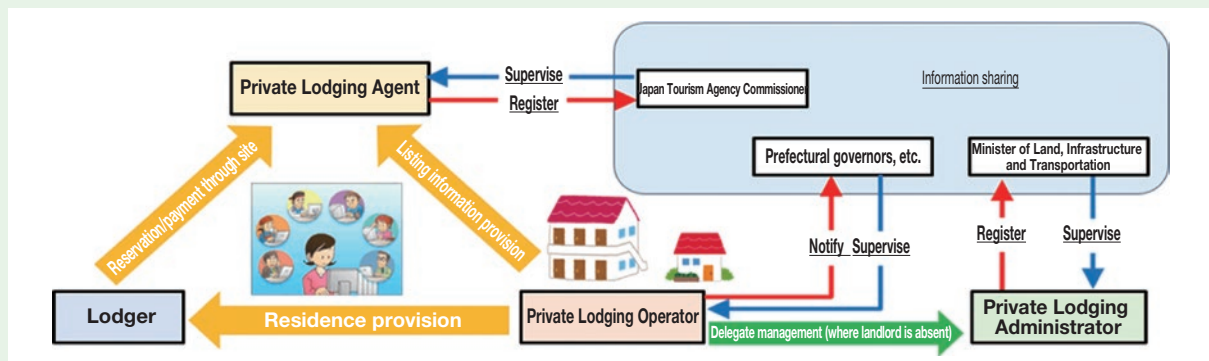
The Private Lodging Business Act was passed on June 9, 2017 and promulgated on June 16.

In recent years, the number of foreign visitors to Japan has been increasing rapidly and is expected to continue increasing in the future. Reliably securing accommodation for these travelers has become a pressing issue. Additionally, some foreign visitors would like to use accommodation services in residential houses. At the same time, residential houses that are empty or that have empty rooms are on the increase, and their owners who provide accommodation services would like to make effective use of them as accommodation facilities.

Given this situation, “*minpaku* (private lodging) services” have been increasing in Japan, creating a pressing need to utilize them for becoming a world-class tourist destination. On the other hand, issues with *minpaku* services include the fact that safety and hygiene are not ensured and neighborhood trouble caused by noise and trash handling is a societal problem. The Private Lodging Business Act was enacted to deal with these issues.

The act stipulates that persons who engage in the private lodging business must notify their prefectural governor, etc. and take measures to run the business in an appropriate manner, including measures to ensure hygiene and explanations for preventing noise.

After the act was passed, we made preparations, in coordination with organizations concerned, for spreading sound *minpaku*, and formulated relevant regulations, including government and ministerial ordinances and guidelines. The act went into effect on June 15, 2018.



Source) Japan Tourism Agency

(2) Developing and Enhancing Tourism Management Personnel Based on Industry Needs

We took initiatives at each level—the top, core, and working levels—to develop and secure personnel in the tourism field.

With respect to the top level, with the objective of developing human resources who can drive Japan's tourism industry overall, we considered curricula through industry-university-government cooperation and conducted symposia including publicity and awareness building. Our aim was to establish bases to continually develop management personnel for tourism at the graduate school level (including MBAs) at Hitotsubashi University and Kyoto University in 2018.

Regarding personnel at the core level, we horizontally extended an educational program conducted at Otaru University of Commerce in FY2015 and offered courses at six universities—Wakayama University and Oita University, chosen in FY2016, and Aomori University, Kagoshima University, Toyo University, and Meikai University, chosen in FY2017—to increase managerial capabilities in the regional lodging industry.

As for working level personnel, as a response to the labor shortage in the tourism industry, we conducted a survey of long-term internships for students hoping to enter the tourism industry and held online courses and seminars on leading-edge model cases, in order to encourage the use of the latent workforce of seniors and women wanting to work.

(3) Quick Resolution of the Shortage of Accommodation Facilities and Provision of Accommodation Facilities that Meet Diverse Needs

Based on notifications sent out in June 2016 related to the creation of a system for relaxing floor area ratios, which is focused on development of accommodation facilities, we carried out positive initiatives and also made accommodation facilities eligible for financial support from the general incorporated foundation Organization for Promoting Urban Development (hereinafter simply called MINTO).

(4) Formation and Development of World-class DMOs

Toward the formation and development in each part of the country of DMOs^{Note}, which are corporations that handle the management and marketing of tourism regions, we registered 198 corporations in a DMO registration system and provided assistance for initiatives in each region in three ways: information, personnel, and financial/monetary support.

(5) Continual Operation of the Tourist Area Regeneration/Revitalization Fund and Deployment of Fiscal Resources to Become a Next-generation Tourism-oriented Country

The Regional Economy Vitalization Corporation of Japan (REVIC), which has entered into a comprehensive collaboration with the Japan Tourism Agency, had set up 12 tourism revitalization funds by the end of FY2017 in different regions together with local financial institutions. These funds have provided investment and loans to 39 projects, contributing to area-wide regeneration/revitalization of tourist areas. The Japan Tourism Agency supported REVIC's initiatives, including the provision of information on businesses with high relevance to REVIC's initiatives and efforts to get the word out about the funds, including through its website.

Also, with a view toward expanding and reinforcing the foundations of tourism, in order to make Japan an advanced tourism nation, an International Tourist Tax was created as a tax for promoting tourism (the system is expected to begin on January 7, 2019). The source of funds is to be applied to uses that win the understanding of those paying the tax, including Japanese traveling abroad, based on the relationship between the benefits and burden, that are highly advanced and demonstrate good cost effectiveness, and that are in line with the important policy issues, including regional development, that Japan faces.

Note DMO: Destination Management/Marketing Organization.

Column

Establishment and Utilization of the International Tourist Tax to Promote Tourism

○ Background

In order to grow tourism into a key industry of the nation, and make Japan an “advanced tourism nation”, there is a need to secure stable fiscal resources for developing higher-level tourism measures that will accommodate the expected further increase in tourism demand. The “Tourism Vision to Support the Future of Japan,” established in March 2016, called for examination the securing of fiscal resources from the beneficiaries of a tourism nation, with a view toward achievement of goals including 40 million foreign visitors in 2020. Accordingly, a council of experts established in the Japan Tourism Agency in September 2017 carried out the examination. We requested amendment of the tax system based on the interim report issued by the council in November 2017, and the International Tourist Tax was created in the “FY2018 Large Package of Tax Revisions” compiled in December. Under the tax scheme, 1,000-yen tax will be levied per departure for overseas beginning January 7, 2019, as a tax for the promotion of tourism.

○ How the revenues from the International Tourist Tax will be used

The “Basic Policy for the Use of the International Tourist Tax (Provisional Name)” (decided by the Ministerial Council on the Promotion of Japan as a Tourism-Oriented Country in December 2017) allocates revenues from the tax to the three purposes indicated below. In the FY2018 budget, revenues of 6 billion yen from collection of the tax starting on January 7, 2019, will be allocated, in accordance with the policy, to measures/projects with especially high novelty and urgency.

(i) Development of an environment for stress-free and comfortable travel

- Development of the CIQ structure by installing facial recognition gates and computerized gates for customs inspection areas using state-of-art technologies
- Multilingual support etc. using ICT and construction of information platforms regarding travel safety information

(ii) Simplification of access to information on Japan’s diverse attractions

- Utilization of digital marketing using the JNTO website etc.

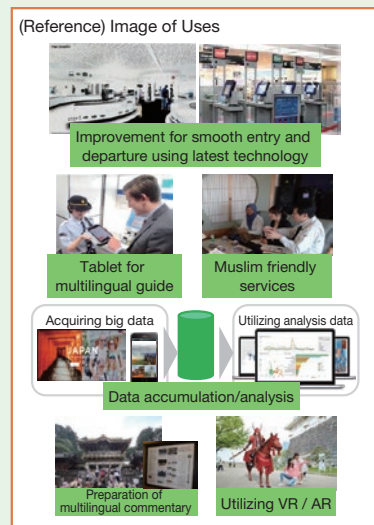
(iii) Improved satisfaction levels with regard to experiences and stays in regions, through the development of tourism resources

- Preparation of multilingual commentaries regarding cultural properties and national parks etc.
- Development of new tourism content for sightseeing in Japan and nurturing of state-of-the-art tourism that exploits the latest technologies such as VR

For the FY2019 budget forward, when tax revenues will be collected for the entire fiscal year, rigid budget allocation is to be avoided and, to ensure renewal each fiscal year, revenue uses are to be considered, in light of the opinions of private sector experts, in the process of budget compilation.

Taxpayers	International tourists departing from Japan by aircraft or ship regardless their purpose or nationality (international tourists)
Exclusion and Exemptions	<ul style="list-style-type: none"> • Crew members • Persons subject to deportation • Persons leaving Japan by an official airplane or ship such as presidential aircraft • Transit passengers who leave Japan within 24 hours after entry • Passengers who planned to travel between third countries but happened to stop by Japan due to emergency condition such as inclement weather • Passengers who planned to depart for a foreign country but happened to return to Japan due to emergency condition such as inclement weather • Passengers under 2 years of age (Note) Certain foreign diplomats and military personnel dispatched to Japan departing for official purpose
Tax rate	JPY1,000 per departure for overseas
Collection / payment	(i) Collection and payment by carriers Airlines and cruise lines shall collect tax from their passengers and make payment — by the end of the month after the next month of departure. (ii) Payment by tourists If leaving not with carriers but with private vessel such as private jet, passengers— shall make payment by the time of boarding.
Application period	Effective from Monday, January 7th, 2019 (Excluding certain departures based upon a contract of carriage signed prior to the date)
Effective date	Monday, January 7, 2019

Source) Prepared by the MLIT based on the "About the International Tourist Tax Bill" by the Ministry of Finance



Source) Japan Tourism Agency

(6) Strategic Advancement of Visit Japan Promotions With the Post Olympic and Paralympic Period in Mind and Strengthening of Foreign Publicity on Japan's Diverse Attractions to Encourage Inbound Tourism

In February 2018, the Japan Tourism Agency and JNTO commenced the Enjoy My Japan Global Campaign with the objective of increasing recognition of Japan as a travel destination, in order to further promote in-bound tourism from Europe, North America, and Australia. Digital technologies were used to disseminate advertisements and information mainly online.

We established a new department dedicated to digital marketing in the JNTO and staffed it with personnel experienced in ICT. We also renovated the organization's website, started using an app and Instagram, established a system to begin analyzing access across the website, and took other steps to develop the infrastructure for digital marketing.

(7) Promotion of MICE

With a view toward further strengthening Japan's international competitiveness in MICE events, in July 2017, we established Relevant Ministries' MICE Support Interim Action Plan, regarding measures to be implemented by relevant ministries cooperatively, and in August 2017, we established Interim Report of MICE International Competitiveness Enhancement Committee, regarding the MICE industry and measures related to relevant ministries and organizations. In line with these guidelines, we strengthened our initiatives, including with the creation, in November 2017, of a Committee on Enhancing Competitiveness of Global MICE Cities to enhance the functions of each convention bureau. We also provided support to improve conference facilities that help the business activities of global companies.

(8) Strategic Relaxation of Visa Requirements

China and India are target markets for strategic relaxation of visa requirements under the Tourism Vision. We partially simplified application procedures for travelers from those countries and, for China, we issued multiple-entry visas to visitors going to the six prefectures of the Tohoku region^{Note} and, for India, we expanded the kind of people eligible for multiple-entry visas. Also, we adopted a visa waiver for United Arab Emirates nationals based on a pre-registration system and took measures to relax visa requirements for CIS and Eastern European countries.

Note Aomori Prefecture, Iwate Prefecture, Miyagi Prefecture, Akita Prefecture, Yamagata Prefecture, and Fukushima Prefecture

(9) Stimulation of Educational Travel to Japan

In light of the Tourism Vision, we conducted inbound matching for educational travel to Japan through a centralized point of contact at the JNTO. We also conducted invitation programs for educators and others from cities in Taiwan and elsewhere.

(10) Enhancement of Tourism Education

We collected advanced case examples and formulated model classes so that children can learn about attractive historical and cultural tourism resources in their communities and other parts of Japan and communicate the appeal of those resources on their own.

(11) Stimulation of Outbound Travel by Young People

We established the Outbound Promotion Council in the Japan Association of Travel Agents and conducted seminars. Also, in order to consider concrete policies for stimulating outbound travel by young people, we launched the Review Committee for Stimulation of Outbound Travel by Young People in the Japan Tourism Agency in December 2017 and held three review meetings to produce guidelines for stimulation measures.

3 Ensure All Visitors May Enjoy a Satisfying, Comfortable and Stress-free Sightseeing Experience

(1) Realization of Innovative Immigration Control Using Cutting-edge Technologies

In coordination with the relevant ministries, installation of “Bio Carts” that use the waiting time for passport control to acquire biometric information in advance were expanded from 3 to 15 airports. In October 2017, Haneda Airport became the first to install the facial recognition automated gates for Japanese people returning to Japan.

Furthermore, body scanners were installed at eight airports, including Naha and Kagoshima, and high performance automatic explosives detectors were newly installed in some major airports, including Haneda Airport.

(2) Promotion of “Integrated Tourism/Town Revitalization” through Private Sector Town Development Activities

We are promoting the establishment of networks of clear, easy-to-use walking spaces by supporting the development of information signs around terminal stations and barrier-free transportation facilities and walking spaces.

In order to attract investments from abroad and promote exports of urban development, we also moved forward with examination of the City Future Gallery concept (tentative name) that introduces the attractions of Japanese cities.

(3) Improving the Environment for Visitor Experience in Japan

We provided support for multilingual services in public transportation and tourist information centers, the development of free public wireless LAN environment, and installation of sit-down toilets in public restrooms.

We also provided support for costs to cope with inbound travelers in approximately 600 Japanese inns, hotels, and other accommodation facilities.

We continued to spread information about the consumption tax-free system for foreign visitors, including the reduction of the lower limit purchase amount for general goods, in an effort to expand tax-free shops, including in the countryside. Also, from the perspective of improving convenience for foreign visitors and making tax-free sales procedures more efficient for tax-free shop operators, under certain conditions (special packaging, etc.) we will make transactions where the total amount of general goods and consumables is 5,000 yen or more eligible as tax-free sales from July 2018, and from April 2020 we will make tax-free sales procedures electronic.

We also carried out initiatives to make Michi-no-Eki (Roadside Stations) into sites for the dissemination of local information by encouraging inbound responses such as the establishment of tax-free shops and tourist information centers and the development of free public wireless LAN spots at Michi-no-Eki.

(4) Enhancing Systems for Receiving Foreign Patients to Enable Adequate Responses to Emergency and Non-emergency Cases

In FY2017, in coordination with the Ministry of Health, Labour and Welfare and with the cooperation of prefectural governments, we created and disseminated a list of approximately 1,260 medical institutions that can receive foreign travelers. Also, we continued to encourage foreign visitors to subscribe to travel insurance that they can get after arriving in Japan so that they can receive treatment without worrying about medical costs.

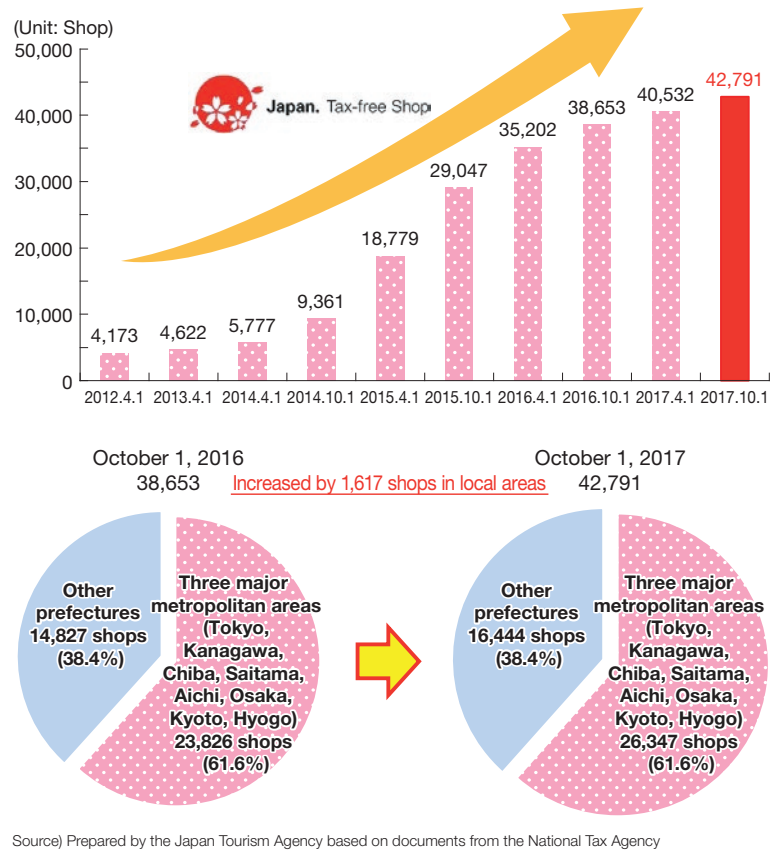
(5) Establishing “Regional Economic Development Corridors”

To enhance the system of sales outlets for Japan Rail Pass tickets so as to help further draw foreign visitors to the countryside, in March 2018, we expanded the sales locations in Japan from 16 to 55 train stations and airports.

Furthermore, to accelerate the flow of people, goods and encourage local revitalization by creating an environment with choices among diverse, easy-to-use modes of transportation, we promoted the strengthening of inter-mode connections, focusing on buses. In April 2016, the Shinjuku Expressway Bus Terminal, which is one of the largest bus terminals in Japan, opened at the Shinjuku Station South Exit, consolidating 19 expressway bus stops that had been scattered around the Shinjuku Station West Exit. In FY2017, we moved forward with an examination aimed at development of consolidated transportation terminals, using a system that allows the construction of highways and buildings in the same space, in the areas around Shinagawa Station and Kobe-Sannomiya Station. On March 28, 2018, at the Shinjuku Expressway Bus Terminal, we began a demonstration testing for a new expressway bus location system that uses ETC2.0 as a common platform. Going forward, we will expand the companies and routes participating in the demonstration testing in an effort

Figure II-3-2-1

Change in the Number of Tax-Free Shops



to further enhance convenience, and we will also look into expansion to other terminals.

In order to create road signs that are easy for all users to understand, including foreign visitors, we introduced a “numbering” system for expressways, in addition to route names, for Japan’s developing expressway network. Cooperating with the different road administrators, we pushed forward with the development, aiming to be almost complete by 2020. Also, we improved the display of English on road information signs at 49 major tourist sites nationwide and other places in coordination with the information signs of various organizations and also promoted the display of the names of tourist sites on intersection name signs at famous tourist destinations and places of interest.

Expressway companies have implemented fixed-price expressway passes for given areas, such as the Hokkaido area, for foreign visitors using rental cars, and the first fixed-price expressway pass covering the entire country began in October 2017.

Additionally, to encourage the creation of new services related to boat travel, 18 zones have been established as of the end of March 2018 under the “Model Zones for Boat Travel Revitalization” system that began in April 2016.

To secure means of transportation for tourists in depopulated areas, the “Private Car Compensated Passenger Transport System” was expanded to tourists, including foreign visitors, in National Strategic Special Districts. We established a review committee in Yabu City, Hyogo Prefecture and conducted a review. In December 2017, a plan for the Yabu City district was established and approved.

The new transportation-policy-guide-book *Pearls of Wisdom for Ensuring Regional Mobility 2017*—was made to help municipal officers plan transportation policies to attract foreign tourists visiting rural areas in Japan.

(6) Strengthening Regional Airports’ Gateway Function and Encouraging LCC Services

In order to encourage the attraction of visitors to Japan through the opening of international air routes, in July 2017, we approved 27 airports nationwide as “airports that help encourage travels to Japan.” We also provided support to open new international routes and increase the number of flights, including by LCCs, and to upgrade the environment for receiving travelers.

Additionally, the JNTO exhibited and engaged in business negotiations at international aviation trade fairs and carried out joint advertising in each market in conjunction with the new routes and the increase in the number of flights.

Also, we advanced procedures and examination for consignment of airport operation to the private sector, including Takamatsu Airport, Fukuoka Airport, Kumamoto Airport, seven airports in Hokkaido, and Hiroshima Airport, with the aim of revitalizing airports by making use of private-sector wisdom and funds.

Furthermore, we carried out initiatives to expand the arrival and departure capacity at airports, including facility maintenance needed to revise flight routes at Haneda Airport, construction of rapid exit taxiways at Narita Airport, construction of a terminal exclusively for LCCs at Chubu Airport, and construction of additional runways at Fukuoka Airport and Naha Airport.

(7) Further Expanding the Ability to Receive Cruise Ships

To attain the goal of achieving five million foreign visitors from cruise ships in 2020, which was set out in the Tourism Vision, we carried out initiatives aimed at “zero rejections” of cruise ship port calls. This included the upgrading of mooring posts and fenders for receiving large cruise ships using existing stock and the establishment in FY2017 of a subsidy system (project to make functional improvements for receiving international cruise passengers) for local governments and other organizations conducting projects to ensure the convenience and safety of cruise passengers.

Also, a bill to amend the Port and Harbor Act so as to create an arrangement system that would allow priority use of quays to private businesses that develop passenger facilities and make them available for use by the general public at ports designated by the Minister of Land, Infrastructure and Transportation was enacted in June 2017 and went into effect in July. On July 26, 2017, we designated six ports as “international passenger ship hub formation ports” that apply the new system based on the law. On February 27, 2018, we additionally selected Kagoshima Port as a “port at which to form an ‘international cruise hub through private-public partnership’.”

Furthermore, we held seminars for local travel companies in Malaysia and Philippines as well as business negotiation meetings between cruise ship companies and port administrators with the cooperation of the National Cruise Vitalization Conference. We also enhanced the website for centrally disseminating specifications of port facilities and tourist infor-

mation around ports of call.

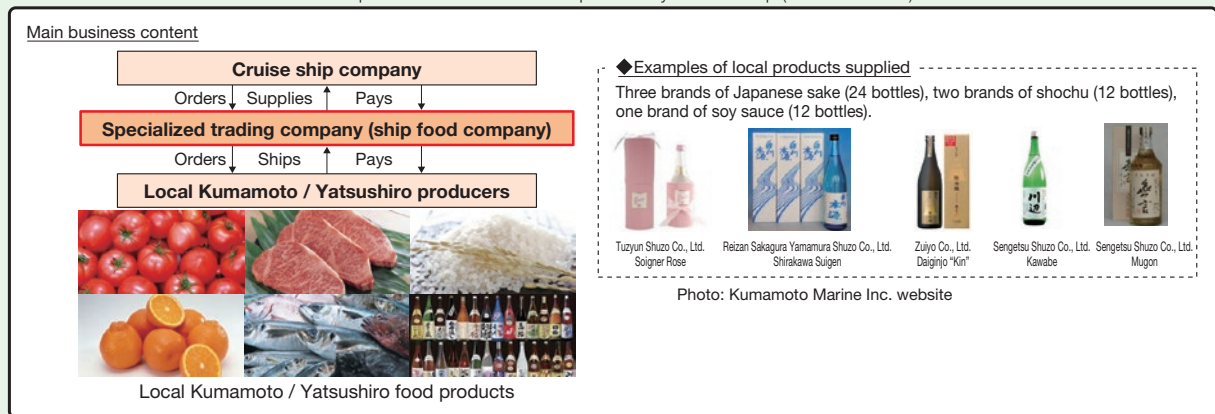
Column

Economic Effect of Port Calls by Cruise Ships

When a cruise ship calls at a port, a lot of tourists go ashore all at once, which not only has a direct economic effect through their dining, tourism, and shopping but also creates ripple effects such as spurring production and employment in related industries due to this tourism consumption. For example, when a large cruise ship called at Kumamoto Prefecture's Yatsushiro Port in January 2017, a local company supplied it with Japanese sake, which resulted in the items supplied, such as soy sauce and salmon, increasing gradually. In September 2017, a group of local companies established a specialized trading company with the purpose of widely procuring provisions such as beverages and agricultural, livestock, and fisheries products from local producers and selling them to cruise ships.

In this way, tourism consumption and new businesses are being created all over the country as a result of the acceptance of cruise ships.

Example of economic effect of a port call by a cruise ship (Yatsushiro Port)



Source) MLIT

(8) Innovating the Environment for Using Public Transportation

We created a common format for delivering the information, such as timetables and routes, needed for route searching between transportation operators and route searching service providers, in order to enable route searching that covers public transportation nationwide. We also conducted demonstration testing to organize issues, with a view toward efficient utilization of the common platform.

Beginning in March 2018, the Central Japan Railway Company gradually introduced station numbering at 176 stations on nine lines heavily used by foreigners in the Nagoya/Shizuoka urban area as well as the Takayama Line and the Central Line. The West Japan Railway Company introduced station numbering at 266 stations on 12 lines in the Kinki area by March 2018. Also, discussions were held in a review committee composed of relevant persons, established in February 2018, with a view toward improving routes on which numbering has already been introduced and encouraging its introduction on routes that do not yet have numbering.

Demonstration tests were conducted on an app that calculates taxi fares in advance of journeys from August to October 2017 and on ride sharing from January to March 2018. Also, a demonstration test was conducted on a luxury taxi reservation service that can handle foreign languages.

To reduce foreign travelers' inconvenience of carrying large suitcases onto trains, we promoted hands-free travel that offers temporary storage of luggage at airports and stations as well as delivery of luggage to airports, hotels, and homes outside Japan. (Locations approved to use the common Hands-Free Travel logo mark: 222, as of March 2018)

(9) Promoting Universal Design Ahead of the 2020 Tokyo Olympics and Paralympics

Based on the Universal Design 2020 Action Plan decided in February 2017, it has been decided to make large train stations more barrier-free and to promote the development of a high level of barrier-free environments across Japan, with a view toward assuring the success of the 2020 Tokyo Olympics and Paralympics and the future beyond the Games. In conjunction with this, in February 2018, we submitted to the Diet a bill to partially amend the Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc., and in March 2018, we amended the barrier-free transportation standards.

We encouraged the introduction of barrier-free buses and taxis. With respect to tourism, we examined the production of customer reception manuals for lodging facilities, tour businesses, and tourism regions. We also examined the ways that travel consultation counters and lodging facilities should disseminate information. We also started a program to support the renovation of local inns and hotels to make them barrier-free.

We formulated Policies on Road Sign Improvements toward the Tokyo 2020 Olympic and Paralympic Games for Tokyo Metropolis as well as Chiba, Saitama, and Kanagawa prefectures. We improved road signs based on these policies, including the improvement of English signs, use of route numbers, use of pictograms and reversed characters. (As of November 2017, we started upgrading the signs in Tokyo Metropolis and three prefectures.)

Furthermore, with regard to roads around major railway stations and tourist destinations nationwide, we focused on supporting the adoption of universal design in walking spaces, such as the plazas in front of stations.

Additionally, we supported barrier-free improvements, such as the construction of elevators and platform doors at stations related to the 2020 Tokyo Olympic and Paralympic Games.

At airports, we established numerical targets related to the handling of passenger terminal buildings. In order to improve traveler convenience, we relocated the taxi stands at Haneda Airport's international terminal.

Section 3 Building a Beautiful Nation Blessed with Pleasing Landscapes, etc.

1 Pleasing Landscape Formation

(1) Accelerating Community Development Leveraged by the Landscape Act, etc.

Efforts to form pleasing landscapes have been accelerated by landscape administrative bodies^{Note} based on the Landscape Act, which numbered 698 groups as of the end of March 2017, with 538 of them pursuing their own landscape plans. Further, the number of municipalities that formulated ministerial ordinances pursuant to the Outdoor Advertisement Act, which is prefectural administrative affairs, by becoming landscape administrative bodies, rose to 89 groups as of April 1, 2017, and comprehensive formation of pleasing landscape is ongoing.

Note A landscape administrative body is a prefecture, government-ordinance-designated city, core city or any municipality that handles landscape administrative affairs (those based on the provisions of Section 1 to 4 of Chapter 2 and Chapters 4 and 5 of the Landscape Act) upon prior consultation with the governor of its prefecture.

(2) Approaching Landscape Discussions as Part of Social Capital Development

To move ahead with landscape-conscious social capital development, a scheme of making post-project predictions and assessments of landscapes and factoring them into project plans while hearing diverse opinions from the local residents, academic experts and others has been pursued.

(3) Accelerating Removal of Utility Poles

From the viewpoints of creating pleasing landscapes, promoting tourism, keeping the driving environment safe and comfortable, and making roads that are prepared for disasters, we moved forward with the removal of utility poles through simultaneous development when constructing new roads or widening existing roads and through demonstration testing for introduction of low-cost methods.

Also, based on the Act on Promoting Removal of Utility Poles, we moved ahead with the formulation of a plan for promoting removal of utility poles, in order to comprehensively, systematically, and swiftly promote such measures.

(4) Promoting the “Japan Scenic Trails” campaign

The “Japan Scenic Trails” campaign has been promoted with the view of furthering roadside landscape designs and greening by leveraging regional resources and collaborating with various entities in order to help realize a tourism-oriented country and contribute to regional revitalization. As of the end of March 2018, 141 routes had been registered as Scenic Trails. Activities include those that help form pleasing landscapes and add to the charms of roadside localities by working in conjunction with Michi-no-Eki (Roadside Stations).

(5) Promoting Landscape-conscious Road Design

We revised draft Road Design Guidelines, which are general and technical guidelines on road improvement combining aspects of aesthetic landscape safety, smoothness of traffic, and comfort, in light of social requests such as reconstruction of road spaces. At the same time, we formulated Guidelines on Landscape-conscious Auxiliary Road Structures setting forth landscape considerations when considering the installation or updating of road furniture, with the purposes of making qualitative improvements in roads and contributing to the formation of a beautiful, refined country and the creation of pleasant, enriched living environments.

(6) Promoting the Development of Waterfront Spaces, etc.

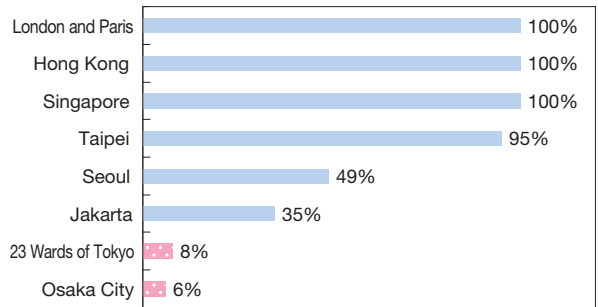
The practice of the concept of nature-rich river works has been promoted in all river restoration projects to preserve and create the habitat, growing and breeding environments of living organisms inherent in rivers and diversities of river landscape while keeping the rivers in harmony with local livelihood, history, and cultures with the workings of nature taken into consideration. In order to revitalize rivers and towns connected to them from the mouth of river to the source, we use “resources” such as regional landscape, history, culture and tourism infrastructure and “wisdom” with regional ideas, formulate river-town planning with coordination among municipalities, private businesses, local residents, and river administrators, and promote the formation of favorable spaces where rivers and towns integrate. Specifically, we provide support through the river environment project to preserve/restore and create a favorable river environment, make exceptions to the permission rules on exclusive use for river sites in order to open river spaces, create a water resource area vision that aims to revitalize water source regions leveraging dams, and promote the Mizubering Project, which provides the wide public with opportunities to find value in rivers.

Other ongoing efforts directed at regenerating and creating waterside environments include putting treated sewage wa-

Figure II-3-3-1

Present Status of Underground Utility Cables in Japan Compared with Major European and Asian Cities

[Present status of the removal of utility poles in Japan compared with major European and Asian cities]



*1 2004 status for London and Paris, surveyed by overseas power survey companies (in terms of total cable length)

*2 2004 status for Hong Kong, surveyed by the Infrastructure Development Institute (in terms of total cable length)

*3 2001 status for Singapore, according to “POWER QUALITY INITIATIVES IN SINGAPORE, CIRED2001, Singapore, 2001” (in terms of total cable length)

*3 2013 status for Taipei, surveyed by the MLIT (in terms of road extension)

*4 2017 status for Seoul, according to 2017 Korean electricity statistics (in terms of total cable length)

*5 2014 status for Jakarta, surveyed by the MLIT (in terms of road extension)

*6 End of FY2016 status for Japan, surveyed by the MLIT (in terms of road extension)

Source) MLIT

ter to use in babbling water channels. The conservation and creation of excellent waterside environments is also ensured by the implementation of appropriate wastewater treatment.

2 Community Development Leveraging Nature and History

(1) Developing National Government Parks to Contribute to the Preservation, Utilization, etc., of Japan's Indigenous Culture

The development of National Government Parks has been driven to ensure the preservation, utilization, etc. of Japan's superb indigenous culture. A total of 17 National Government Parks are already open. In FY2017, facilities were constructed in Asuka-Nara Palace Site Historical National Government Park and other locations. Also, in November 2017, the cabinet approved the establishment of the Meiji Kinen Oiso Teien (Meiji Memorial Oiso House and Garden) as part of measures related to the 150th anniversary of the Meiji Restoration.

(2) Preserving Historic Landscapes in Ancient Capitals

In Japan's ancient capital, such as Kyoto, Nara, and Kamakura, restrictions are placed on constructing new buildings, etc., making additions and modifications to existing ones, developing housing land and so on under the Act on Special Measures for Preservation of Historic Natural Features in Ancient Cities (Ancient Capitals Preservation Law). The Act also provides for the implementation of ancient city preservation projects, such as purchasing land, and publicity, educational and other activities, to help preserve historic landscapes in these cities.

(3) Preserving and Utilizing Historic Public Buildings of Historical Value, etc.

With the aim of contributing to regional town development, we are promoting the preservation and utilization of historic government facilities locally known for a long time. We have developed the environment of historic Sabo facilities (Two Important Cultural Properties and 193 Registered Tangible Cultural Properties as of March 31, 2018) by positioning them and their surrounding environment as a core of tourism resources, thereby encouraging efforts that contribute to the formation of a new forum of human interaction.

(4) Community Development Leveraging Histories and Cultures

Historic landscape maintenance and improvement plans for 66 municipalities (as of March 31, 2018) have been accredited in order to promote community development leveraging local histories and traditional cultures and approaches pursuant to the plans supported, based on the Law on the Maintenance and Improvement of Historic Landscape in a Community (Historical Urban Development Law). In addition, we have provided renovation and other support for buildings that serve as landscape and historic resources in order to encourage the formation of pleasing scenic and historic landscapes.

Figure II-3-3-2

Promoting Tourism and Exchange Events Around Historical Flood and Sabo Facilities in the Arakawa River Basin (Fukushima City, Fukushima)



Source) MLIT

(5) Promotion of Mizubering Project

Mizubering is an initiative to provide opportunities to find a new value in rivers from outside to people and private companies leading daily lives or engaging in economic activities without being conscious of rivers around them.

Mizubering is an activity taking place in more than 60 locations nationwide aimed at realizing regional revitalization, starting from waterfronts across Japan, while creating a new social design that uses rivers as a new frontier and has various entities collaborating with each other.

The MLIT will support efforts of regional people and private companies through Mizubering so that the value of rivers can be leveraged further in order to allow them to serve their roles as regional treasures.

(6) Promoting Green Infrastructure Initiatives

Green infrastructure aims to utilize the natural environment's diverse functions (e.g., providing habitats for wildlife, forming pleasing landscapes, and controlling atmospheric warming) and obtain diverse effects such as improving local charm and the living environment and preventing/reducing disasters, in terms of both structural and non-structural issues, such as social infrastructure development and land use. With regard to this, we carry out initiatives in various fields, including the creation of rich river environments and the development of green coastal levees as well as parks and greenery that function to prevent the spread of fires.

Figure II-3-3-3

Riverbed Sketch (Miyagawa River, Takayama City, Gifu)



Source) Junior Chamber International Takayama

Figure II-3-3-4

Riverbed Created (Miyagawa River, Takayama City, Gifu)



Source) Junior Chamber International Takayama

Chapter 4 Promoting Regional Revitalization

Section 1 Approaches to Regional Revitalization

In order to properly respond to the declining birth rate/aging population to put a brake on population declines, while correcting the excessive concentration in Tokyo Area and maintaining vitality of Japanese society in the future by securing a comfortable living environment in each region, the Basic Policy for Overcoming Population Decline and Vitalizing Local Economy in Japan 2016 was formulated in 2017 and the Overcoming Population Decline and Vitalizing Local Economies: Comprehensive Strategy was revised, in accordance with the Act for Overcoming the Population Decline and Vitalizing Local Economy in Japan passed in November 2014. Also, with the aim of deepening the regional revitalization, ideas such as using vacant stores and other idle properties and promoting regional universities were examined, and information, human and financial support to promote specific initiatives based on the regional comprehensive strategy was provided to local governments.

To help local governments achieve sustainable development goals (SDGs), the Local Government SDG Promotion Project for Regional Revitalization was established. From February to March of 2018, the Japanese government solicited proposals for initiatives to help local government units (prefectural governments and municipal governments) achieve SDGs, and will eventually select up to 30 cities and regions that submit excellent proposals as SDG Cities of the Future. Roughly 10 of the most advanced initiatives of that group will be selected for a Local Government SDG Model Project, and will receive financial support. In addition, efforts will be made to promote the diffusion of initiatives to achieve SDGs, with the goal of 30% of prefectural and municipal governments working on these initiatives by 2020.

In February 2018, the Cabinet approved and submitted to the National Diet the Bill to Partially Amend the Regional Revitalization Act. The bill includes provisions for revisions to the Tax Credit System for Regional Cores, a system for creating quality employment opportunities and regional areas to correct the overconcentration of the Japanese population in Tokyo; the establishment of a System for the Expenses of Regional Revitalization Area Management, a public-private partnership that collects expenses required for area management activities to contribute to regional revitalization from beneficiaries and distributes them to area management groups; measures for promoting the Project to Promote the Reinvigoration of Shopping Districts, a project that strives to reinvigorate shopping districts for such activities as using vacant stores; and the fulfillment of a so-called “small-core tax system,” an investment incentive tax system to promote investment in corporations that work to provide employment opportunities and life services in hilly and mountainous areas.

In order to realize regional revitalization through regulatory reform, the National Strategic Special Districts system has successfully reformed regulations that had been difficult to change due to stiff opposition in a wide range of fields, including medical care, nursery care, employment, education, agriculture, urban reconstruction and community-building. In addition, the 10 designated districts have visibly moved forward with specific projects that capitalize on these regulatory reforms. Furthermore, six fields were specified for intensive efforts in a two-year intensive reform assistance period ending at the end of FY 2017, and reform of regulations that had been difficult to change due to stiff opposition was promoted during that period.

The MLIT pushes forward the development of tourism regions, having the Destination Marketing/Management Organization (DMO) as its core, creating various regional contents and establishing an environment to receive tourists to become a world-class tourist destination under the keywords of “region” and “consumption.” The MLIT also drives efforts to create jobs by promoting the securing and development of human resources engaged in the construction, shipbuilding, transportation and other industries that underpin regional economies.

Furthermore, with the aim of reviving regional communities, we are pushing forward efforts to make regional cities compact and create transportation networks, form small stations in hilly and mountainous areas, and develop houses and towns for multi-generation residents in coordination with the comprehensive regional care system in suburban metropoli-

tan areas. We are also promoting multi-habitation in earnest and establishing an environment for making relocation easier by facilitating the distribution of existing homes in order to create new flows of people into rural areas.

The MLIT has also been driving nationwide urban renaissance, through the development of public and public-benefit facilities in a public-private partnership, as well as urban renaissance aimed at the enhancement of international competitiveness of cities by mainly private developers.

Section 2 Promoting Measures Supporting Regional Revitalization

1 Efforts Directed at Augmenting Regional and Private Self-reliance and Discretion

(1) Supporting Local Regional Revitalization Efforts

Regional revitalization is not an effort to be taken uniformly throughout Japan; it involves individual regions capitalizing on their distinct resources and characteristics to tackle their own distinct challenges to overcome depopulation. As local governments continue to devise plans for measures, promote projects and verify effects in line with their own individual strategies, the national government has continued to play the supporting role of providing assistance on information, personnel and financial aspects.

To provide assistance on information aspects, the government provides the Regional Economy and Society Analyzing System (RESAS), which takes big data from the public and private sectors regarding regional economies and makes it visible and intuitive. The system is used to fully understand the current state and challenges of each region; analyze strengths, weaknesses and future visions; set basic targets and KPIs, and establish PDCA cycles, thereby supporting the regional revitalization efforts of local governments, private companies, residents, NPOs and others.

To provide assistance on personnel aspects, regional revitalization colleges train and secure the human resources required for regional revitalization, while the government provides support through the regional revitalization concierge, which sets up a consultation desk at each ministry and the regional revitalization personnel support system in which government, private company and other organizations' personnel are dispatched to small local governments.

To provide assistance on financial aspects, we are providing support through such efforts as a regional revitalization promotion subsidy that consistently and continuously supports multi-year, forward-thinking projects undertaken by local governments, and a regional revitalization support tax system that provides preferential treatment in the form of tax credits for corporate donations to regional revitalization efforts undertaken by local governments (a corporate version of *furusato nozei*, which is a system of remitting local taxes to regional municipalities of the remitters' choice), thereby enabling regions to make consistent efforts toward regional revitalization from medium- and long-term perspectives.

The MLIT is engaged in similar efforts as well. To promote further approaches to individualistic and charming regional planning across Japan, the MLIT awards regional activities related to favorable social overhead capital with Handmade Hometown Prizes (Minister of MLIT Prizes) since 1987. In FY2017, the MLIT hosted the "Handmade Hometown Prize Grand Prix 2017: Refined, Shining, Hometown Pride." At the event, 19 prize-winning groups (3 for grand prize division, 16 for general division) gathered to give presentations, and judges selected the Grand Prix and best presentation prize-winners in each of the grand prize and general division. Furthermore, the information was sent by newsletter as good case examples that are useful for regional development^{Note}.

(2) Promoting Use of Know-how and Funds Originating from Private Sectors

In order to enhance the growth and competitiveness of local cities, MINTO provided support in the forms of investment, joint operation, and so forth in private urban redevelopment projects, such as those linked with an urban renaissance and development project undertaken by a local public entity and accredited by the Minister of MLIT. Accordingly, MINTO has established a "Community-Building Fund Support Program (Management-Style)" that sequentially promotes multiple renovation projects and the like, while collaborating with local financial institutions to launch community-building funds and perform area management.

Note Regional Planning Information System-Repis website: <http://www.mlit.go.jp/sogoseisaku/region/chiiki-joho/index.html>
1,971 e-newsletter registrants as of the end of FY 2017 (as of the end of March 2018)

In its bid to realize and maintain the concept of sustainable community development with community participation through maintenance and betterment of community charms and vitalities, the MLIT supports projects related to the diffusion and promotion of know-how, etc., that is possessed by private associations with experience in the practice of community development activities and that leads to continuing sources of certain profitability in the course of such activities, so that such knowledge can be horizontally extended to other associations about to embark on similar activities, or to experimental approaches, etc., relevant to ingenious, advanced private community development activities.

In addition, consideration is in progress toward the realization of measures aimed at combatting aging expressways in conjunction with urban redevelopment, using the Tsukiji River and other sections of the Metropolitan Expressways as model cases, on the basis of the Road Act amended in FY 2014 that allows for usage of upper open spaces on roads.

Regarding the project to bury the Nihombashi section of the Metropolitan Expressway, the MLIT has cooperated with Tokyo Metropolitan Government, Chuo City, and Metropolitan Expressway to push forward with discussions toward organizing a specific plan to link the project with community-building efforts around the expressway in that area by the summer of 2018. In February 2018, the Cabinet approved and submitted to the National Diet the Bill to Partially Amend the Act on Special Measures Concerning Urban Reconstruction, which includes provisions for measures to promote the proactive use of the grade-separated road system by expanding its scope to include ordinary roads.

Moreover, public-private partnership efforts leveraging road spaces are pushed forward in order to create forums for regional activity/exchanges and maintain/improve road quality.

In FY2015, the Act to Partially Amend the Act on Special Districts for Structural Reform, which enables private-sector operators to operate toll roads managed by public corporations, was passed and enacted, and since October 2016, toll roads in Aichi Prefecture have been operated by the Aichi Road Concession Corporation, established by the Maeda Group (Representative corporation: Maeda Corporation).

2 General Endeavors to Build an Intensive Urban Structure

Compact cities and development of surrounding transportation networks such as by rebuilding public transportation networks should be worked on continuously with the mid- to long-term perspectives as they are effective policy means to realize specific administrative purposes such as maintaining and improving convenience of lives of residents, revitalizing regional economies by enhanced productivity in the service industry, and reducing administrative costs by improved efficiency in administrative services.

With the aim of pushing forward initiatives of municipalities toward the realization of compact cities, the Act on Special Measures concerning Urban Regeneration was amended in 2014 to create the appropriate location plan system for encouraging establishment of residential and urban functions with economic incentives. As of the end of FY 2017, 407 municipalities made specific efforts on creating appropriate location plans, of which 142 cities prepared and published the appropriate location plan. 579 local governments has tackled with local public transportation networking plans and 410 of them has published the plans.

In addition, we are working to improve support measures in line with actual needs, formulate and horizontally develop model cities, and make the outcomes of efforts visible through the Compact City Formation Support Team (secretariat:

Figure II-4-2-1

Kyoto Minamiza Kabuki Theater (Shijo, Kyoto City, Kyoto Prefecture), an Example of Joint Implementation and Other Forms of Support for Excellent Private Urban Redevelopment Projects



Source) MLIT

MLIT), which comprises relevant ministries and agencies, so that these initiatives of municipalities will be promoted as comprehensive efforts in coordination with various relevant measures concerning healthcare/welfare, housing, realignment of public facilities and the optimum use of government owned facilities.

In FY 2017, we worked to improve important support measures based on the actual issues and needs of municipalities, and provided them with an overall collection of support measures in list form. In addition, we selected 10 model cities that are implementing initiatives that clearly indicate target values and their ideal state as cities and are expected to exhibit the effects of a Compact Plus Network, and also released the second version of the “Collection of Cases of Proceeding and Efforts,” a collection of positive cases from individual projects. Furthermore, regarding smart planning, which is a method of planning in which optimal facility locations and other factors are examined from users’ viewpoints, we conducted observations in multiple cities to further improve advanced systems, and made efforts to provide a wider array of quantifiable measures and evaluation indices.

In addition, the Cabinet approved and submitted to the National Diet the Bill to Partially Amend the Act on Special Measures Concerning Urban Reconstruction. The bill includes provisions for appropriate measures to undertake to counter the “spongification” of Japanese cities, a phenomenon in which vacant land, houses and other properties occur with temporal and spatial randomness, hollowing out the urban structure and obstructing the formation of Compact Plus Networks.

3 Urban Planning and Infrastructures Development Taking Advantage of Regional Characteristics

(1) Emergency Development of Urban Planning Roads Instrumental in Encouraging Private Investment

The development of urban planning roads is instrumental in facilitating urban reconstruction because it encourages the reconstruction, etc., of roadside buildings. For those routes under construction whose completion is bottlenecked because of small plots of land yet to be purchased, the local governments (project-implementing entities) have announced their pledges to complete the construction within a certain period of time (completion time declaration routes; as of April 2017, 130 routes were declared by 73 project-implementing entities) to speed up the development of the project benefits.

(2) Developing Transport Nodes

Transport nodes, such as railway stations and bus terminals, are very convenient and have great potential as the core of urban reconstruction, because they attract numerous people to use the various kinds of transport facilities that converge upon them.

The MLIT leveraged the implementation of transport node improvement projects, urban and regional transport strategy promotion projects, integrated railway station improvement projects, and other projects at the transport nodes, such as the Shinjuku St. South Exit District, and in the surrounding areas, in order to improve the ease with which passengers transition from one means of transportation to another, to consolidate the urban areas disrupted by railways, to improve station functions, and to streamline urban traffic and augment the functions of these transport nodes.

The MLIT also encouraged the upgrading the station facilities for the general goals of safe and comfortable regional living through building child-support and medical facilities on the premises of existing railway stations. This idea was developed from the viewpoint of regional concentration, which brings medicine, work, and living into closer vicinity.

Figure II-4-2-2

Example of a Transport Node Improvement Project (Shinjuku Station South Exit)



(Source) MLIT

(3) Strengthening Connections between Modes of Transportation (Modal Connections)

Regarding concentrated transportation terminals, including the Shinjuku Expressway Bus Terminal, the MLIT developed strategic implementation via road projects while strengthening public-private partnerships, and is promoting the strengthening of bus service and other modal connections to accelerate the flow of people, goods and accelerate regional revitalization by creating a place in which people can choose a transportation mode from a wide variety of options, all of which are easy to use.

As for the user environment for buses in Japan, from the users' point of view, bus services are of much lower quality than railway and airway services in Japan and bus services in foreign countries. As user-oriented road measures that boost stock effects are promoted in the future, it is important that the road measures also include efforts to accelerate the improvement of the convenience of public transportation, including buses, while taking into account the state of the network between expressways, railways, Shinkansen and other modes of transportation in regional areas.

Under these circumstances, as an effort focused on buses, we will implement the Basuta (Bus Terminal) Project to improve the convenience of bus hubs while making full use of ITS and PPP, thereby strengthening modal connections, realizing the revitalization of regions, and improving productivity in the strengthening of disaster responses.

In April 2016, Basuta Shinjuku, the largest bus terminal in Japan, opened at the South Exit of Shinjuku Station. Basuta Shinjuku was developed through a public-private partnership initiative in which infrastructure was developed under a road project (for National Route 20), while the private bus terminal operates the facility. The bus terminal is directly connected to railways, and the 19 expressway bus stops formerly located near the West Exit of Shinjuku Station are now concentrated in one place. We solicited opinions from users after opening the facility, and continued to improve its convenience, adding full-scale convenience stores, women's washrooms, benches and other facilities. We also promoted the strengthening of traffic countermeasures on National Highway Route 20 through such efforts as rerouting expressway bus traffic and extending right turn lanes at intersections.

The MLIT will continue to improve convenience by effectively using space within facilities and providing operational information to users through the full-scale introduction of an expressway bus operations support system, and to promote traffic countermeasures through countermeasures for cargo-handling vehicles on National Highway Route 20, transportation flow countermeasures through cooperation with transportation managers and the like.

In addition, in FY 2017, for Shinagawa Station and in the Kobe-Sannomiya area, we promoted the examination of concentrated transportation terminal improvement projects that make use of the grade-separated road system.

We are also promoting the effective use of transfers between expressway buses at expressway service areas and parking areas, junction transportation, and expressway bus stops, as well as the improvement of environments for using local buses.

As for the new modes of transportation of car-sharing and bicycle-sharing, we are promoting efforts that strengthen connections with other modes of public transportation while making effective use of roadway spaces.

We built Japan's first on-road car-sharing station adjacent to the Otemachi subway station complex in Chiyoda City, Tokyo, and are implementing a pilot program to verify the possibilities of encouraging the use of public transportation. In addition, in March 2018, we added a car-sharing station near Shimbashi Station, which is in a different type of location. We are also implementing a separate pilot program to verify the effects of locating a bicycle-sharing port, which would be the first in the metropolis, on the national route near this car-sharing station. We will take into account the results of these pilot programs while continuing discussions toward improving convenience for road users through the effective use of roadway spaces.

(4) Wide-area Development of Infrastructures to Induce Firm Location

Competition, collaboration, and regional buoyancy in East Asia should benefit greatly by inviting and accumulating internationally competitive growing industries in the individual regions. Motivated by this recognition, measures have been promoted to support expanding regional employment and more buoyant economy by concentrating investment on the development of those infrastructures that are truly needed to carry out unique regional approaches, such as developing airports, ports and harbors, railroads and wide-area expressway networks.

(i) Airport development

Aviation network connecting distant cities at home and abroad are greatly instrumental in revitalizing regional communities, boosting the tourism industry and corporate economic activities. It is expected that the aviation sector will play a key role to boost Japanese economy taking advantage of global economic growth, in particular booming economy in Asia. In an effort to enhance Japan's international competitiveness and regional competitiveness in the hinterlands of the airports, MLIT has been making efforts to enhance airport capacities and relocate or change the internal layout of airport terminal area in order to improve user-friendliness.

(ii) Port and harbor development

In Japan, which is surrounded by the sea, the majority of international trades are conducted by marine transportation, and domestic marine transportation serves important roles in logistics and interactions between regions. Ports and harbors are the gateway for international trades and support Japanese industries as places of corporate activities. In order to enhance international competitiveness of Japanese industries by improving logistics efficiency and to maintain and create employment and income, international logistics terminals are being developed at ports and harbors that underpin regional key industries.

(iii) Railway development

The nationwide network of trunk railways is the lifeblood of passenger and freight transport, accelerating interaction between blocks and between regions, encouraging industrial location, and activating regional economies to energize regional living. Rail freight transport, in particular, plays a dominant role in moving industrial commodities that support regional economies.

(iv) Road development

The MLIT is strengthening Japan's international competitiveness by accelerating and facilitating logistics, and from the perspective of regional revitalization, is forming a new network of trunk highways, such as high-standard arterial highways.

(5) Accelerating the Development of Transport Infrastructures

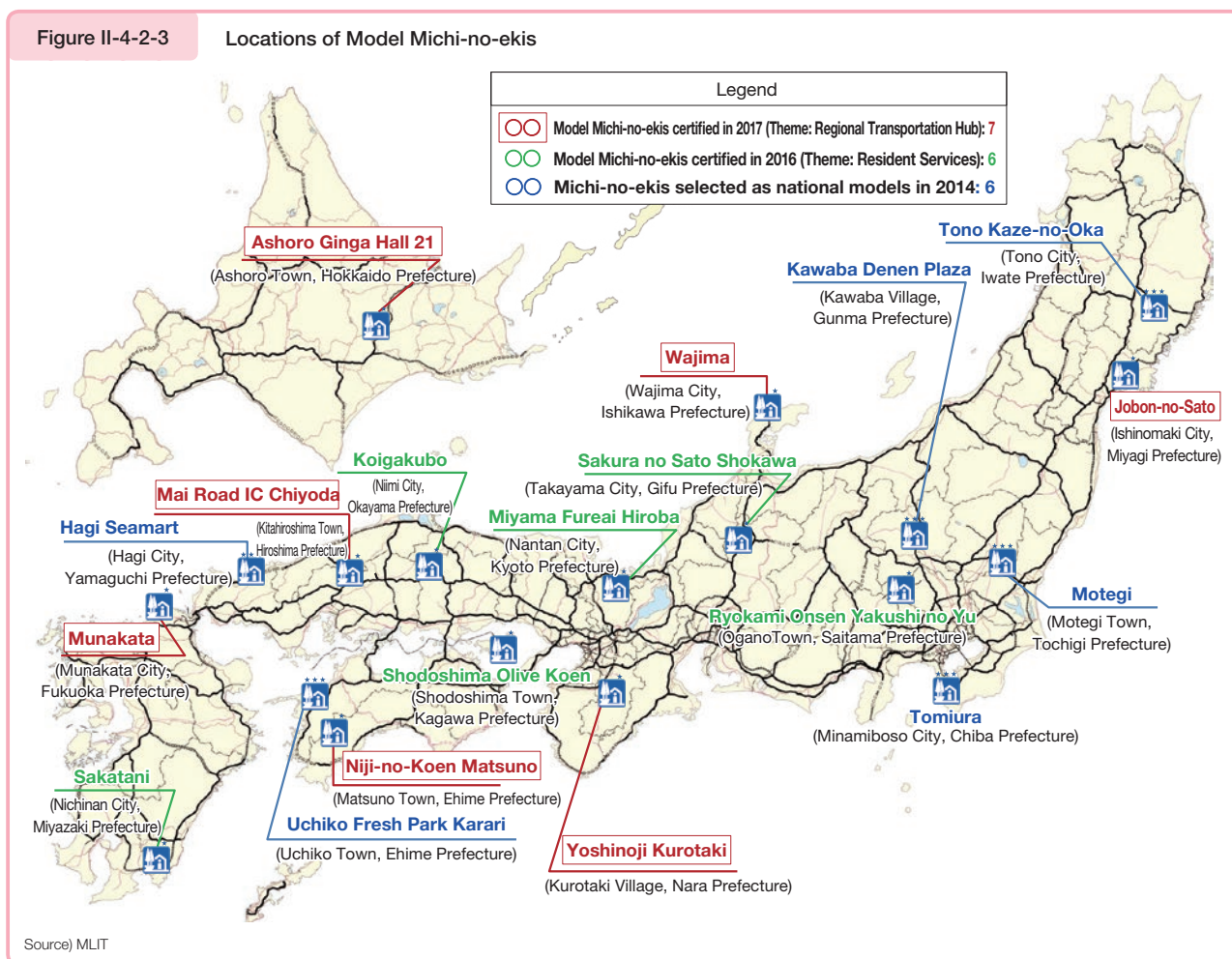
Regarding the method for determining whether considerations for awarding sectional surface rights, etc., related to projects authorized to use the deep underground pursuant to the Act on Special Measures Concerning Public Use of Deep Underground (Deep Underground Act) are to be treated as transferred income or not, the FY2015 tax reform has taken measures to have such considerations set based on the vertical range of the sectional surface rights, etc., in which the profit from use is limited, instead of one-fourth of the land price. This measure taxes, as transfer income, a certain amount of the considerations for awarding sectional surface rights, etc., relevant to the projects that are implemented as an integral part of a project accredited under the Deep Underground Act. Granting a special credit of 50 million yen for exchanges on expropriation, etc., promotes the earlier appearance of project effects.

(6) Promoting Community-conscious Projects and Programs**(i) Michi-no-eki (Roadside Station)**

Located roadside, a Michi-no-eki is a facility that combines a mix of roadside amenities, including parking spaces and restrooms, sources of information, including highway and regional information, and a forum of regional partnerships, which encourages interaction between a region and users of the roads in that region and between regions. As of November 2017, there were 1,134 registered Michi-no-ekis.

Efforts have progressed in recent years to set up Michi-no-ekis as hubs of regional revitalization nationwide, thereby creating regional employment, reactivating economies, and helping improve resident services. As a framework to provide focused support to these efforts in coordination with relevant organizations, the priority Michi-no-eki system was created in FY 2014. In addition to six national model Michi-no-ekis and 35 priority Michi-no-ekis selected for the establishment of the system, 38 priority Michi-no-ekis were newly selected in FY 2015. Furthermore, in FY 2016, we began an initiative in which we establish specific themes, and certify as models Michi-no-ekis that exhibit exemplary performance according

to those themes. In FY 2016, we certified six Michi-no-ekis under the theme of “resident services,” and in FY 2017, we certified seven Michi-no-ekis under the theme of “regional transportation hub.”



(ii) Creation of hubs through the use of expressway rest areas

Expressway rest areas were typically thought of as only available to users of expressways, but the development of “welcome gates,” “highway oases,” and the like in recent years has opened the facilities to regions along the expressways to promote regional revitalization, and to encourage those efforts, we are collaborating with relevant organizations to provide support in line with the progress of those efforts.

Toward that end, in March 2017, we installed a welcome gate at the Takahashi Service Area on the Okayama Expressway to encourage people in the surrounding areas to use it.

(iii) Improvement of road management through public-private partnerships

Past efforts to work together with regions in the course of road management include cooperation with private groups and others through the Volunteer Support Program (VSP) and the like. In April 2016, the Road Act was amended and a road cooperation organization system was created in an effort to further improve road management through cooperation with private groups and others who resolve common road-related problems, take targeted action to address the needs of road users, and voluntarily implement other activities. As of the end of FY2017, we had designated 30 groups for national highways under government control.

Road cooperation organizations implement activities in roadway spaces to improve the appeal of roads, and the benefits reaped from those activities make it possible to improve road management activities. In addition, road cooperation organizations are undertaking measures to streamline and facilitate administrative procedures regarding the construction and

maintenance of roads and their exclusive use of roads.

(iv) Support system for river-town planning

In order to revitalize rivers that show various shapes from the mouth to the source and communities connected to them, we are promoting the formation of favorable spaces where rivers and towns integrate by formulating plans for river-town planning that utilizes rivers with practical use of resources; such as landscape, history, culture and foundation for tourism; and inventive wisdom of the district, under coordination among municipalities, private businesses, local residents, and river administrators. By FY2017, 191 locations had been registered in the support system for river-town planning.

(v) Managing rivers with resident participation to suit regional characteristics

Those individuals who possess an expert knowledge of river environments and who are zealous for the good river development are appointed as river environment preservation monitors to help create and preserve river environments and carry out meticulous activities aimed at ensuring and promoting orderly river usage. Love river monitors are also at work in order to gather information about river management, such as illegal garbage dumping in to river or defects in river facilities, to report that information to river administrators and to promote the philosophy of river protection.

Furthermore, the MLIT designates private organizations, etc., that pursue voluntary activities relevant to the maintenance of rivers, the preservation of river environments, or other types of river management as river cooperation organizations, and legally accredits them as organizations working in conjunction with river administrators, with a view to promoting organized voluntary activities and driving diverse modes of river management tailored to specific regional conditions.

(vi) Supporting efforts to take advantage of the regional features of the seaside

With the aim of stimulating the use of the seaside and enhancing its charm as a tourist resource, we support seaside environment development projects in which seaside preservation facilities are developed according to active seaside usage plans.

The MLIT designates those corporations and associations that are accredited to be capable of voluntarily conducting various activities, such as cleaning and planting seashores for preservation, protecting rare species of animals and plants along the seaside, getting prepared for natural disasters and hosting sessions of environmental education, as seaside cooperation organizations to reinforce the ties of collaboration with localities and thus to enhance coastal management to suit regional characteristics. Through FY 2017, the MLIT has designated 14 organizations.

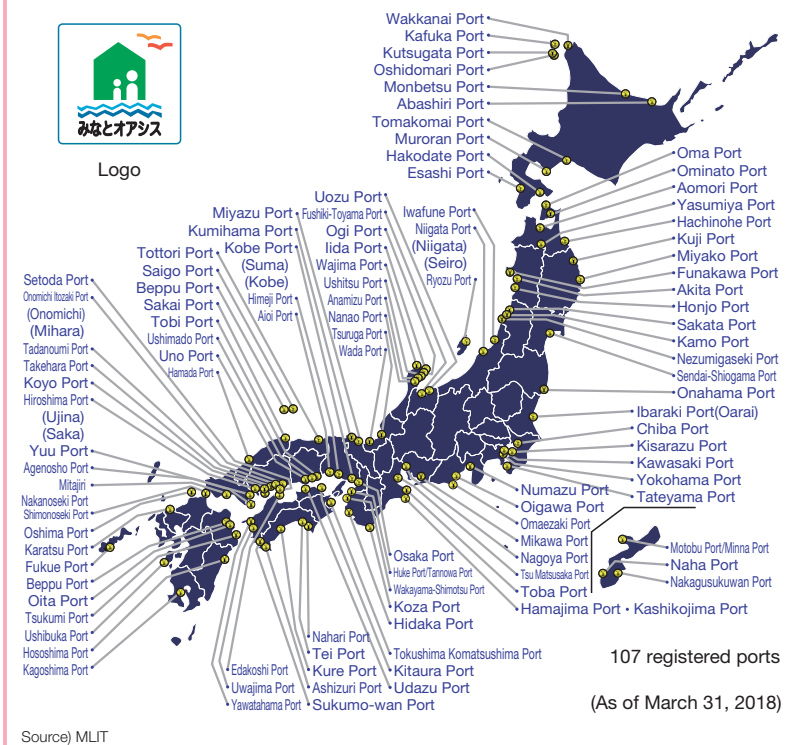
(vii) Regional promotion built around ports

Those facilities at which continual approaches to regional development are carried on have been accredited as Minato (Port) Oases by Ports and Harbors Bureau Director-Generals to promote community development around the core of ports to help revitalize localities by promoting exchanges of local residents and tourism (107 ports as of the end of March 2018).

Minato Oases help generate excitement in communities through various activities such as the “All Japan Sea-kyu Gourmet Competition” hosted by the National Council on Minato Oases. These facilities

Figure II-4-2-4

National Map of Minato Oases



are also expected to serve new needs, such as accepting the rapidly increasing number of inbound tourists who arrive by cruise ship in recent years, and providing support during and after disasters.

In addition, to respond to diversifying needs of ports and harbors, such as providing Japanese-style hospitality when cruise ships dock at Japanese ports and harbors, and for purposes such as promoting management of ports and harbors through public-private partnerships, the Ports and Harbors Cooperation Association system through which port and harbor administrators designate appropriate private groups and the like is used to make further efforts to revitalize communities centered around ports.

Column

Minato Oases Registrations Break the Century Mark!

Minato Oases are port-centered areas that contribute to community-building and help generate excitement in communities by serving as places for exchange between local residents and tourists as well as places to rest, obtain information and more. Minato Oases have spread throughout Japan since their establishment in November 2003 by the Chugoku and Shikoku Regional Development Bureaus. In addition, in February 2017, a transition was made to a new, nationwide system in which Port and Harbor Bureau Director-Generals accredit Minato Oases in an integrated manner. This transition was made to further promote regional development through efforts to promote the registration and enhance the recognition of Minato Oases, as well as to serve new needs, such as accepting the increasing number of inbound tourists who arrive by cruise ship in recent years, and serving as a support base during and after disasters. The transition resulted in 14 new registrations in FY 2017, which pushed the nationwide number of Minato Oases into triple digits. More registrations are expected in the future, and as more Minato Oases appear far and wide throughout Japan, we can expect them to help generate excitement in communities through events such as the “Minato Oasis All Japan Sea-kyu Gourmet Competition.”

Trends in the Number of Registered Minato Oases



Source) MLIT



A facility that is part of a Minato Oasis (Minato Oasis Shimonoseki)



A regional development event held at a Minato Oasis (Minato Oasis Sakaiminato)

(viii) Building centers of marine leisure

The MLIT also promotes the establishment of Umi-no-ekis to leverage existing port facilities, marinas, fish arenas (fishing + arena) and the like. As of the end of March 2018, 161 Umi-no-ekis have been registered. The MLIT also provides support for diverse, regionally distinctive efforts such as cruising on rental boats, the sale of marine products, hands-on experiences with fishing, events and the like so that visitors can enjoy Umi-no-ekis as places where the sea meets the land. In addition, the MLIT works together with relevant organizations to expand the appeal and enhance the recognition

of Umi-no-ekis, and to make full use of them as bases for disaster risk reduction and rescue.

(7) Promoting the Active Maintenance of Cadastral Maps

Cadastral surveys are conducted by municipal authorities to reveal the boundaries and the areas of individual lots of land, and contribute to the promotion of prevention measures to be taken in advance of major disasters, faster restoration and reconstruction after disasters, smoother development of infrastructure and the promotion of urban development by private sectors. The MLIT, to accelerate cadastral surveys, not only provides financial support to cadastral surveys, but also develops public-private boundary information in urban areas and preserves boundary information in mountainous areas under direct state control, and promotes the utilization of non-cadastral survey results.

In addition, the MLIT also promotes the streamlining of cadastral surveys through efforts such as considering efficient survey methods using satellite images and other surveying technique, and creating operation guidelines for these methods.

(8) Deep underground utilization

Regarding deep underground utilization, a deep underground utilization council exchanges information on deep underground space, in addition to technical discussions facilitation of examination.

4 Self-Reliance and Revitalization of Wide-Area Blocks, and Formation of National Land

(1) National Land and Regional Development for Creation of Convection Promoting National Land

To achieve regional revitalization and sustainable growth, it is important to deploy measures in an integrated manner while drawing out regional wisdom and devices. Therefore, with the aim of forming convection promoting land that encourages innovations by dynamically inducing convection across Japan under the National Spatial Strategies and Regional Plans, measures are being taken according to the characteristics of regions while working to form multi-layered national land and regional structures. The MLIT also works on strategies for regional revitalization through public-private partnerships and government support in developing foundations that underpin private sector activity and measures to drive forward autonomous and sustainable regional development with cooperation among various entities.

(i) Promotion of infrastructure development for revitalization of wide-area regions

To form self-reliant wide-area blocks, in FY 2017, 33 prefectural governments established 32 common goals to work on together in groups of two to four and each government created a total of 72 wide-area regional revitalization infrastructures development plans to revitalize the regions through buoyant human and material traffic. The MLIT granted subsidies to implement structural and non-structural projects based on these plans.

(ii) Promoting the development of infrastructures for regional revitalization with partnership between the public and private sectors

In order to implement smooth and speedy transition from the planning stage to the implementation stage, at the time of private sector decision-making without missing opportunities for infrastructure development projects that have been worked out in a partnership between the public and private sectors to contribute to wide-area regional strategies, subsidies were provided to local governments in FY2017 for 29 feasibility studies including outline designs and implementation of PPP/PFI.

(iii) Promoting regional planning with diverse entities interworking

In its bid to further self-supporting, sustainable community development through the interworking of local diverse entities, the MLIT promotes efforts to build a support system with various entities interworking with one another to craft project-type community development activities (regional businesses).

(iv) Formation of vibrant economic and living zones through allied core metropolitan areas

In metropolitan areas that have a certain size of population and economy, the formation of allied core metropolitan areas that aim to lead economic growth, consolidate and strengthen high-level city functions and enhance services related to

people's daily lives is promoted.

Originally metropolitan areas in scope were mainly regional ordinance-designated cities and core cities (population of 200,000 or more). However, the Overcoming Population Decline and Vitalizing Local Economies: Comprehensive Strategy (revised in 2015) added metropolitan areas centering on adjacent two neighboring cities with population of more than 100,000 each to the scope under certain conditions. As of the end of March 2018, the scope included 27 areas.

(2) Promotion, etc. of regional center formation

(i) Developing centers of self-reliant growth of diverse wide-area blocks

In core cities^{Note} based on the Multi-Polar Patterns National Land Formation Promotion Act, business facilities are being relocated and various other functions are being concentrated as we continue to promote development. In addition, the MLIT has driven the construction of Tsukuba Science City to pursue urban revitalization by taking advantage of an accumulation of science and technology Based on the Tsukuba Science City Construction Act. Furthermore, as the pace of urban development accelerates along the Tsukuba Express railroad line, environmentally friendly cities are being built along the Tsukuba Express railroad line by leveraging the characteristics of Tsukuba Science City. In addition, to form a new hub for the deployment of cultural, academic and research activity based on the Kansai Science City Construction Act, the construction of Kansai Science City is under way with a partnership among affiliated ministries, local governments, economic circles and so on according the Basic Policy on the Construction of Kansai Science City.

(ii) Promoting Small Station development within a village area

In some hilly and mountainous areas and other regions with declining and aging population, it is increasingly difficult to maintain life service functions, including shopping and healthcare, and community functions. Therefore, in regions that have multiple villages, including elementary school districts, we are promoting the formation of small stations in which required functions and bases of regional activities are concentrated within walking distance, and transportation networks with nearby villages are secured.

Specifically, we support the realignment and consolidation of life service functions leveraging unused facilities, and are working on penetration and boosting awareness in coordination with relevant ministries.

(iii) Reviews of the relocation of the Diet and other organizations

The MLIT aids the Diet in its reviews of the relocation of the Diet and other organizations based on the Act for Relocation of the Diet and Other Organizations by conducting surveys on the relocation of the Diet, disseminating information to the nation and so on.

(3) Actions on Land for Which Owners and Their Whereabouts Are Difficult to Find

Changes in the Japanese socioeconomic landscape are causing an increase in land for which owners and their whereabouts are difficult to find. The existence of this land inhibits the implementation of projects in situations such as improving public works. To facilitate the use of land for which owners and their whereabouts are difficult to find, the Bill on Special Measures Concerning the Facilitation of the Use of Land for which Owners and their Whereabouts are Difficult to Find was submitted to the National Diet in March 2018.

Note Core cities are cities other than the special wards of Tokyo that serve as the cores of considerable widespread areas around them (There are 14 core cities.).

5 Promoting Regional Partnerships and Interaction

(1) Forming a Trunk-line Network to Support Regions

To achieve safe, comfortable travel to the central part of an area that has urban functions, such as medical care and education, the MLIT supports the elimination of bottlenecks by widening existing roads and developing road networks. Furthermore, in order to promote the integration of merged municipalities, the development of roads that connect the central area of a municipality to each of its centers, such as public facilities, bridges, and so on, is being promoted by implementing municipal merger support road development projects in collaboration with the Ministry of Internal Affairs and Communications.

(2) Promoting Human Interaction between Cities and Rural Agriculture, Forestry and Fisheries Communities

The MLIT forms axes of human wide-area interaction and partnership through the development of trunk road networks, supplies housing and housing land to help realize country life, develops ports and harbors to serve as centers of human interaction, and more. It also promotes the creation of new types of tourism, such as green tourism, and the activities of “All Right! Nippon Conference” and so on in collaboration with the Ministry of Agriculture, Forestry and Fisheries and other ministries concerned, to promote human interaction between rural agriculture, forestry and fisheries communities.

(3) Promoting Regional Settlement, etc.

In order to support information dissemination by municipalities that work on expanded interactions and relocation to rural areas through hands-on exchange programs for young people in rural areas, such information is put together in the MLIT website. Information about dual habitation is also being disseminated^{Note}.

The MLIT also supports the utilization of vacant houses and buildings by local governments through the appropriation of General Social Infrastructures Development Subsidies to address a wide range of regional issues.

(4) Introduction of Local Design License Plate

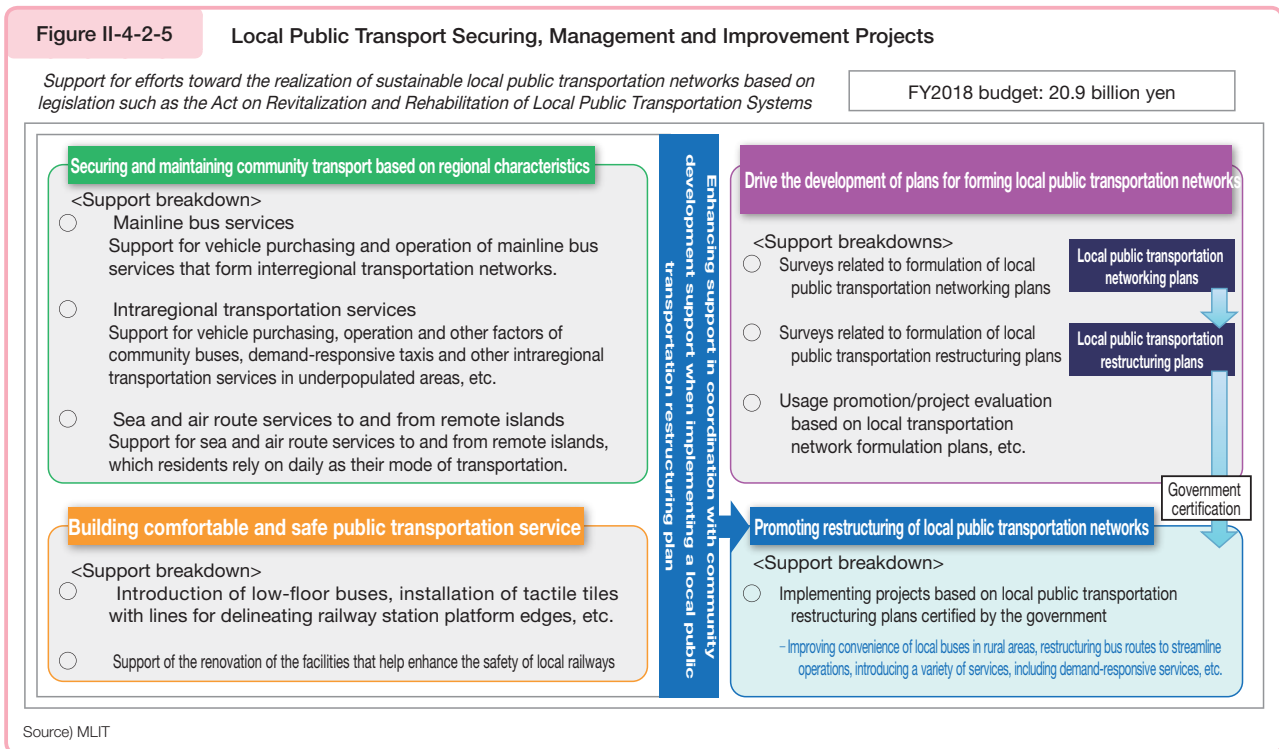
To promote regions and tourism and to foment a sense of unity in regions, and based on proposals from municipal governments, we have decided to allow 41 areas nationwide to issue license plates with designs that feature regional characteristics, starting around October 2018.

6 Securing Means of Regional Transport

(1) Securing, Maintaining and Improving Means of Regional Transport

Maintaining day-to-day means of regional transport is of vital importance to the revitalization of regional communities. Out of this recognition, the MLIT supports efforts directed at forming comfortable and safe public transport, as by securing and maintaining community transport, such as regional bus routes and sea and air routes to remote islands, in collaboration with diverse stakeholders, developing facilities that help add to the safety of local railways, and implementing barrier-free measures. In FY 2017, we continued to facilitate the realization of efficient and sustainable local public transportation through such efforts as supporting the realignment of local public transportation, leveraging the framework of the Act on Revitalization and Rehabilitation of Local Public Transportation Systems.

Note MLIT Regional Development website: http://www.mlit.go.jp/kokudoseisaku/chisei/kokudoseisaku_chisei_mn_000016.html



(2) Activating Regional Railroads and Supporting Safety Assurance, etc.

While regional railroads not only support the livelihood of the local residents living along the railroads as a means of their daily transport but also play an important role in providing them with public transport of critical importance in supporting regional interaction between tourist resorts. However, their management is in an extremely tough situation. For this reason, the MLIT supports not only the maintenance of safety facilities by implementing local public transport securing, management and improvement projects or offering tax incentives, but also the construction, etc., of new stations on local routes that have high potential needs for railway use by implementing projects designed to activate trunk railways, etc.

(3) Subsidizing Local Bus Routes

To address the pressing issue of securing and maintaining service buses and other regional transport services that are vital to local residents (such as interregional bus transport networks^{Note} or bus, demand-responsive and other forms of regional transport closely related to trunk transport networks), the MLIT is providing support for the operation of regional transport services, updating of buses and other needs to help secure and maintain optimal networks of regional transport tailored to specific regional characteristics and conditions. In addition, the MLIT is also working closely with key people in local areas to improve productivity with full attention paid to regional characteristics in order to secure and maintain these regional transport networks amidst projections of further depopulation.

(4) Maintaining and Revitalizing Regional Air Routes

Regional air routes face many challenges. Regional airlines must deal with vulnerable business infrastructure, high cost structures due to operating small numbers of aircraft, canceled flights due to problems with aircraft and other factors, and a limited ability to expand due to their collaboration with certain major airlines. Major airlines must deal with mismatches between aircraft and demand, such as when they use large craft that seat over 100 people, and limits to internal support as a result of intensifying competition on high-demand routes.

Note Wide-area, integral bus routes that satisfy standards set out by the Japanese government (routes that connect multiple municipalities with service at least three times per day, etc.) and are deemed by the Council as requiring maintenance and securement

Furthermore, there is concern over a variety of issues that could appear in the future, including updating old, small aircraft once they are no longer being manufactured, the increased supply of seats inevitably due to those updates, and the difficulty of securing pilots and other human resources.

In light of these issues, we must seek out some way for regional airlines to engage in better initiatives to make regional air routes sustainable. Therefore, in June 2017, the MLIT published an interim summary of the findings of the Committee on Sustainable Regional Air Transport, which had been meeting since June 2016, and is using these findings to continue to examine ways to realize sustainable regional air transport.

(5) Supporting Transport to and from Remote Islands

Residents of remote islands rely daily on sea routes to remote islands as their mode of transportation. In FY 2016, passenger transport demand for the nation's 296 sea routes fell to 43 million (an 11% decrease over the preceding decade), and most of these routes face extremely severe business conditions because they serve areas that are dealing with more pronounced depopulation and aging than mainland Japan. Therefore, projects to secure, maintain and improve regional public transportation are implemented to subsidize running costs, fare discounts for residents of remote islands, and the construction of better ships for operational efficiency on sea routes that are projected to run a deficit or are the only option in their areas (121 sea routes eligible for subsidies as of the end of March 2018).

Furthermore, the operation of bus transportation with land and sea connection that enables the elderly and those who have walking problems to use a ferry while riding on a bus started from April 2015, and 18 business operators are providing the service as of the end of FY 2017.

Air routes to remote islands are an integral mode of transportation that supports life on the islands, namely through securing medical care for the regions. Therefore, to ensure consistent air transportation to remote islands, air carriers extending their air routes to remote islands are granted comprehensive support (budget: airframe purchase grants, operational cost grants, tax and public dues: landing fee alleviation, aviation fuel tax alleviation and so on).

In FY2017, 56 remote island air routes were in service, and the national treasury subsidizes 17 routes of them.

Section 3 Promoting the Private Urban Development

1 Promoting Urban Development by Private Sectors

(1) Promoting Urban Development by Private Sectors Based on the Specific Urban Renaissance Emergency Development Area Program

While rapidly growing Asian nations have resulted in a proportionate decline in Japan's international competitiveness, it has become an essential task to provide a powerful boost to the development of the urban areas in the nation's major cities, a source of impetus to the national growth, in a partnership between the public and private sectors to turn them into attractive urban centers that lure businesses, human resources and more from overseas. In order to achieve this, the system of Specific Urban Renaissance Emergency Development Areas to enhance urban international competitiveness of the designated areas was established. And 13 areas nationwide are now designated as such (as of March 2018). In 11 of them (as of the end of March 2018), development plans were formulated by councils formed in a partnership between the public and private sector. The International Competition Base City Development Project has also been launched to provide prioritized, concentrated support to the development of urban center infrastructures in accordance with development plans.

In order to support the formation of international business and living environments, we are providing comprehensive support for the improvement of urban functions that contribute to improving these environments, both non-structural and structural measures regarding city sales, and the development of foreign language-capable medical facilities and other facilities that improve international competition through the Project Supporting the Improvement of International Competition and City Sales.

As of the end of March 2018, a total of 53 Urban Renaissance Emergency Development Areas were registered in government-ordinance-designated cities and prefectural capitals, including Tokyo and Osaka, hosting a variety of urban develop-

ment projects by private sectors in steady progress. Mezzanine support services^{Note} supporting the procurement of middle-risk funds are carried out by MINTO.

In addition, the Bill to Partially Amend the Act on Special Measures Concerning Urban Reconstruction submitted to the National Diet in February 2018 includes provisions for measures to create a program for arranging parking facilities for urban reconstruction, add entities for proposing finalized urban plans, and more.

(2) Status of Application of the Measures to Support Urban Reconstruction Projects

(i) Zoning for Special Districts for Urban Renaissance

A Special District for Urban Renaissance is a new concept of an urban district, with greater latitude for zoning (exempt from existing zoning restrictions). A total of 87 Special Districts for Urban Renaissance were zoned as of the end of March 2018, 62 of which had been proposed by private entrepreneurs, etc.

(ii) Accreditation of private urban reconstruction project plans

Private urban reconstruction project plans accredited by the Minister of Land, Infrastructure, Transport and Tourism (113 plans as of the end of March 2018) are financially supported by the Organization for Promoting Urban Development or by tax incentives.

(3) Promoting the Formation of Larger Blocks

Since many of the central areas of Japan's major cities have been organized into blocks through the land readjustment projects for war reconstruction, etc., the scales of these blocks, with the structure of the local streets, are not fully responsive to the prevailing needs for land use, transport infrastructure and disaster prevention functions. To enhance the international competitiveness of large cities, revitalize regional cities, and seek advanced and effective land use to fill present-day needs, the MLIT promotes the aggregation of land that has been segmented into multiple blocks, the consolidated usage of sites, and the restructuring of public facilities.

2 Approaching National Strategic Special Districts

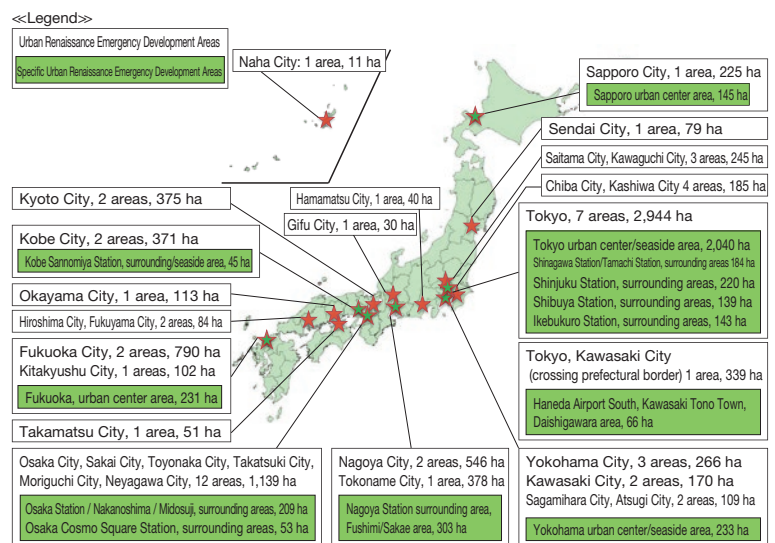
In addition to the special exemptions from the Building Standards Act, the Road Act, the City Planning Act and the like introduced as regulatory reforms in the Act on National Strategic Special Zones passed in December 2013, the amendment to the Act on National Strategic Special Zones passed in July 2015 included special exemptions concerning the establishment of nursery schools in city parks to address the increase in the number of children on waiting lists for admission to nursery schools in recent years, and an amendment to the Urban Park Act in 2017 nationalized the exemptions. The MLIT intends to promote specific projects and proceed with visible progress on the reform of regulations that have been difficult to change due to stiff opposition.

Note

A mezzanine support service is defined as among all services that involve the development of public facilities with environmentally friendly architectural structures and sites, those that are accredited by the Minister of Land, Infrastructure, Transport and Tourism and that are entitled to the procurement of a middle-risk fund (such as a loan granted with an option to leave principal and interest subordinated) by MINTO.

Figure II-4-3-1

Status of Designation of Specific Urban Renaissance Emergency Development Areas and Urban Renaissance Emergency Development Areas (as of the End of March 2018)



Source) Cabinet Secretariat and MLIT

Section 4 Promoting Localized Promotion Measures

1 Measures Directed at Heavy-snowfall Areas

The MLIT promotes the availability of transportation, the development of facilities related to living environments and conservation of national land, and the availability of people responsible for snow disposal and other measures for heavy-snowfall areas based on the Act on Special Measures concerning Countermeasures for Heavy-snowfall Areas in an effort to contribute to the economic development and improvement of residents' lives in regions where the inevitable, annual accumulation of snow inhibits improvement of residents' standards of living and industrial development. Note that 532 municipalities have been designated as heavy-snowfall areas (201 of which have been designated as special heavy-snowfall areas), and that these municipalities account for the vast area of 51% of Japan's land area (the special heavy-snowfall areas account for 20%).

2 Promoting Remote Islands Development

The MLIT is supporting remote islands development pursuant to the remote islands development plans formulated by the prefectures in accordance with the Remote Islands Development Act not only by appropriating lump-sum budgets for the implementation of public works projects, but also extending Remote Islands Rejuvenation Grants, to encourage settlement in remote islands, as by fostering industries and increasing employment, accelerating the scope of exchanges, as by promoting tourism, improve and consolidate safe and secure settlement conditions and so on.

In FY 2017, the MLIT published the Plan to Revitalize Remote Islands through Tourism Involving Overnight Stays and Exchange, a policy that calls for making full use of attractive island resources to create an economic ripple effect that permeates throughout the islands.

3 Promoting and Developing the Amami Islands and Ogasawara Islands

In addition to implementing the development of social infrastructures through promotion and development projects, etc., based on the Act on Special Measures for Promotion and Development of the Amami Islands and Act on Special Measures for Promotion and Development of the Ogasawara Islands, the MLIT leverages grants, etc., to assist with regional efforts directed at boosting employment and encouraging settlement by promoting tourism, agricultural and other industries suited to regional characteristics in pursuit of more self-supporting, more sustainable growth.

4 Promoting Peninsulas

To support peninsula promotion measures through peninsula promotion plans developed by prefectural governments based on the Peninsular Areas Development Act, the MLIT implements projects to encourage wide-area cooperation on peninsular development in peninsula promotion measure implementation areas (as of April 2017, 23 areas (194 municipalities in 22 prefectures)), assists efforts to contribute to the facilitation of exchanges that leverage resources and characteristics of peninsular areas, promoting industry and regional settlement, and promoting industry and developing roads that encircle peninsulas.

Section 5 Promoting Comprehensive Development of Hokkaido

1 Promoting Comprehensive Development of Hokkaido

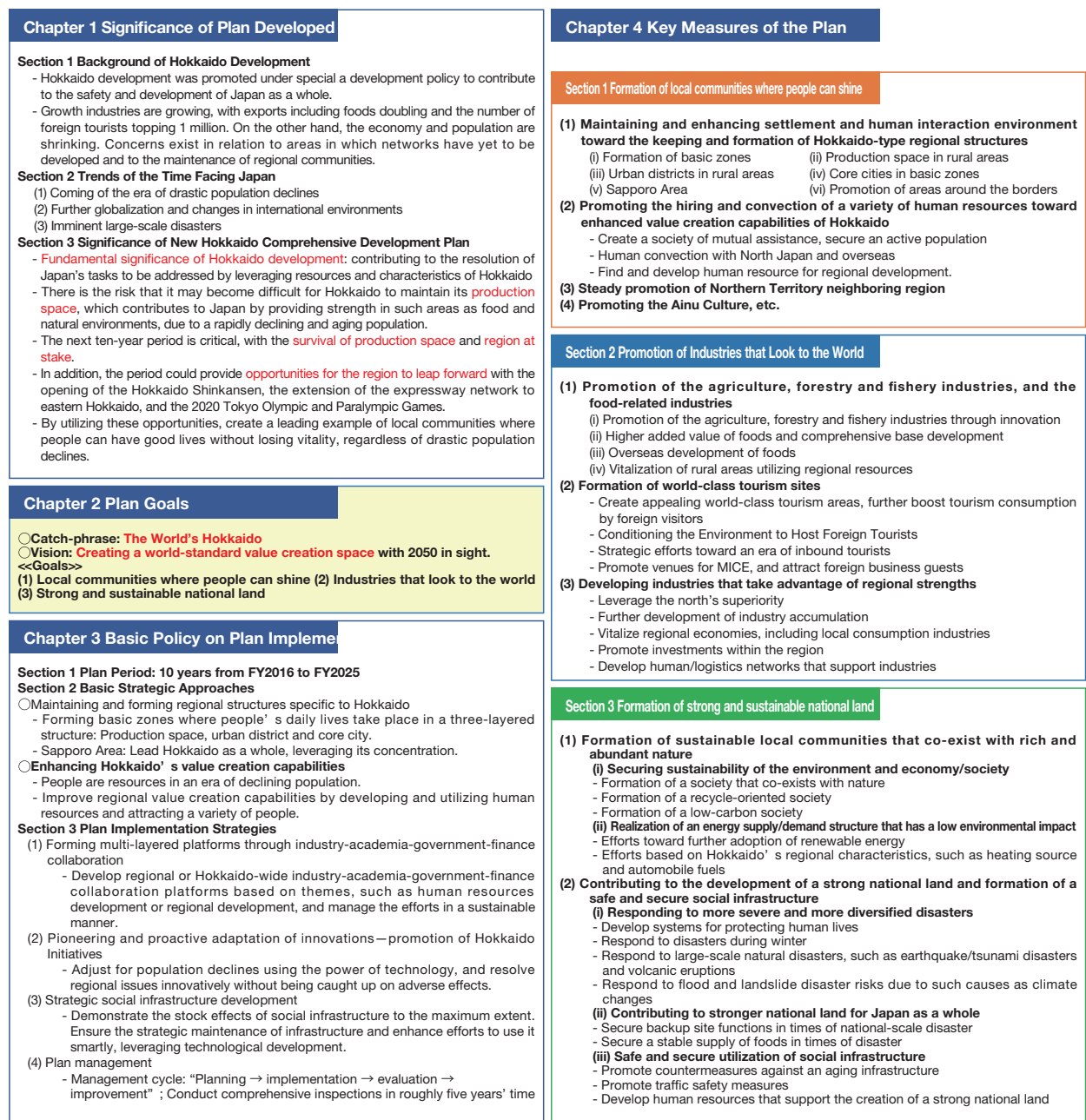
(1) Promotion of the Hokkaido Comprehensive Development Plan

Japan has pursued an active policy of developing Hokkaido to help resolve the problems facing the nation and to achieve powerful regional growth by taking advantage of the excellent resources and characteristics of Hokkaido.

The 8th term Hokkaido Comprehensive Development Plan covers the period from FY 2016 to roughly FY 2025 and was adopted by Cabinet decision in March 2016. Under the plan, the government is promoting various measures with the goals of creating local communities where people shine, industries that look to the world, and strong, sustainable national land that comprise an image of Hokkaido that is recognized the world over.

In June 2017, the Hokkaido Development Subcommittee reported the results of its discussions by its plan promotion task force. The report describes approval for intensive efforts toward the formation of world-class tourist attractions to lead the actualization of Japan as a world-class tourist destination, and the sustainable development of food product supply bases; the establishment of numerical targets to serve as guidelines for ideals and action; the promotion of policies to extract and share issues for striving for the realization of objectives; and the hosting and follow-up of plan promotion task force meetings roughly once per year to manage the progress of the plan. The MLIT will continue to promote the development of Hokkaido with respect to the Hokkaido Comprehensive Development Plan.

Figure II-4-5-1 Overview of Hokkaido Comprehensive Development Plan



Source) MLIT

(2) Promoting Measures that Support Plan Realization

The new plan was formulated to respond to various impending issues facing Japan, namely the coming of an era of full-scale population decline, further development and changes to the international environment due to globalism, and major disasters. We are promoting the following types of measures.

(i) Local communities where people can shine

In addition to establishing regional social structures that enable people to continue to live a long time across Hokkaido, covering vast production spaces that form communities dispersed in wide areas on a scale different from other regions, to city areas, it is also important to promote lively convection by attracting a variety of people to Hokkaido, where the population is declining faster than in other regions in Japan. Thus, the MLIT is promoting the creation of systems to maintain and form a Hokkaido-style regional structures in addition to the formation of wide-area transport networks including national high-grade trunk highways, improving the functions of Michi-no-ekis and Minato Oases, establishing prosperous living environments that accommodate child raising, aging and other concerns, and securing stable transport to and from remote islands as a system for maintaining and improving settlement and exchange environments. We are also promoting efforts such as the development of the Hokkaido Value Creation Partnership Activity, a wide-area, interdisciplinary support and cooperation system for human resources engaged in regional development.

(ii) Industries that look to the world

Hokkaido has competitive advantages in the agriculture, forestry, and fishery industries; the food and tourism related industries; and other industries for export to other regions in the country and other countries; and it is important to strategically develop these industries. Therefore, we are promoting, among other measures, the enhancement of productivity and competitiveness in the agriculture, forestry and fishery industries by larger division of farmland, advanced sanitation management measures at fishing ports and other means; the creation of a comprehensive base for food by attracting food companies from outside Hokkaido; the promotion of foreign tourists driving around Hokkaido by car and the Scenic Byway Hokkaido program, which encourages the development of scenery, communities and tourist attractions; holding of international conferences (MICE) in Hokkaido; and the strengthening of functions of New Chitose Airport and strategic international bulk ports including Kushiro Port.

(iii) Strong and sustainable national land

Hokkaido, which has beautiful and magnificent natural environments and abundant renewable energy sources, is expected to take a leading role in forming a sustainable regional society. Ensuring safety and security is the foundation of economic social activities, and it is important for the region to minimize damages in the event of a disaster and contribute to strengthening Japan as a whole. Therefore, we are promoting, among other measures, preservation and regeneration of lakes and wetlands; public awareness relating to the formation of hydrogen society through Hokkaido's platform for developing hydrogen communities; the Hokkaido Emergency Flood Control Measures Project, which was devised in light of the series of tropical cyclone disasters in August 2016; measures to improve the seismic resistance and prevent the deterioration of social infrastructure; regional support in the event of a disaster by dispatching TEC-FORCE (Technical Emergency Control Force); and efforts to enhance safety and reliability of transportation in winter.

Column

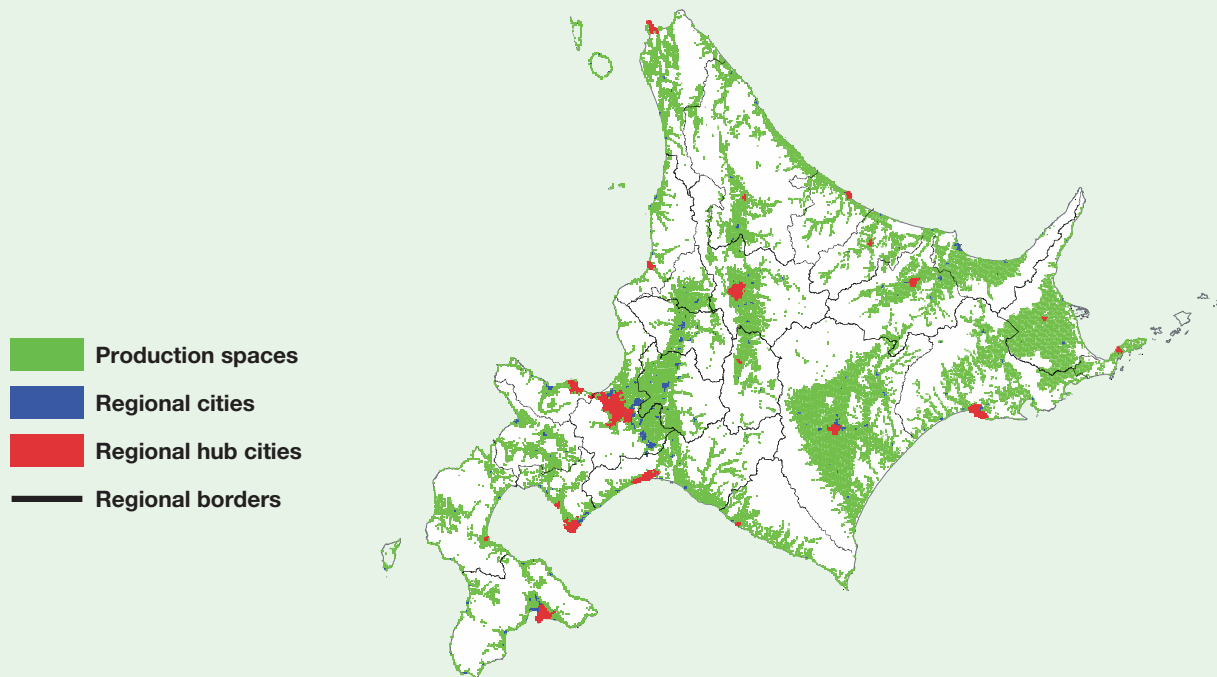
Protect Hokkaido's Production Spaces!

"Production spaces" are spaces for production in terms of agriculture, forestry, fisheries and tourism, and are a new concept positioned in the Hokkaido Comprehensive Development Plan. In Hokkaido Prefecture, agricultural and fishing industry production takes place mainly in the countryside, and tourism and community resources are also widely distributed throughout the countryside. However, given that Hokkaido alone features widely dispersed communities and has experienced more rapid depopulation and aging than anywhere else in Japan, life may become difficult for people who live in these food and tourism production spaces. Therefore, it is important to form and maintain Hokkaido-style community structures that make it possible for people to continue to live in these production spaces while relying on cities (regional cities) for life services and the closest major cities (regional hub cities) for life security.

In light of these circumstances, three model areas were established for their industrial structure and geographical characteristics: the Nayoro Model Area, the Tokachi-Minami Model Area and the Kushiro Coast Model Area. Diverse entities including national government entities, local government entities and local residents from these model areas gathered to begin investigating efforts to consider and take action in concert with one another. Academics and private corporations active in each of those areas joined national and local government entities in these investigative commissions in which participants introduced issues each region faced and efforts of each entity, and discussed matters such as policies for each region to take going forward.

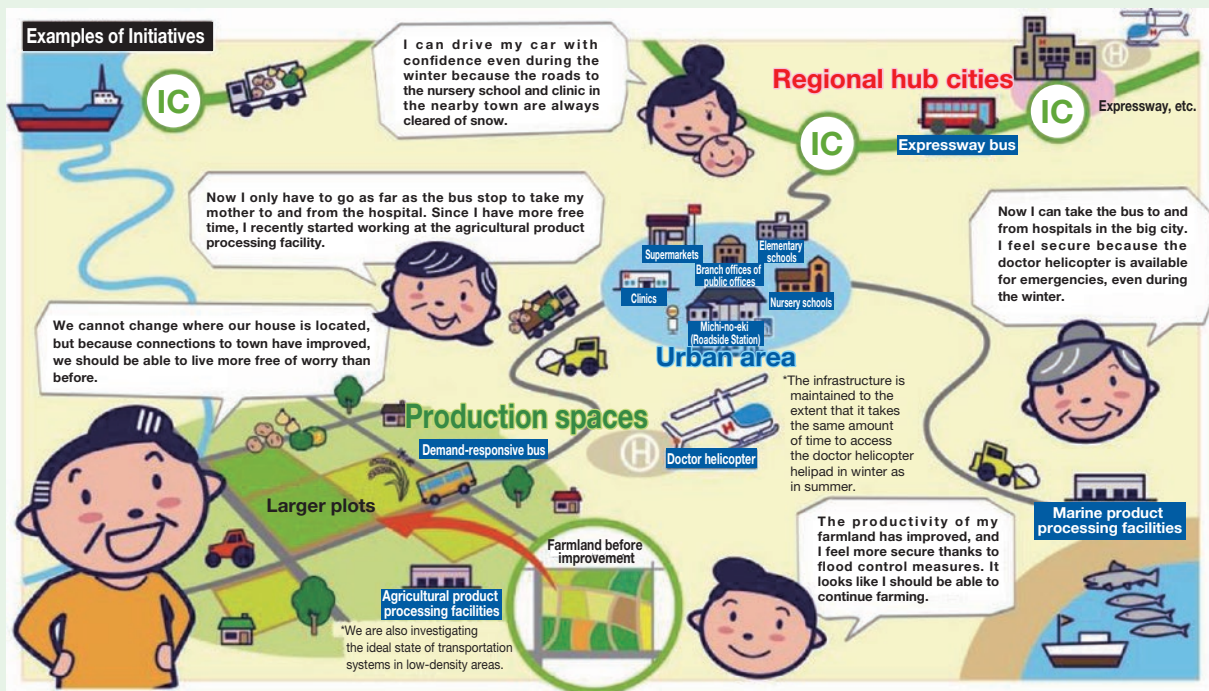
At the first model area investigations held in November 2017 and in January and February 2018, participants discussed social infrastructure in addition to a variety of other issues, including regional medical care, human resources development and smart agriculture. Looking ahead, each model area will organize a policy package involving cooperation and collaboration between diverse entities, and commission members will lead the promotion of those policies. Future plans call for the deployment and dissemination of these efforts throughout Hokkaido Prefecture.

Distribution of Production Spaces, Regional Cities, and Regional Hub Cities in Hokkaido Prefecture



Note 1: Example of regional connections focused mainly on outpatient and inpatient destinations. Regions can change depending on configurations.
 Note 2: This map does not necessarily or comprehensively depict Japanese territory.
 Source) Prepared by the MLIT based on the FY 2010 Population Census (Ministry of Internal Affairs and Communications)

Examples of Production Space Initiatives (Diagram)



Source) MLIT

2 Promoting Distinctive Regions and Cultures

(1) Promoting the Regions Neighboring the Northern Territories

Targeting the Northern Territory's neighboring regions where desirable development of regional society is inhibited because of unresolved territorial issues, we are promoting necessary measures in a comprehensive manner under the Seventh Northern Territory Neighboring Regions Revitalization Plan (FY 2013 to FY 2017), which is based on the Act on Special Measures concerning Advancement of Resolution of Northern Territories Issues.

More specifically, the MLIT pursues a mix of structural and non-structural measures to build appealing regional communities in these neighboring regions, including the promotion of agricultural and fishery industries, implementation of public-works projects for development of transportation systems, supporting the implementation of non-structural measures by providing subsidies for project implementation expenditures, such as for Northern Territory neighboring region revitalization.

(2) Promoting the Ainu Culture, etc.

Based on the Basic Policy on the Development, Management, and Administration of Spaces Symbolic of Ethnic Harmony for Promoting the Restoration of Ainu Culture (adopted by a Cabinet decision on June 13, 2014, partially amended on June 27, 2017) and the like, spaces symbolic of ethnic harmony will open to the public on April 24, 2020—in advance of the Tokyo 2020 Olympic and Paralympic Games—and the National Park for Ethnic Harmony and a memorial facility will be established, and development preparation will be promoted in pursuit of realizing the target of 1 million visitors.

Figure II-4-5-2

Image of the Core Zones of the Space Symbolic of Ethnic Harmony



Source) MLIT

In addition, we are working on public awareness activities such as the hosting of music festivals, implementation of onboard guidance in the Ainu language on buses, and other efforts as part of the “i ran karap te” (an Ainu greeting meaning “how are you”) campaign developed through industry-academia-government collaboration in accordance with the Act on the Promotion of Ainu Culture, and Dissemination and Enlightenment of Knowledge about Ainu Tradition.



Chapter 5 Creating a Comfortable Living Space

Section 1 Realizing Affluent Residential Living

1 Securing Stability of Residential Living and Advancing its Betterment

The Basic Housing Policy (National Plan), which covers the period from FY2016 to FY2025 and was adopted by a Cabinet decision in March 2016, was devised in light of changes to the socioeconomic climate, namely the full-scale emergence of an aging society with falling birth-rates and declining population and families. The plan sets out eight targets and fundamental measures: From the perspective of inhabitants, (i) Anxiety-free housing situation for child-rearing households and member of young generation wishing to marry and have children, (ii) Housing that allows the elderly to live independently, and (iii) Ensure a steady supply of housing for individuals requiring special consideration from the perspective of housing stock, (iv) Structure a new housing circulation system exceeding the property ladder, (v) Upgrade to safe and higher-quality housing stock through rebuilding and renovation, (vi) Promote use or elimination of increasing vacant homes; and from the perspective of industry and community, (vii) Housing industry growth that contributes to a strong economy, and (viii) Maintain or improve the appealing aspects of residential area. Based on this plan, the MLIT is driving forward with efforts to provide residential living that meets the needs of each and every citizen, as well as measures toward the realization of safe, secure, high-quality living environments.

(1) Goals and Basic Policies

(i) Anxiety-free housing situation for child-rearing households and member of young generation wishing to marry and have children

To establish an environment in which child-rearing households and member of generation wishing to marry and have children can choose and be ensured of obtaining desired housing, we are executing support to enable them to live in a house meeting the required quality and area according to the income of household.

In addition, in order to establish an environment that enables people to want to have and raise children, leading to desired birthrate of 1.8, we are promoting measures to ensure families the ability to live with or near grandparents to enable childrearing with the help of grandparents.

(ii) Housing that allows the elderly to live independently

To improve and supply housing that elderly individuals can live in safety without anxiety, we are continuing work to promote barrier-free homes and heat shock measures (the effects of sudden increases in temperature on the human body), and promoting elderly housing with supportive services attached for elderly life support facilities.

We are also working to ensure housing in the area in which elderly residents wish to live and on environment where elderly individuals receive nursing, medical and life services.

(iii) Ensuring a steady supply of housing for individuals requiring special consideration

We are striving to establish an environment in which individuals with difficulty ensuring residence in the housing market independently can find housing and live without anxiety. Such individuals include low-income earners, elderly, handicapped, single-parent household, multiple birth households, public financial support recipient, foreigners, homeless, etc. (persons requiring special assistance in securing housing).

a. Creating a new housing safety net that comprises private rental housing and vacant houses

In order to promote the offering of rental housing to persons requiring special assistance in securing housing, the MLIT established a new housing safety net consisting of a system in which private rental housing and vacant houses are registered as rental housing for persons requiring housing support in accordance with the amendment to the Act on Housing Safety Net (the Act to Partially Amend the Act on Promotion of Offering of Rental Housing to Persons Requiring Special Assistance in Securing Housing (promulgated on April 26, 2017, enacted on October 25, 2017)).

b. Supplying public rental housing

To adequately support the delivery of public housing supplied by local governments to low-income earners in serious need of housing, and to promote the supply of quality rental housing to households consisting of elderly people who need special consideration to stabilize their housing in each area, the MLIT set up the Regional Excellent Rental Housing Program as a scheme that complements public housing by subsidizing the expenses required to develop public rental housing and reduce rents.

Figure II-5-1-1 Purposes and Results of Public Rental Housing

	Purpose	Number of houses managed
Public housing	Supplies quality rental housing to low-income earners who are in serious need of housing with low rent.	About 2.16 million houses (FY2016)
Improved housing	Supplies public rental housing to existing residents who are in serious need of housing in a deteriorating residential area.	About 145,000 houses (FY2016)
UR Rental Housing	Supplies quality rental housing that is conveniently located for access to work, focusing on family-oriented rental housing not in ample supply from private business operators, in major urban areas, as well as develops residential districts (In FY2002, a support program for privately supplied rental housing was launched to support the supply of family-oriented rental housing from private business operators.)	About 740,000 houses (FY2016)
Agency rental housing	Supplies quality rental housing to meet the regional demand for rental housing	About 132,000 houses (FY2016)
Quality regional rental housing	Provides subsidies to private land owners to fund maintenance and other expenses and cover rent cuts to provide quality rental housing for households consisting of elderly people, childraising families, etc.	- About 94,000 designated quality rental houses (FY2016) - About 42,000 designated quality rental houses for elderly people (FY2016)

(Notes) 1 The number of rental houses managed by the Urban Renaissance Agency includes designated quality rental houses for elderly people

2 The number of public rental housings does not include Specified Quality Rental Housing and Subsidized Quality Rental Housing for the Elderly.

3 The Specified Quality Rental Housing Institution and Subsidized Quality Rental Housing for the Elderly Institution were reorganized and the Quality Regional Rental Housing Institution was established in FY2007.

Source) MLIT

c. Using private rental housing

In order to facilitate the promotion of smooth move-ins to private rental housing by elderly people, disabled people, foreigners and families with small children, we are providing housing assistance such as information services and consultation services through residential support corporations based on the amended Act on Housing Safety Net, in addition to the 70 Residential Support Councils nationwide (in 47 prefectures and 23 municipalities) established as of the end of FY2017 that comprise local government, real estate related organizations and housing assistance organizations.

(iv) Structuring a new housing circulation system exceeding the property ladder

The revitalization of the existing housing circulation market is crucial toward effectively using housing stock, creating economic effects from market expansion, and realizing prosperous residential living through the streamlining of the process of moving in different life stages; thus, we are developing measures to improve the quality of existing housing, to form markets that properly appraise high-quality existing housing, and to develop environments in which people can confidently purchase and sell existing housing.

a. Improving the quality of existing housing

The MLIT pursues the dissemination of housing that is structured and equipped to meet or exceed certain levels of performance requirements, such as durability and ease of maintenance and management (“Long-life Quality Housing”) under the Act on the Promotion of Dissemination of Long-life Quality Housing. (Certified houses in FY2016: 109,373). In addition, in FY2016, we launched a system for certifying Long-Lasting Quality Housing regarding renovations and additions to existing housing. (Certified houses in FY2016: 127)

Furthermore, we provide support concerning aid and taxes for renovations that strive to extend the life, strengthen the earthquake resistance, or improve the energy efficient performance of existing housing.

b. Formation of markets that properly appraise high-quality existing housing

The general thinking in Japan is that housing has absolutely no market value 20 to 25 years after it is built; it is important to correct this convention and create an environment in which high-quality existing housing is properly appraised.

Toward that end, we are continuing to define and diffuse proper appraisal methods for real estate brokers and appraisers so that the performance and renovated condition of buildings is properly reflected in their appraisals.

In addition, in order to establish a market environment in which high-quality housing stock is appropriately assessed, we are providing support for integrated efforts to develop and diffuse systems for renovating, assessing, circulating and financing housing stock.

c. Developing environments in which people can confidently purchase and sell existing housing

A 10-year defect liability obligation has been mandated for the basic structural part of new housing in accordance with the Housing Quality Assurance Promotion Act. In addition, a housing performance marking program has been put into effect to objectively assess the basic performance characteristics of new and existing houses, such as earthquake-resistance, energy-saving measures, preventing measures against deterioration, etc.

In addition, to promote the smooth enactment of the amended Real Estate Brokerage Act (established in June 2016), which encourages real estate brokers, who are experts in real estate transactions, to use surveys of building conditions (inspections) by experts, we have held briefings about the details of the amendment throughout the country and undertaken other rigorous efforts to fully educate consumers and real estate brokers.

In addition, we established the “Anshin-R-Jutaku” program to bestow existing housing with recognition when its earthquake-resistance and other characteristics are of a high enough quality that consumers can purchase them with a sense of security. We began implementing the program in December 2017.

(v) Upgrade to safe and higher-quality housing stock through rebuilding or renovation

Housing investment has major ramifications for the economy, and plays a substantial role as a key element of internal demand. We are driving forward with housing investment to improve housing quality by encouraging the improvement of earthquake resistance, insulation and other energy-efficient properties, and durability through such efforts as rebuilding housing that is not sufficiently earthquake resistant and otherwise updating old stock, and renovating housing to make it universally accessible.

In addition, the Act to Partially Amend the Act on Special Measures concerning Urban Reconstruction, etc., for encouraging the reconstruction of housing complexes was established in June 2016 and enacted in September of that year.

a. Preparing the market environment in which consumers can remodel their homes without worry

Consumers planning to remodel their homes are concerned about how much the remodeling will cost them and how to select the right contractors. Reassuring worried consumers is essential to expanding the home remodeling market.

Efforts currently taken in this regard include the Check Quoted Remodeling Costs for Free service available from the Housing Telephone Consultation Desk at the Center for Housing Renovation and Dispute Settlement Support, in which consumers can receive consultation on specific quotations, and Free Expert Consultation Programs at local bar associations.

In addition, the MLIT is promoting initiatives so that consumers can remodel their homes without worry, such as the Remodeling Defect Liability Insurance Program, an insurance package that combines an inspection on remodeling works in progress with warranties against possible defects in the works or the large-scale repair work liability insurance program for large-scale apartment building repairs.

Also, the Association of Housing Warranty Insurers website features a list of general contractors who fulfill the requirements that make their work eligible for the insurance; consumers can refer to this list when selecting general contractors.

Further, under the “Housing Renovation Business Organization Registration System,” we are working on building an environment in which there is a healthy development of the housing renovation business and consumers renovate their

homes with confidence, by having housing renovation business operators that meet certain standards registered to ensure that the work of housing renovation businesses is properly managed and information can be provided to the consumers.

(vi) Promote the use or elimination of increasing vacant homes

The MLIT encourages municipal governments to develop the Vacant Housing Countermeasure Plan, depending on their local circumstances, based on the Vacant Houses Special Measures Act, which was fully enforced in May 2015 (447 municipalities have completed their plans (as of October 1, 2017)), which promotes the use and removal of vacant houses and buildings, and reinvigorates circulation of housing.

(vii) Housing industry growth that contributes to a strong economy

To contribute to the realization of a strong economy, we are encouraging the expansion of the housing industry by promoting the development of high-quality wooden housing and buildings, supporting the cultivation of skilled woodworkers and other people to build them, the development and diffusion of new technologies such as cross-laminated timber (CLT), and the creation and expansion of new business markets involving housing, such as the use of IoT.

(viii) Maintain or improve the appealing aspects of residential areas

In line with the features of the region, including nature, history, culture etc. aiming to create not only individual houses but also to enrich the living environment and the community and are striving to maintain and improve the appeal of residential areas by forming prosperous communities and improving the safety of residential areas by improving crowded urban areas and the like.

(2) Comprehensive, Systematic Promotion of Measures

(i) Housing finance

It is important that a variety of mortgages, which include short-term adjustable-rate or long-term fixed rate type, are stably available so that consumers can choose and obtain houses in the housing market.

The Japan Housing Finance Agency offers securitization support businesses to support the availability of long-term, relatively low fixed-rate mortgages from private financial institutions. Its operations include Flat 35 (Purchase Program), which consolidates housing loan receivables of private financial institutions, and Flat 35 (Guarantee Program), which supports private financial institutions themselves becoming originators^{Note} to handle the securitization. For houses that are entitled to Flat 35, property inspections are carried out against a defined set of technical requirements, such as durability, to assure their quality. In addition, the framework of the securitization support service has been leveraged to launch Flat 35S, which reduces the interest rate of loans for the acquisition of houses that meet any one of the performance requirements: earthquake-resistance, energy-saving performance, barrier-free readiness, and durability/modifiability, for the first 5 years of repayment (for the first 10 years for long-life quality housing, etc).

The Agency also provides direct financing services in those areas that are significant in policy but difficult to be conducted by private financial institutions, such as financing housing designed for disaster recovery or elderly rental housing with supportive services.

Note A business enterprise that possesses assets to be liquidated. An originator raises funds by securitizing its assets, by transferring its credit, real estate properties, etc. to a special-purpose company.

(ii) Housing tax system

In order to promote the circulation of existing housing and the invigoration of the market for renovated houses, the FY2018 tax reform introduced a two-year extension of the preferential tax measures for the registration and license tax in cases where buyback-resale businesses acquire existing housing that was improved to a certain level, and expanded the scope of preferential tax measures to reduce the real estate acquisition tax imposed on buyback-resale businesses when they sell existing housing that they have acquired and renovated to an extent to end-users to include the property as well as the house in cases where the house in question is a Anshin-R-Jutaku. The scope of preferential tax measures for the real estate acquisition tax imposed when existing housing that does not satisfy earthquake-resistance standards is acquired, and repair work to make the housing meet earthquake-resistance standards is performed prior to move-in, was also expanded to include the property as well as the house. Furthermore, in view of reducing the initial burden of those who acquire housing, improving residential standards and forming quality housing stock, the application of property tax reduction for new housing was extended for two years.

2 Supply and Utilization of Good Housing Land

(1) Land Price Trends

The official land prices in Japan for 2018 (as of January 1, 2018) showed that the average residential land price increased for the first time in 10 years; the average prices of commercial land and those of all categories of land use increased for the third consecutive year. In each of the three major metropolitan areas, the average land price increased for both residential and commercial land. In Greater Osaka, although residential land prices increased only slightly, commercial land prices increased at the greatest rate of the three major metropolitan areas. In regional cities, the rate of decline of residential land prices continues to decrease, and commercial land prices increased for the first time in 26 years. In addition, the average land price of all categories of land use held steady against decline for the first time in 26 years. In the four cities of Sapporo, Sendai, Hiroshima and Fukuoka, the average land prices increased in all categories of land use, and are showing signs of increasingly strong growth.

(2) Present Status and Problems in Housing Land Supply

We are steadily implementing housing land measures based on population and household trends. The Urban Renaissance Agency now works only on the new town projects that have already been initiated. The MLIT also supports the development of public facilities relevant to the development of housing land, and offers preferential tax measures to promote the supply of housing land furnished with a good dwelling environment.

(3) Using Fixed-term Land Leases

A fixed-term land lease—in which the land lease ends for certain at the determined contract term and there is no renewal of the land lease—is an effective system for making residential acquisition at a low cost possible.

In order to spread this system smoothly, we are conducting the Fact-finding Investigations of the Use of Fixed-term Land Leases by Public Entities.

(4) Revitalizing Aging New Towns

The large-scale urban housing areas (New Town) that were systematically developed mainly in the suburbs of the metropolitan areas during the economic boom period are facing issues of decline in community vitality resulting from the quickly aging population and the continued decrease in population. There is a growing need for renewing the dilapidated housing and communal facilities as well as improving the functions that support daily life, in order to renovate these new town areas into cities that are easy to live in for everyone.

Also, in order to promote initiatives by residents, business owners, landowners/leaseholders and others with the aim of maintaining and enhancing good regional environments and regional value to contribute to the revitalization of aging new towns, we establish liaison councils that comprise local governments, private business operators and others for the revitalization of housing developments, and provide information, hold discussions and make other efforts regarding methods of promotion and examples of initiatives.

Section 2 Realizing Comfortable Living Environments

1 Developing City Parks and Creating a Good Urban Environment

City parks are key urban facilities that fulfill a wide variety of functions, from serving as recreation spaces for people and as hubs for regional tourism and activity to creating good urban environments and improving urban disaster preparedness. Thus, we are systematically establishing national parks throughout Japan, and using general subsidies for social infrastructure development to support local governments' efforts to establish city parks and the like.

In addition, in April 2016, Subcommittee for Urban Management for a New Era under the Panel on Infrastructure Development set out policies for improving stock effects, accelerating public-private collaboration, and creating more flexible usage of city parks and the like to realize the potential of city parks of the future.

As of the end of FY2016, city parks were maintained at 108,128 locations nationwide, covering approximately 125,423 ha, or about 10.4 m² per capita. In FY2017, 40.05 million people visited national parks, with 17 locations being developed and maintained.

Regarding green spaces, etc., in urban areas, the MLIT is providing comprehensive support in financial and technical aspects, pursuant to the initiatives based on the "Green Master Plan" formulated by municipalities to properly respond to global environmental issues, such as global warming and biodiversity preservation, and to aim at realizing green-rich city environments by preserving and creating good natural environments.

In addition, we are driving forward with efforts to realize city development in which cities coexist with greenery and agriculture, such as by surveying initiatives that contribute to the formation of good urban environments that are in harmony with green spaces and farmland and the exhibition of the multitude of functions of urban agriculture.

In addition, along with holding events such as national "Protecting Greenery" gatherings and National City Greening Fairs to gain public awareness regarding greening, the MLIT is working on various measures such as awarding certificates of commendation for people promoting greening, as well as evaluating/certifying greening/green area conservation efforts by businesses.

To intensify efforts to form a green urban environment, open spaces such as parks, green spaces and farmland must exhibit a multitude of functions, and measures must be taken to tackle various challenges, such as the existence of areas with low parkland area per capita, the progression of the deterioration of park facilities, and the decrease of urban farmland that constitutes valuable green space in cities. In addition, the Basic Plan on Promotion of Urban Agriculture was adopted by a Cabinet decision in May 2016, and urban policy has changed to include urban farmland as a crucial part of cities, while indicating the direction of important measures.

In light of the above, the Bill to Partially Amend the Urban Green Space Conservation Act was promulgated in May 2017, and portions of it were enacted in June of that year with the goals of further promoting the conservation of green spaces in cities, the greening of cities and the appropriate management of urban parks, and contributing to the formation of quality urban environments through efforts to systematically conserve farmland within cities. The bill contains provisions to, among other things, relax area requirements in productive green zones and to establish several systems, including a system to certify plans to establish and manage green spaces opened to citizens through the establishment of green spaces on the same level as parks by NPOs and other private entities using open land and the like, a system to determine through

Figure II-5-2-1

Miharashi Hills of Hitachi Seaside Park, a Reviving Tourism Base (Hitachinaka City, Ibaraki Pref.)



Source) MLIT

public invitation who can establish and manage park facilities, and a rural residential area system for preserving good living environments in harmony with agriculture. In addition, the FY2018 tax reform called for the implementation of measures required for the tax breaks associated with the enforcement of the rural residential area and specified productive green zone systems scheduled for April 1, 2018.

2 Advancing Roads that Prioritize Pedestrians and Bicycle Riders

(i) Creating people-oriented, safe, and secure walking spaces

To achieve social safety and security, it is important to make people-oriented walking spaces that assure pedestrian safety. In particular, based on the results of an emergency joint inspection that was carried out in FY2012, we are advancing efforts to improve school routes used by children who walk to school. Schools, the Board of Education, road administrators, police, and other related organizations have worked together to implement traffic safety measures such as maintaining sidewalks, painting colors on curbs, and installing guardrails, as well as implementing joint periodic inspections based on the “School Route Traffic Safety Program” to ensure the safety and security of children through these enhanced measures.

In addition, on March 30, 2018, the Act to Partially Amend the Road Act was established with the addition of “cases where specifically required due to extremely narrow walkways” to the scope of occupancy restrictions in order to ensure the safe, smooth passage of pedestrians and wheelchairs.

(ii) Creating a safe and comfortable cycling environment

Over the past 10 years, the total number of traffic accidents that resulted in death or injury has decreased by 40%, but the number of accidents involving bicycles colliding with pedestrians has decreased by 10%, which indicates a need for a safer, more comfortable cycling environment. Therefore, the MLIT is working together with the National Police Agency to spread the word about Guidelines for Creating a Safe and Comfortable Cycling Environment. In addition, the Act on Promotion of Use of Bicycles was enacted in May 2017, and efforts are continually made to promote the use of bicycles, such as the increased promotion of the creation of bicycle network plans and bicycle lanes, mainly in roadways, effective public awareness campaigns on compliance with the traffic rules, and the dissemination of information that contributes to the promotion of tourism in regions where bicycles are used.

(iii) Developing quality walking spaces

The MLIT supports the development of pedestrian roads and rest facilities that create high quality pedestrian environments and that also tie together rich scenery and abundant nature with historical sites, in order to develop regions that are attractive and that promote health through walking.

(iv) Developing road signs that are easy to understand

The MLIT is working on the installation of road signs that are easy to understand to help guide pedestrians who are in an unfamiliar place to their destinations.

(v) Building a flexible system of road administration

To implement a flexible system of road administration that provides a diversity of road functions tailored to the needs of the local residents - including safe walking spaces and places of regional buoyancy and human exchange, and making motor-vehicle traffic smoother and safer - the MLIT is implementing: (a) preferential measures, such as the construction of new sidewalks on national or prefectural highways by municipalities other than the designated cities; (b) a system for suggesting that municipalities refurbish pedestrian safety facilities; (c) preferential measures for road occupancy, such as boulevard trees planted by NPOs or others, street lamps, etc.; (d) preferential measures for the administration of offstreet convenience facilities to keep roads and roadside facilities under integrated management; (e) preferential measures for road occupancy regarding facilities installed by road cooperation groups, etc.; and (f) flexible management of permits for road occupation for regional activities involving the use of roads.

Section 3 Realizing Traffic with Enhanced Convenience

(1) Advancing Implementation of Integrated Urban/Regional Traffic Strategies

Intensive city planning that ensures safe, smooth traffic requires a cross-sectional approach to the available transportation modes—such as cycling, railway, and bus—from the users' standpoint, rather than reviewing the transportation modes or their operators individually. To this end, each local government should inaugurate a council composed of public transportation operators and other stakeholders and allow the council to define a future vision of its cities and regions, and the types of transportation services to be made available, so that it can formulate “Integrated Urban/Regional Transportation Strategies” that cover relevant traffic measures and working programs, with the stakeholders taking their respective shares of responsibility for implementing measures or projects. (As of March 2018, Integrated Urban/Regional Transport Strategies had been formulated or were being formulated in 101 cities.) The national government is expected to support the implementation of integrated and strategic packages of traffic projects, such as the development of LRT^{Note} pursued according to the Strategies, as well as city planning programs.

(2) Approaches to Improve Public Transportation Usage Environment

For local public transportation, the MLIT supports the deployment of LRT, BRT, IC cards and other less constrained systems through the implementation of local public transportation assurance, maintenance and improvement projects, etc., to accelerate the improvement of local public transportation usage environment as part of its barrier-free community planning effort. In FY2017, efforts such as deploying light rail vehicles were made on the Iyo Railway and others.

(3) Upgrading Urban Railway Networks

Traffic congestion in the major metropolitan areas during commuting to and from work and school by train is improving substantially as a result of efforts such as establishing new lines, quadruple tracking and adding cars onto trains. However, the rate of congestion on some routes exceeds 180%, and requires continued efforts to mitigate congestion. Efforts in progress include quadruple tracking of Odakyu Electric Railway's Odawara Line and the like funded by the Designated Urban Railway Development Reserve Program.

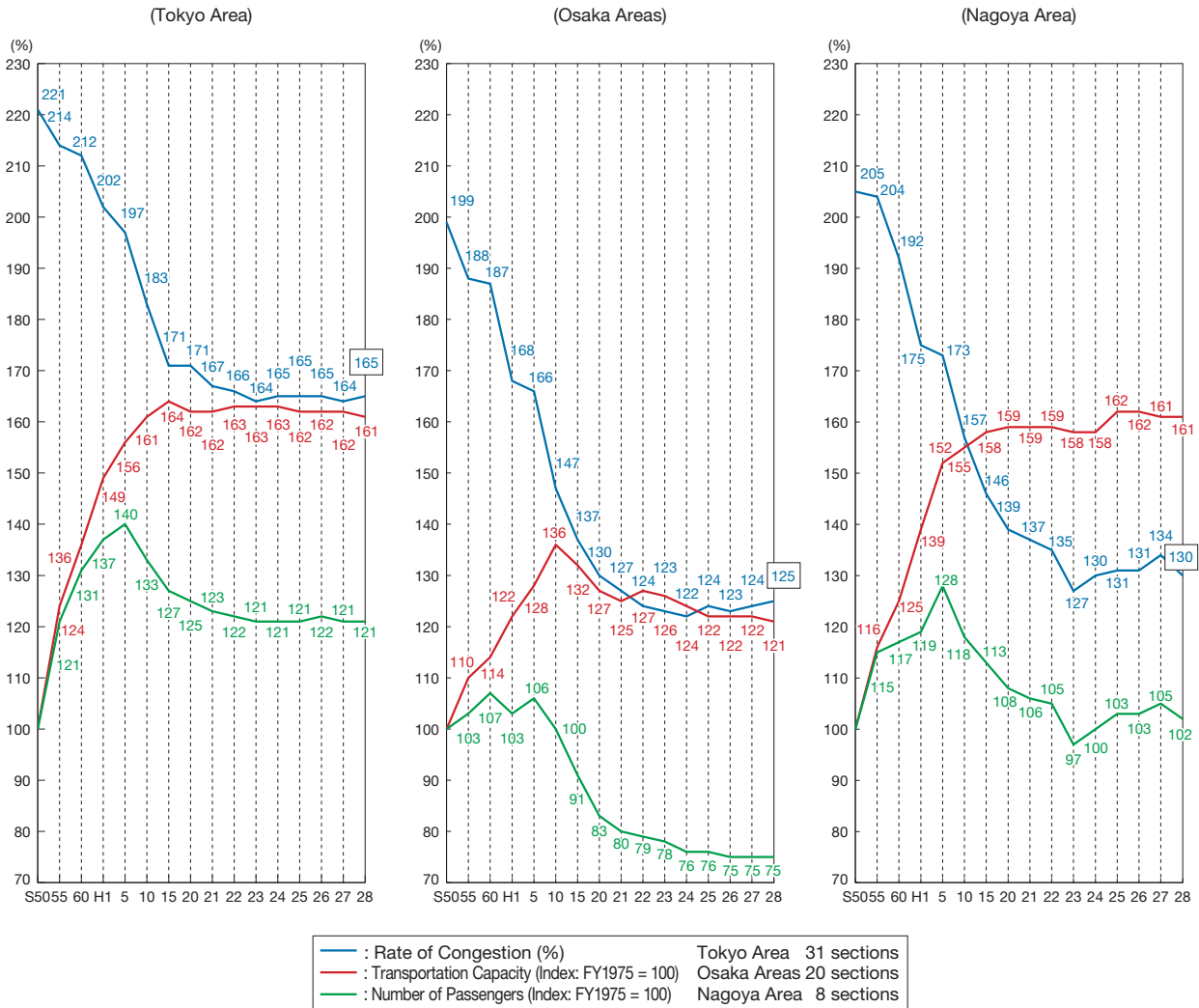
In addition, we are driving forward with efforts to improve user convenience by, among other things, continuing to develop the Kanagawa Eastern lines (Sotetsu - JR/Tokyu Through Line) by leveraging the Act on Enhancement of Convenience of Urban Railways, etc., a piece of legislation aimed at upgrading the speediness of existing urban railway networks, to further enhance the urban railway networks.

In April 2016, the Council of Transport Policy issued a report regarding the future of urban railways in the Tokyo Metropolitan Area, which sets out ways for urban railways and the like to contribute to the strengthening of competitiveness on the world stage and other ways for the urban railways of the Tokyo Metropolitan Area to reach their potential, and we are engaged in efforts to realize that potential.

Note Short for Light Rail Transit. A next-generation rail transit system that offers excellent characteristics derived from the use of light rail vehicles (LRV), improvements to rails or stops—such as ease of getting on and out—punctuality, speediness and passenger comfort.

Figure II-5-3-1

Changes in the Average Rate of Congestion, Transportation Capacity and Passenger Capacity in the Three Major Metropolitan Areas (Index: FY1975 = 100)

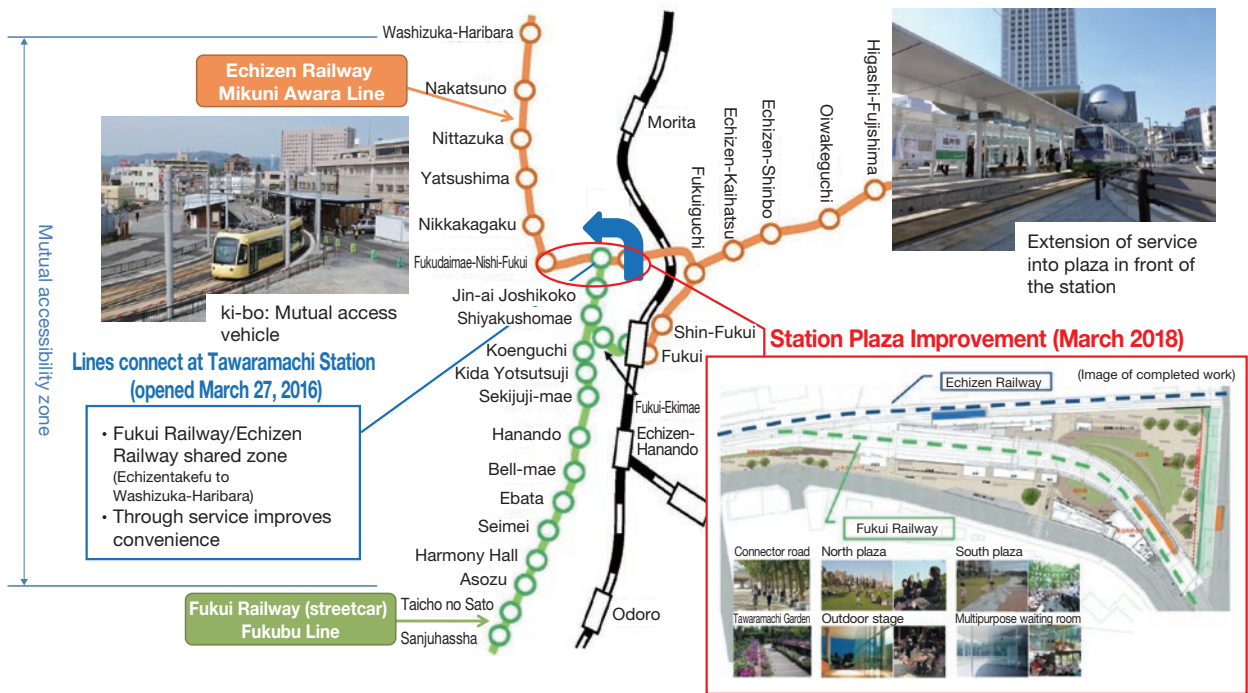


Source) Prepared by the MLIT from "Urban Transport Annual Report" compiled by the Institution for Transport Policy Studies and other relevant literature

(4) Development of Urban Monorails, New Transport Systems, and LRTs

The MLIT promotes the development of LRTs to encourage users' migration to public transportation facilities in order to streamline urban traffic flow, lighten environmental loads, and revitalize central urban areas, while keeping vulnerable road users assured of mobility in this era of aging population and falling birthrates. In FY2017, in Fukui City, the improvement of the plaza in front of Fukui Station that linked the streetcar and railway lines was completed. In many cities, efforts continue to rebuild public transportation networks through initiatives such as making streetcar services universally accessible.

Figure II-5-3-2 Development of Mutual Accessibility/Extension of Service into Plaza in Front of the Railway Station (Fukui City)



Source) Fukui City

(5) Augmenting the Convenience of Bus Usage

The convenience of bus usage has been augmented by improving the punctuality and speediness features of bus services by using a Public Transportation Priority System (PTPS) and bus lanes, introducing bus location systems that provide information about the location of buses in service, and IC card systems that facilitate smooth boarding and disembarking.

Chapter 6 Building Competitive Economy and Society

Section 1 Constructing Traffic Networks

1 Developing Trunk Road Networks

(1) Developing Trunk Road Networks

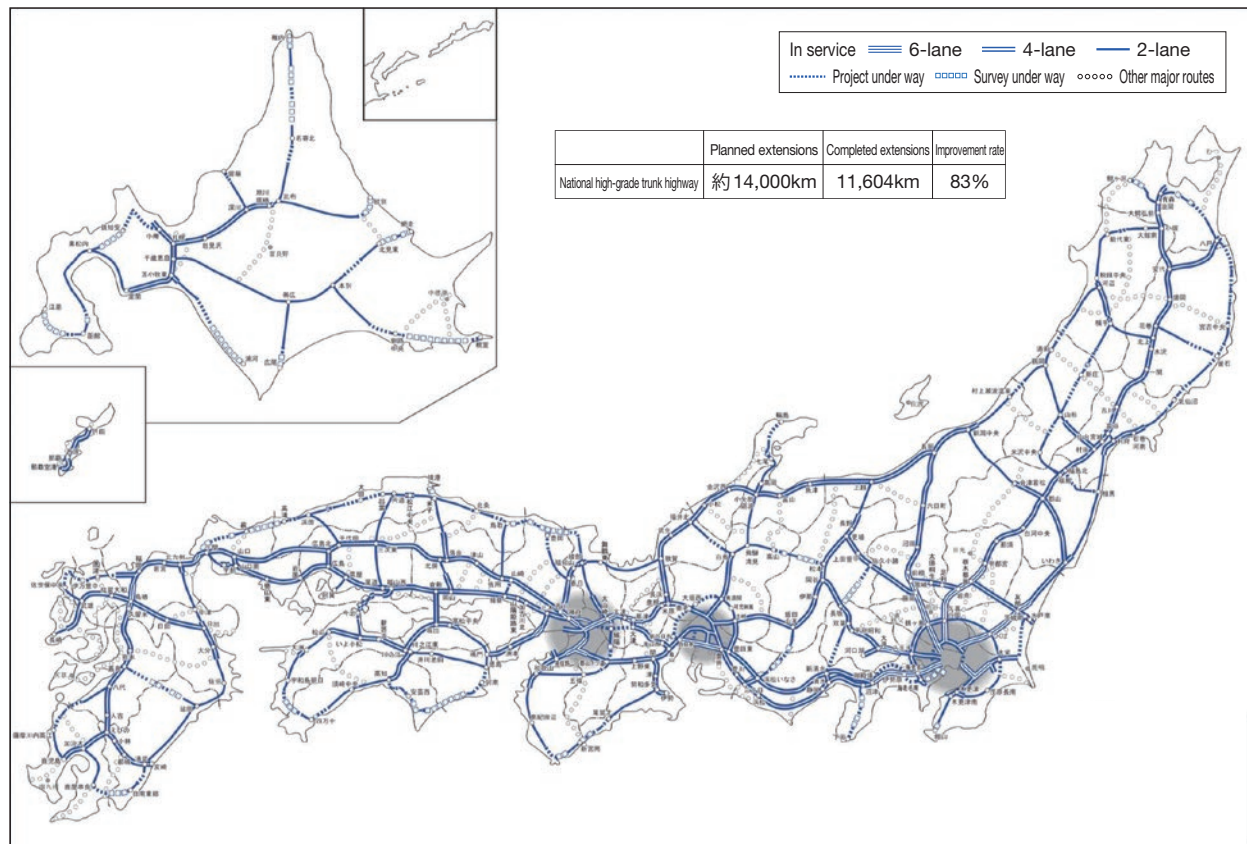
Since the First Five-Year Road Construction Plan formulated in 1954, Japanese highways have been continually constructed. For example, the construction of national highway networks, including expressways, has provided a major impetus in the rejuvenation of regional economies by encouraging plant locations near expressway interchanges. Additionally, it has helped enhance the quality and safety of national life by making broad-area medical services accessible to rural areas and allowing broad rerouting to avoid highway disruption by natural disasters.

Examples are seen in Shin-Meishin Expressway where a total of 44km was connected, including a section between Jyo JCT/IC and Yawata-Kyotanabe JCT/IC opened on April 30, 2017, a section between Takatsuki JCT/IC and Kawanishi IC opened on December 10, 2017, and a section between Kawanishi IC and Kobe JCT opened on March 18, 2018. This development is expected to attract more companies and tourists and have other stock effects.

The MLIT will continue to advance the development of Japan's trunk road network in order to maximize stock effects of this type, with a focus on accelerating development of the metropolitan ring roads that form the core of the nation's logistical networks utilizing the current low interest rate and the Fiscal Investment and Loan Program.

Meanwhile, improvements, including expressways, are being systematically carried out to connect regions that are not yet part of the nationwide highway network.

Figure II-6-1-1 State of Current National High-Grade Trunk Highway Improvement



As of March 31, 2018

Note 1: Names for interchanges and junctions under development include pending names

Note 2: "Other major routes" shown on this map show major roads in the region (including those under development and in-service routes) and not the necessity of or order of priority for individual routes.

Source) MLIT

(2) Promoting Smart Use of the Roads

In the interest of improving productivity and thereby achieving economic growth and improving traffic safety, efforts are under way to make intelligent use of all road network functions by developing necessary networks, as well as improving operations and small-scale enhancements. Electronic toll collection (ETC) 2.0 is one of these efforts, which started full service in August 2015.

(i) ETC 2.0 that supports smart use

With data communication in both ways between about 1,700 roadside units across Japan and vehicles on road, ETC 2.0 compared to the previous version of ETC is capable of:

- Sending and receiving a large volume of data
- Capturing route information, in addition to IC entry/exit data

With these much more advanced functionalities, ETC 2.0 greatly contributes to the promotion of ITS.

(ii) Smart toll system

New expressway tolls were introduced in April 2016 in the Tokyo Metropolitan Area and in June 2017 in the Kinki region. These new tolls have begun to show effects including diversion of traffic to the outer ring roads to deconcentrate the inflow to the city center. We will continue to review these effects.

We have also conducted flexible toll tests at 20 locations nationwide in which vehicles equipped with ETC 2.0 devices were allowed to temporarily exit expressways to use rest facilities while being able to continue to use their original toll

payment without interruption. The intention of this initiative is to eliminate sections of road with no rest facilities or gas stations nearby in order to improve the driving environment.

Figure II-6-1-2

Toll System for Making Intelligent Use of Tokyo Metropolitan Area Expressways (Implemented April 2016)

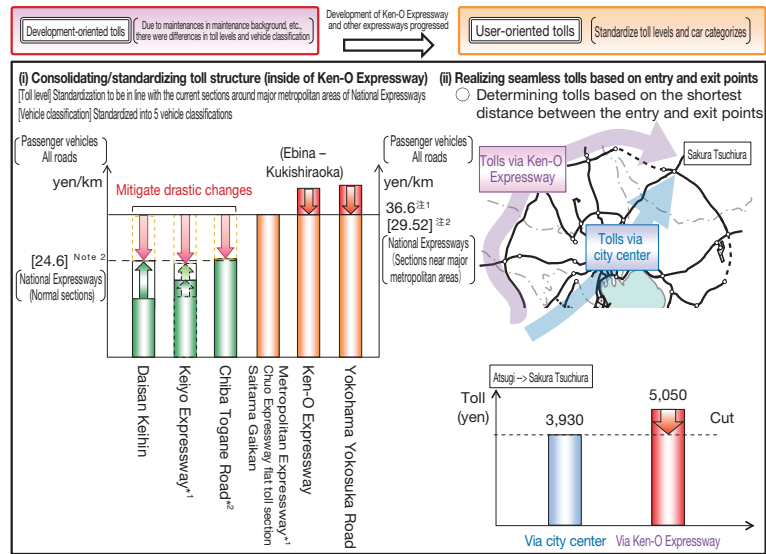
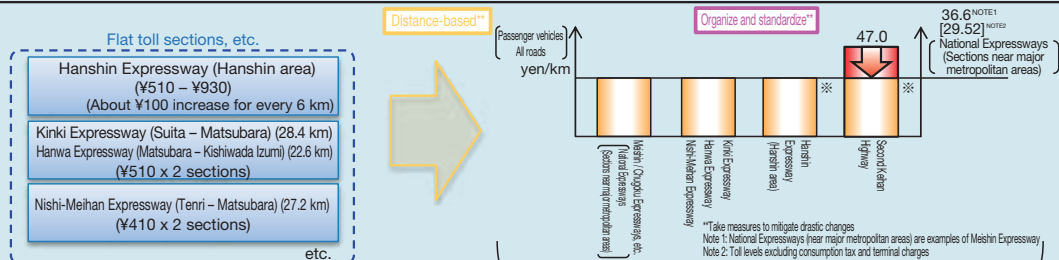


Figure II-6-1-3

Toll System for Making Intelligent Use of the Kinki Region Expressways (Implemented in June 2017)

(1) Consolidating/standardizing toll structure, and network improvement

- (i) Implement a distance-based toll system based on sections running through major cities connected to national expressways, and create five standardized vehicle classifications.
- (ii) In the case of the Hanshin Expressway, in order to secure the necessary funding to improve Yodogawa-Sagan Route extensions and Osaka Wangan Route western extensions in line with local government proposals, a range of initiatives are being taken and the necessary toll rates will be set so as to offset 50% of costs for toll road projects.



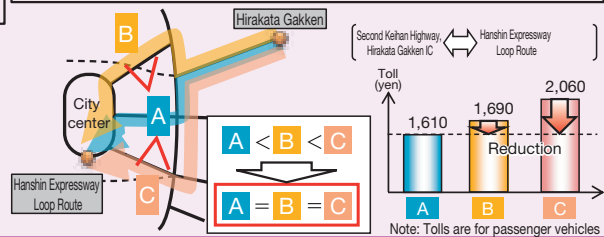
*In order to secure the necessary funding to improve the Yodogawa-Sagan Route and Osaka Wangan Route western extensions, a range of initiatives are being taken and the necessary toll rates are being set in line with local government proposals

(2) Realizing seamless tolls by unifying management bodies

- (iii) Sections on routes that comprise an integrated network with expressway companies and that are managed by local public road corporations, etc., will, in the interest of ensuring practical and efficient management, be centrally managed by expressway companies in accordance with regional aims.

- Osaka Prefectural Road Corporation: Minami-Hanna Toll Road and Sakai Senboku Toll Road
- Abura-Koji Route and Naname-Kuzebashi Interval on the Hanshin Expressway's Kyoto Route
- ➡ Transfer to West Nippon Expressway Company (April 2018)
- Shin-Jujo Dori on the Hanshin Expressway's Kyoto Route
- ➡ Transfers to Kyoto City and becomes toll-free (April 2019)

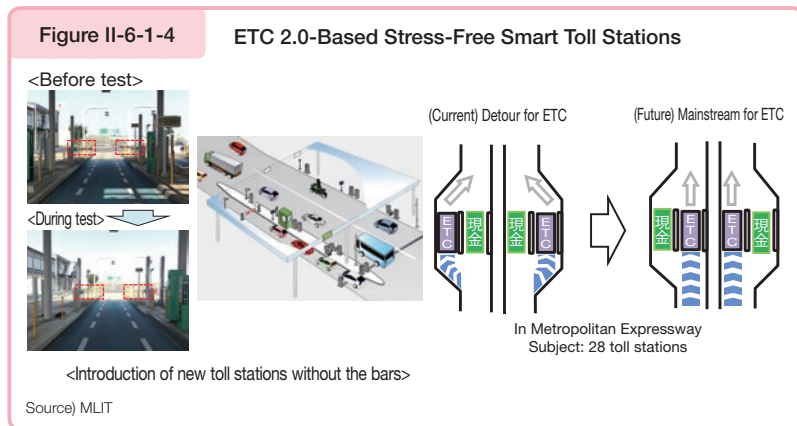
- (iv) In the interest of distributing traffic to address increasing traffic flows to the city centers of Osaka and Kobe, tolls will be determined based on the shortest distance between the entry and exit points, regardless of route.



Source) MLIT

(iii) Smart toll stations

Towards introduction of stress-free smart toll stations based on ETC, we are experimenting with the operation of keeping ETC bars open at Ken-O Expressway toll stations and mainstreaming the use of ETC lanes at Metropolitan Expressway toll stations.



(iv) Smart investments

As part of efforts to achieve maximum effect with the existing networks at minimum cost, we are implementing a specific point congestion measure to identify places where deceleration or traffic congestion occurs from structural factors, such as uphill sections and tunnels, by using detailed deceleration, acceleration, and other big data collected through ETC 2.0 and other means for effective measures. Until now, additional lanes and other features have been implemented within the existing road width at nine locations, including at Yokkaichi Junction on the Higashi-Meihan Expressway. Congestion relief measures are being taken at specific points at 10 locations, such as near the Takasaka SA on the Kan-etsu Expressway.

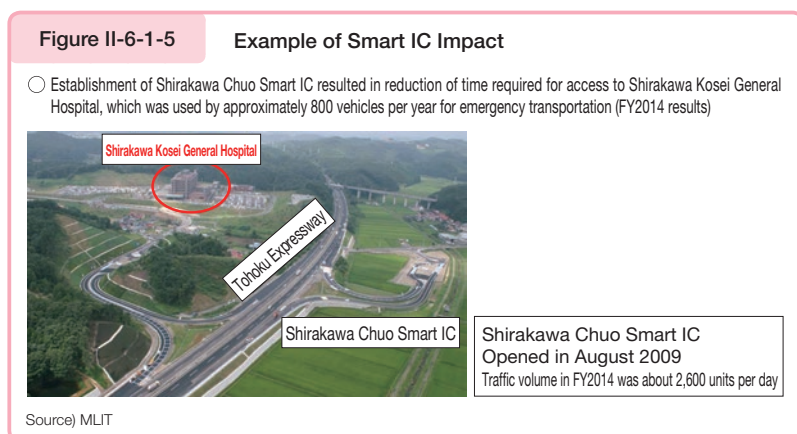
(v) Enhancement of smart functions

Provisional two-lane highways create problems with two-way traffic safety, travel performance, and large-scale disaster response. Therefore, in order to enhance the safety and comfort of drivers and driving performance, a Cabinet Order to Partially Amend the Enforcement Order for the National Expressway Act came in effect on November 18, 2015. In addition, tests projects for the creation of additional lanes to relieve slowing traffic speeds are being conducted on four routes across Japan, and wire rope has been laid across approximately 100 km of road nationwide to test measures for preventing head-on collisions.

(vi) Other initiatives

In order to promote cooperation among local areas, the MLIT is improving accessibility, including direct connections between expressways and facilities. By being flexible in building additional Smart ICs, we are increasing accessibility to the distribution centers and tourism hubs from expressways through the consolidation and sophistication of measures based on the concept of “compact” and “networked” roads and reducing traffic congestion around the existing ICs. In July 2017, we

established concrete rules for a Smart IC system that would directly connect expressways and private-sector facilities. In addition, in order to facilitate the development of these Smart ICs, we will create a new system in which part of the development costs incurred by the private-sector businesses engaged in IC development is provided as interest-free loans, and introduce measures to exempt private-sector businesses from the registration and license tax when they acquire land related to IC development. Based on preparation phase surveys, the national government is implementing the preparation and examination of Smart ICs in systematic and efficient manner in places where necessity is found.



The Council for Traffic Congestion Relief Measures was established in order to institute effective measures for congested areas around the country. In FY2017, we enhanced cooperation between the Council for Traffic Congestion Relief Measures and user groups for buses, trucks and other modes of transportation, and, after identifying areas of congestion based on the perspective of these road users, advanced initiatives towards the implementation of measures that would have a rapid effect.

Advanced traffic assessments targeting developers of commercial facilities and other structures, as well as new initiatives for requesting additional measures after siting, are being planned with the goal of reducing congestion as more people begin to use the land along roads.

In tourist destinations that are prone to traffic congestion across wide areas, we will integrate ETC2.0, a range of sensors and analytic technologies using AI in order to strengthen traffic management that takes fluctuations in space and time into consideration.

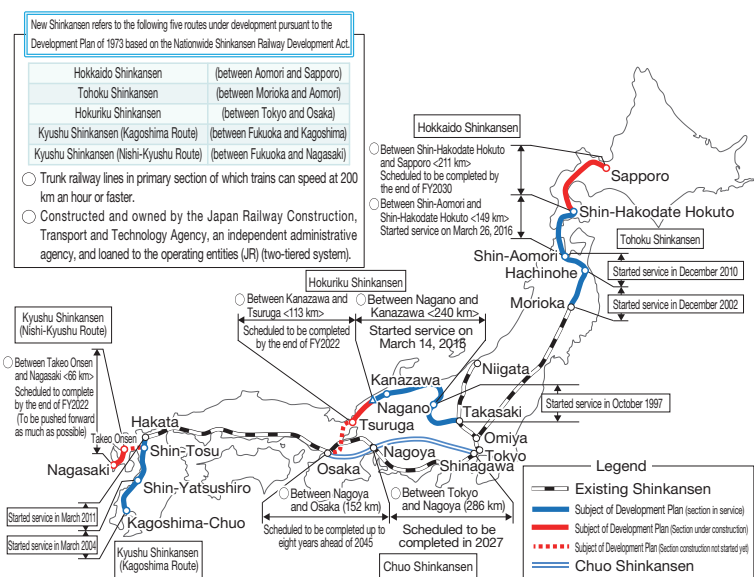
2 Constructing Arterial Railway Networks

(1) Development of Shinkansen Railways

A rapid transit system of vital value to Japan, Shinkansen [bullet train] Lines significantly cut the time spent moving from region to region and help greatly boost regional activities and rejuvenate local economies. Shinkansen Lines feature safety (no record of passenger death accidents since opening of the Tokaido Shinkansen Line in 1964) and eco-friendliness (the railway CO₂ emissions per unit of energy (g-CO₂/passenger-kilometer) being one fifth of aircraft and one sixth of automobiles). With regard to the New Shinkansen routes specified by the Development Plan established in 1973 based on the Nationwide Shinkansen Railway Development Act, since the opening of the Hokuriku Shinkansen (between Takasaki and Nagano) in October 1997, the Tohoku Shinkansen, Kyushu Shinkansen, Hokuriku Shinkansen and Hokkaido Shinkansen have been successively opened.

Steady improvements are being made in preparation to complete and open the Hokkaido Shinkansen line (between Shin-Hakodate Hokuto and Sapporo), the Hokuriku Shinkansen line (between Kanazawa and Tsuruga) and the Kyushu Shinkansen line (between Takeo Onsen and Nagasaki), in accordance with the Handling of New Shinkansen Lines (agreed upon between the government and the ruling party on January 14, 2015). In addition, with respect to the not-yet-commenced Tsuruga to Osaka section of the Hokuriku Shinkansen, in March 2017 the ruling coalition reached a decision to create a route connecting Tsuruga Station, the vicinity of Obama (Higashi-Obama), Kyoto Station, the vicinity of Kyo-tanabe (Matsuiyamate), and Shin-Osaka Station. At present, the Japan Railway Construction, Transport and Technology Agency is conducting detailed surveys (from 2017 to 2018) towards public announcement of stations and routes. Following this announcement, environmental impact assessment procedures will move forward, taking approximately four years. In relation to the securing of financial resources for the development, the ruling coalition will conduct a study during the period of this detailed survey and environmental assessment. In the case of the Nishi-Kyushu route of the Kyushu Shinkansen, the introduction of free-gauge trains is a prerequisite. However, wear marks have been identified on axles following the durability tests that are a necessary condition for the introduction. Because the implementation of countermeasures for this wear will take time, the introduc-

Figure II-6-1-6 Present Status of Nationwide Shinkansen Railway Network



Source) MLIT

tion of the free-gauge trains will be delayed. In addition to this, the cost of the trains is higher than that of standard Shinkansen trains. The operator, JR Kyushu, has therefore expressed the opinion that introduction of the trains will be difficult. As a result, the Kyushu Shinkansen (Nishi-Kyushu Route) Review Committee of the ruling coalition's New Shinkansen Development Promotion Project Team held discussions, and formulated guidelines for future studies in relation to the direction for the development, etc. in September 2017. Based on the contents of these guidelines, we conducted a survey of essential items for studies of the future direction of the development (including cost, investment effect, construction period, and linkage to the Sanyo Shinkansen) for the cases of introduction of free-gauge trains, development for full-specification Shinkansen and development for mini-Shinkansen, and submitted a report to the Kyushu Shinkansen (Nishi-Kyushu Route) Review Committee in March.

Turning to the Hokkaido Shinkansen, we are continuing to advance a study of high-speed operation on sections on which both Shinkansen trains and freight trains operate, seeking to give adequate consideration to the twin functions of high-speed Shinkansen operation and rail freight transportation, while making absolutely certain that safety is ensured. In addition, given that the operator, JR Hokkaido, is currently facing a difficult business situation, we will also give consideration to matters including the status of efforts to contribute to increased profits on the Shin-Aomori to Shin-Hakodate-Hokuto section and the effect of opening the Shin-Hakodate-Hokuto to Sapporo section.

In addition, since FY2017 we have been conducting surveys related to the optimal direction for the trunk rail network. In concrete terms, our efforts include the collection of fundamental data concerning matters including transport density between major cities, research concerning efficient methods of Shinkansen line development, such as development based on single tracks, and research concerning increasing speed on conventional lines and methods of connecting conventional lines to the arterial network.

Turning to the Chuo Shinkansen, the opening of all lines will connect Tokyo and Nagoya in approximately 40 minutes and Tokyo and Osaka in approximately one hour. This will place Japan's three major cities within a traveling time of one hour from each other, and form an immense metropolitan area with a population of 70 million people. In addition to significantly changing Japan's national land structure and increasing the nation's international competitiveness, this development will generate growth potential that will ripple throughout the country, spurring the development of the Japanese economy as a whole. With regard to the opening of the lines, the use of the Fiscal Investment and Loan Program will see the opening of all lines to Osaka, originally scheduled for 2045, brought forward by a maximum of eight years. Revisions were made to the Act on the Japan Railway Construction, Transport and Technology Agency, an Independent Administrative Agency, in 2016, and from November of the same year the Agency commenced the provision of FILP loans to Central Japan Railway Company, the entity responsible for construction. The provision of the entire scheduled 3 trillion yen sum was completed by July last year. At present, in accordance with the Plan for Constructing the Chuo Shinkansen Line Section between Shinagawa and Nagoya Stations (No. 1) and (No. 2) approved by the Minister of Land, Infrastructure, Transport and Tourism, Central Japan Railway Company is proceeding with work including new construction at Shinagawa Station and the construction of tunnels in the Southern Alps, looking towards the opening of the Shinagawa to Nagoya section in 2027.

(2) Driving Technical Development

(i) Superconducting maglev trains

In the area of efforts to develop superconducting maglev trains, based on the basic plan for the technological development of the superconducting magnetically-levitated transport system, development will proceed aiming at the realization of greater maintenance efficiency and increased comfort in already developed technologies.

(ii) Gauge Changeable Train

Based on results of deliberations held by the Gauge Changeable Technological Evaluation Committee in March 2018, development technologies which can contribute to improve durability will proceed aiming at the operation of gauge changeable trains. At the same time, we will drive forward technological development activity meant to address snow hazards (snow and cold resistance) for the sake of greater safety.

3 Constructing Aviation Networks

The Basic Policy Committee, Aviation Group, Transport Policy Council had explored the future directions of Japan's aviation in recurring sessions of discussions since October 2012 and finally came up with a report in June 2014. The report sets forth mid- and long-term directions in the three areas of aviation: laying a firm ground for building an aviation network, building an enhanced aviation network and developing aviation demand, and providing quality aviation and airport services. Based on this direction, we are working on developing specific measures.

(1) Expanding Aviation Networks

(i) Enhancing metropolitan airports functionalities

Enhancing the functions of Tokyo's airports (Tokyo International Airport [Haneda Airport] and Narita International Airport [Narita Airport]) is essential from the perspectives of achieving the targets of 40 million overseas visitors in 2020 and 60 million in 2030 established in the Tourism Vision to support the Future of Japan, strengthening Tokyo's international competitiveness, revitalizing the nation's regions, ensuring the smooth holding of the 2020 Olympic and Paralympic Games, and more. Efforts are now underway to enable the two airports together to achieve arrival and departure capacity at the world's top level (approximately one million per year), rivaling London and New York.

In concrete terms, efforts are being made to increase the arrival and departure capacity for Haneda Airport by approximately 40,000 by 2020, by means of measures including reviewing the flight paths to and from the airport. At present, steady progress is being made in areas including the development of necessary facilities and the establishment of countermeasures for noise and falling objects. In addition to this, we held our fourth series of citizens' information sessions between November 2017 and February 2018, and we will continue in our efforts to provide detailed information and obtain the understanding of citizens. The route selection process for the expansion of the airport's arrival and departure capacity is scheduled for commencement, and will focus on important routes that will allow strategic progress to be made towards the realization of the target numbers of overseas visitors and routes on which demand for direct flights from Japan is high, which will contribute to the strengthening of the nation's international competitiveness.

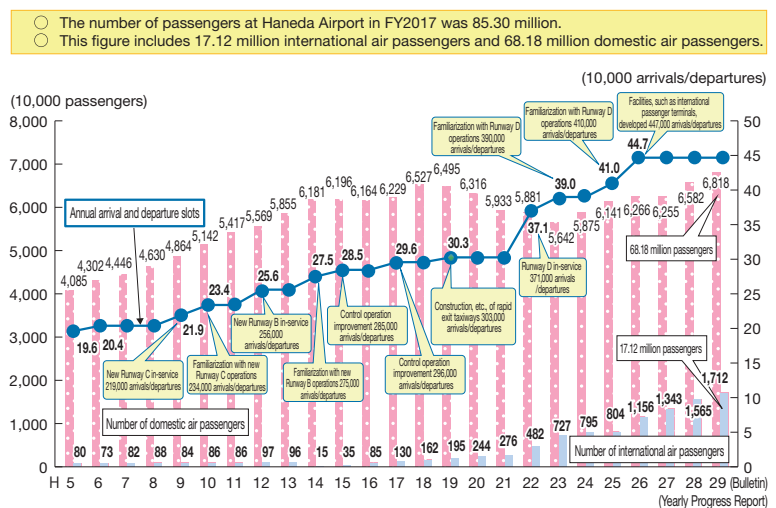
With regard to Narita Airport, in addition to increasing arrival and departure capacity by approximately 40,000 by

Figure II-6-1-7 Overview of Tokyo International Airport



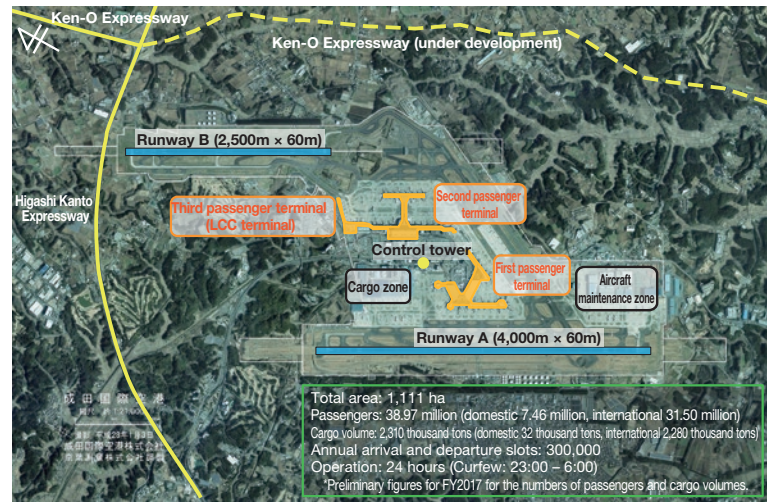
(Source) MLIT

Figure II-6-1-8 Trend in Number of Passengers and Number of Arrivals and Departures at Tokyo International Airport



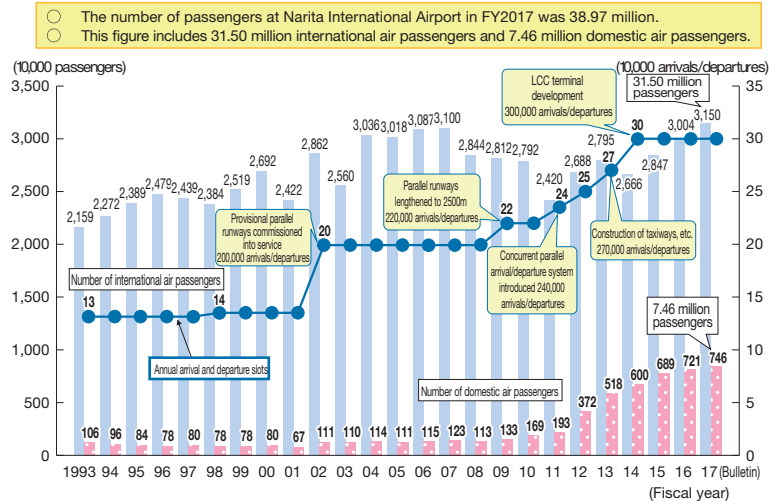
means of initiatives including the construction of high-speed exiting taxiways by 2020, agreement was reached in March 2018 by a four-party council made up of the national government, Chiba Prefecture, surrounding municipalities, and Narita International Airport Corporation regarding the further enhancement of the airport's functions looking beyond 2020, including the development of a third runway and the easing of restrictions on night flights. Based on this agreement, countermeasures for noise and falling objects will be introduced and the establishment of facilities in the surrounding area will be promoted via the Act on State's Financial Special Measures for Improvement of Areas around Narita International Airport, and further functional enhancements will be pushed ahead, increasing the airport's annual arrival and departure slots to 500,000.

Figure II-6-1-9 Overview of Narita International Airport



Source) MLIT

Figure II-6-1-10 Trend in Number of Passengers and Number of Arrivals and Departures at Narita International Airport



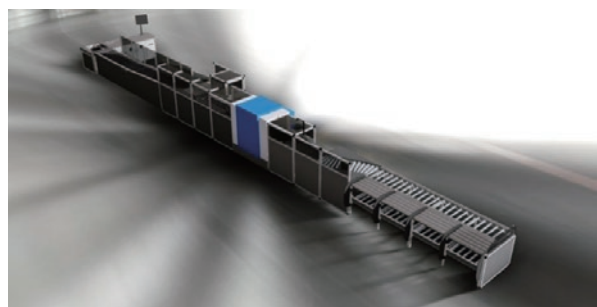
Source) MLIT

(ii) Enhancing functions at Kansai International Airport and Chubu Centrair International Airport

The operation of Kansai International Airport has been contracted to a private-sector operator since April 2016. Kansai Airports Co., Ltd., the airport operator, is applying private sector ingenuity and innovation to the enhancement of the airport's functions; for example, the company introduced walk-through duty-free stores to Terminal 2 (international routes) coinciding with the opening of the dedicated LCC terminal in January 2017, and, following on from Terminal 2, is introducing "smart security" to Terminal 1. In 2017, the number of airport users broke past records, and the number of travelers on international routes topped 20 million for the first time since the airport was opened.

At Chubu Centrair International Airport, the construc-

Figure II-6-1-11 Kansai International Airport Smart Security System Smart Lane



Source) Kansai Airports Co., Ltd.

tion of a dedicated LCC terminal (scheduled to commence operation in the first half of FY2019) is proceeding in order to respond to new LCC services and other flights, and in addition the construction of a commercial facility (scheduled to be opened in summer 2018) adjacent to the airport is being advanced as a business project by the airport operator.

Figure II -6-1-12

Commercial facility “Flight of Dreams,” located adjacent to Chubu Centrair International Airport dedicated LCC terminal



Source) Central Japan International Airport Co., Ltd.

(iii) Enhancing functions at regional airports

For further revitalization of Okinawa at Naha Airport, which plays critical roles as a travel and logistics base connecting Okinawa and mainland Japan/overseas, the project to increase runways was carried out. At Fukuoka Airport, the project to increase runways continued with the aim of fundamentally resolving the issue of chronic airport congestion at peak times. Measures taken at New Chitose Airport include increasing the number of departures and arrivals per hour from 32 to 42 from the end of March 2017. Additionally, in order to relieve facility congestion caused by a sudden increase in international flight passengers, among other factors, and to accommodate greater demand for international flights, development projects are underway to expand the apron for international flights, construct a new taxiway, and improve the functions of the terminal building servicing those flights (CIQ facility). At other regional airports also, initiatives including apron expansions and CIQ facility renovations are being advanced in response to increases in the number of aircraft and the introduction of new flights.

Also, the MLIT has been implementing countermeasures against aging airport facilities based on strategic maintenance to ensure safe flights of airplanes, while pushing forward with quake-resistant technologies and structures at airports so that airports can maintain their operations in the event of an earthquake.

(iv) Driving the Open Skies strategically

The Ministry has strategically pursued the Open Skies^{Note 1}, including a metropolitan airport (Narita Airport), to respond to changes in the competitive climate resulting from global trends towards air services liberalization while accommodating vigorous economic leaps in Asian and other overseas nations. Open Skies with a total of 33 nations and regions^{Note 2} were realized by March 2018. Also, discussions with ASEAN are ongoing with a view to concluding a regional air service agreement between Japan and ASEAN.

(v) Fostering and securing aircraft pilots, etc.

In the Japanese aviation industry, while drastic leaps in the demand for aviation focusing on international lines and massive retirement of pilots in their 40s, who form a primary workforce at present, are predicted in the future.

In response to this situation, in July 2014 the Joint Subcommittee for Studying Crew Policies, established under the Basic Policy Taskforce and Technology and Safety Taskforce of the Transport Policy Council's Aviation Group, compiled a report concerning the orientation for concrete measures to be taken in future. In addition, the formulation of the Tourism Vision to support the Future of Japan in March 2016 set targets of 40 million overseas visitors to Japan in 2020 and 60 million in 2030. Against the background of increased demand for flights, the training and securing of pilots is becoming

Note 1 Refers to the bilateral scrapping of restrictions on the number of companies involved in international air transportation, and on routes and the number of flights, in order to boost the level of service (for example by reducing fares) by means of realizing new entries to the market and increased flight numbers, and promoting competition between companies. Recently, numerous countries have advanced this type of measure.

Note 2 The number of passengers between Japan and these 33 countries represents approximately 96% of the total number of passengers arriving in or departing from Japan.

an increasingly important issue.

Initiatives to secure work-ready pilots include the use of Self-Defense Force pilots, the easing of residency requirements and other measures to allow the use of overseas pilots, and raising the upper age limit for pilots. In addition to this, as initiatives to boost the supply of young pilots, we are planning to expand the training capacity of the Civil Aviation College from 72 to 108 trainees from FY2018 and, also from FY2018, to commence a scholarship program that will provide interest-free loans in order to defray the considerable expenses incurred when receiving training at private sector institutions such as private universities.

Figure II-6-1-13 Age Compositions of Japan's Major Airline Pilots

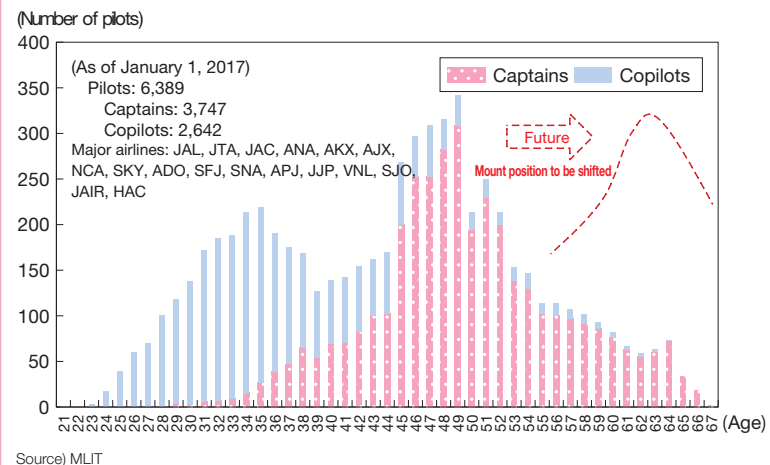
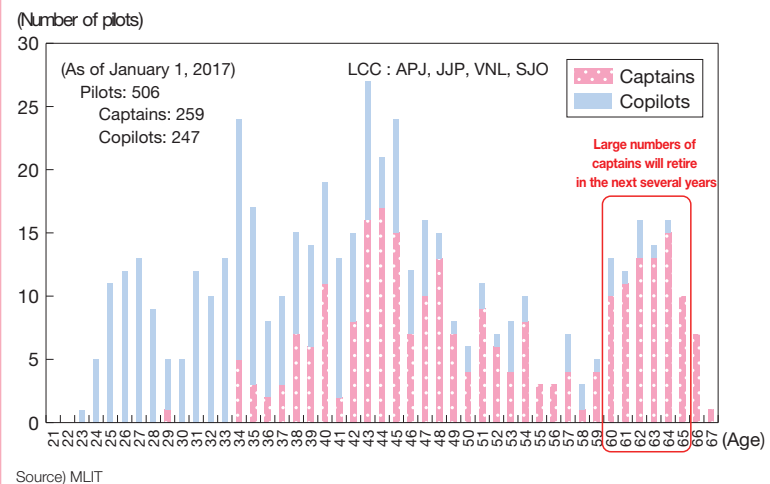


Figure II-6-1-14 Age Compositions of Japan's LCC Pilots



(2) Enhancement and Optimization of Airport Operations

(i) Driving airport management reforms

Using the Act on Operation of National Airports Utilizing Skills of the Private Sector (Private Utilizing Airport Operation Act), the MLIT is committed to driving airport management reforms at national airports and the like to suit specific local conditions through utilization of private-sector capabilities, integrated management of airline and nonairline businesses and so on in order to expand the amount of population who are engaging in domestic and international interactions, etc. on the support of the airports and thus to encourage regional revitalization.

Amid these initiatives, in July 2016, Sendai Airport became the first of Japan's national airports to begin undergoing privatization. Following on from Sendai Airport, procedures are now being advanced for the privatization of Takamatsu Airport, Fukuoka Airport, Kumamoto Airport, seven airports in Hokkaido, and Hiroshima Airport.

(ii) Efforts to achieve sustainable growth for LCCs

An LCC originating from Japan went into service in March 2012. As of January 2018, Peach Aviation operated 15 domestic routes and 14 international routes; JetStar Japan, 17 domestic routes and nine international routes; Vanilla Air, six domestic routes and seven international routes; and Spring Airlines, two domestic routes and four international routes, and Air Asia Japan, one domestic route.

Promoting the entry of LCC is expected to create new demand, for example increasing the number of overseas visitors to Japan and expanding domestic tourism. The government has set a target for LCC passengers to make up 14% of total

passengers on domestic routes and 17% of total passengers on international routes by 2020, and a variety of measures are being put in place nationally and at airports in order to promote the entry of LCC.

Government measures are being studied and implemented based on the following three perspectives: (1) Changing the airport fee structure; (2) Reforming airport management; and (3) Upgrading the environment for receipt of passengers by LCC. With regard to the airport fee structure, in order to promote LCC flights airport usage fees including landing fees are being reduced or reconsidered at Narita International Airport and Kansai International Airport, which are LCC hubs. Since FY2017, measures to provide relief for

landing fees for domestic routes originating at Narita, Kansai or Chubu Centrair International Airports and landing at domestic airports have also been expanded. In addition, in July 2017, 27 airports throughout the country were certified as airports that help encourage travels to Japan, and the government is providing a full range of support, for example by providing support for the introduction of new international routes or the addition of more planes (including by LCC), and upgrading the environment for receiving passengers by LCC. In the area of reform of airport management, initiatives including integrating the operation of runways and other airport facilities with the management of airport buildings by introducing private sector operators will enable the introduction of strategic fee systems and business activities, revitalizing airports utilizing private sector knowledge and funding. Active efforts are being made to realize these benefits, and in FY2017, the necessary procedures for the privatization of Takamatsu Airport, Fukuoka Airport, Kumamoto Airport, seven airports in Hokkaido, and Hiroshima Airport were implemented. In relation to upgrading the environment for receiving passengers by LCC, dedicated LCC terminals are being constructed. The LCC terminal under construction at Chubu Centrair International Airport is scheduled to commence operation in the first half of 2019.

(iii) Accelerating the reception of business jets

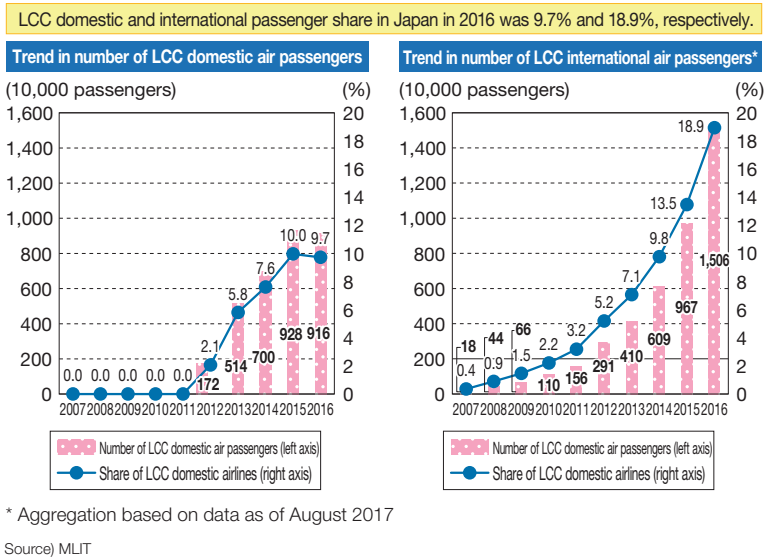
A business jet is a small aircraft with the capacity to hold a few to more than a dozen passengers at the most. Business jets are typically used by businesspersons valuing time because they are able to adjust times according to their schedules or utilize the plane as a secure space to carry on business meetings and such on board.

Business jets have become a means of global corporate activity in the U.S. and Europe. As Japan's economy goes on global, further capitalizing on economic growth in Asia through mainly Tokyo International Airport and Narita International Airport has been an important aim, recent years have seen greater importance placed on winning more affluent passengers and otherwise capturing inbound tourism demand.

As a result, initiatives including the upgrading of facilities, in particular at airports in the Tokyo metropolitan area, in order to improve the environment for acceptance of business jets are being advanced. For example, at Tokyo International Airport, development is proceeding in order to increase the number of aircraft parking spots at the same time as the operation of existing parking spots is being modified in order to realize the maximum possible number of parked aircraft. In addition to this, parking spot information is being made more visible in order to increase convenience for users. Discussions are also being held at Narita Airport towards upgrading the airport's business jet acceptance system, in particular in relation to providing an adequate number of parking spots at the time of the 2020 Olympic and Paralympic Games.

Going forward, we will continue to examine measures aimed at entrenching the use of business jets, including the active provision of information and the easing of regulations related to business jets.

Figure II-6-1-15 Trend in Number of LCC Passengers in Japan



(iv) Promotion of international flight services at regional airports

Enabling visitors to Japan to arrive and depart from regional airports via international flights will be extremely important to realizing the targets of 40 million overseas visitors to Japan in 2020 and 60 million in 2030 set out in the Tourism Vision to support the Future of Japan formulated in March 2016.

In the case of national airports, landing fees for international flights have already been reduced by 30% for regular flights and by 50% for charter flights. In FY2016 a measure was introduced as a cooperative scheme with regional areas seeking to be added to flight routes, under which landing fees are reduced by a further 50% when new routes are created or additional flights are added for international passengers at regional airports. In addition, in July 2017, 27 airports throughout the country were certified as airports that help encourage travels to Japan, and these airports are the target of measures including the reduction of landing and ground handling fees in order to support the introduction of new routes or additional flights, and support for efforts to improve passenger acceptance facilities, such as the upgrading of boarding bridges and CIQ facilities.

(3) Upgrading Our Air Traffic System

In FY2010, air traffic experts from the industrial, academic and governmental sectors formulated a long-term vision for future air traffic systems as CARATS (Collaborative Actions for Renovation of Air Traffic Systems) with a view to realizing a globally interoperable air traffic system and addressing increases in long-term demand for air traffic capacity and diversified needs. Studies are underway to make this vision a reality in conjunction with ICAO's Global Air Navigation Plan (GANP).

As an initiative involving the introduction of new technologies and new methods in order to improve the operational efficiency of aircraft and the service rate in bad weather in FY2017, the high-standard approach method RNP-AR, which employs GPS for precise navigation, was introduced to four airports that do not have ILS or have restrictions on their approach routes due to their runways, geographical location, etc. Also, with the aim of realizing the use of precision landing, which is currently limited to straight lines, we are examining the introduction of the Ground Based Augmentation System (GBAS) to allow for curved lines to improve safety and convenience.

(4) Strategic Promotion of Overseas Aviation Infrastructures

The Asia and Pacific region is expected to grow into the world's largest aviation market before too long. Under these circumstances, important issues for the growth strategy of Japan are not only to contribute to strengthening of the aviation networks in this region, but also to actively capture the impetus of the emerging countries in which numerous aviation projects are in progress.

Early identification of projects is an important factor in winning them, and for this reason a working group has been established to conduct surveys and identify potential airport operation-related projects under the Council for International Deployment of Aviation Infrastructure in which numerous related companies participate, enhancing the system of information collection via public-private partnership.

In FY2017, a contract for the transfer of business rights was concluded (in August 2017) in relation to the refurbishment and operation of the Palau International Airport passenger terminal building on Palau. Sales activities and invitations to key government officials (in FY2017 officials from Vietnam were invited) were among other efforts made in FY2017 in order to seize opportunities and promote the involvement of Japanese enterprises in projects including the refurbishment/operation of the domestic terminal at Khabarovsk Novy Airport in Russia, Long Thanh International Airport in Vietnam, Hanthawaddy International Airport in Myanmar, and New Ulaanbaatar International Airport in Mongolia.

4 Facilitating Traffic Access to Airports

With respect to the rail networks for accessing these airports, efforts have been made to further improve railway access to international hub airports in accordance with the Approaches to Future Urban Railways in the Tokyo Area Report from the Council of Transport Policy, which was put together in April 2016. This includes promoting barrier-free construction at stations providing access to airports, as well as promoting specific discussions between stakeholders regarding project implementing entity, project schemes, and other matters, with the goal of improving access routes to major airports in the Tokyo Metropolitan Area and Kansai International Airport, among others.

In addition, to improve bus access to airports within National Strategic Special Zones, all necessary measures are being taken to ensure greater procedural flexibility, including shortening the time given to submit fare and service schedule plans.

Section 2 Implementing Comprehensive and Integrated Logistics Policies

We are advancing a logistics productivity revolution that seeks to improve the operational efficiency of logistics businesses and increase added value. In addition, logistics policies are being implemented in a comprehensive and integrated manner in coordination with related ministries and agencies and the public and private sectors in accordance with the Comprehensive Logistic Policy Guidelines (FY2017-FY2020).

1 Implementing Logistic Policies to Correspond with Deepening Global Supply Chains

To keep up with deepening global supply chains, efforts directed at reinforcing Japan's international logistic facilities are underway, including driving overseas deployment of the nation's logistic systems.

(1) Promoting Overseas Deployment of Japan's Logistics Systems

As supply chains continue to get globalized at a deeper level than ever, grabbing the evolving Asian markets would be essential to sustaining and enhancing the international competitiveness of Japan's industries. The formation of a sophisticated international logistics system should be of prerequisite importance to meet this urge. Capturing the Asian markets has become an urgent task for Japanese logistics companies that support the business expansion of the nation's industries in Asia.

However, the existence of institutional and customary constraints in the partner countries is posing challenges to Japan in expanding its high-quality logistics systems into Asian nations. Therefore, the MLIT is developing an environment to encourage overseas expansion of Japan's logistics systems in collaboration with the private sector through logistics pilot projects, intergovernmental logistics policy dialogues, support for the development of logistics-related infrastructure, projects for development of human resource, international standardization of logistics systems, and other means.

Column

Realization of AI Terminals

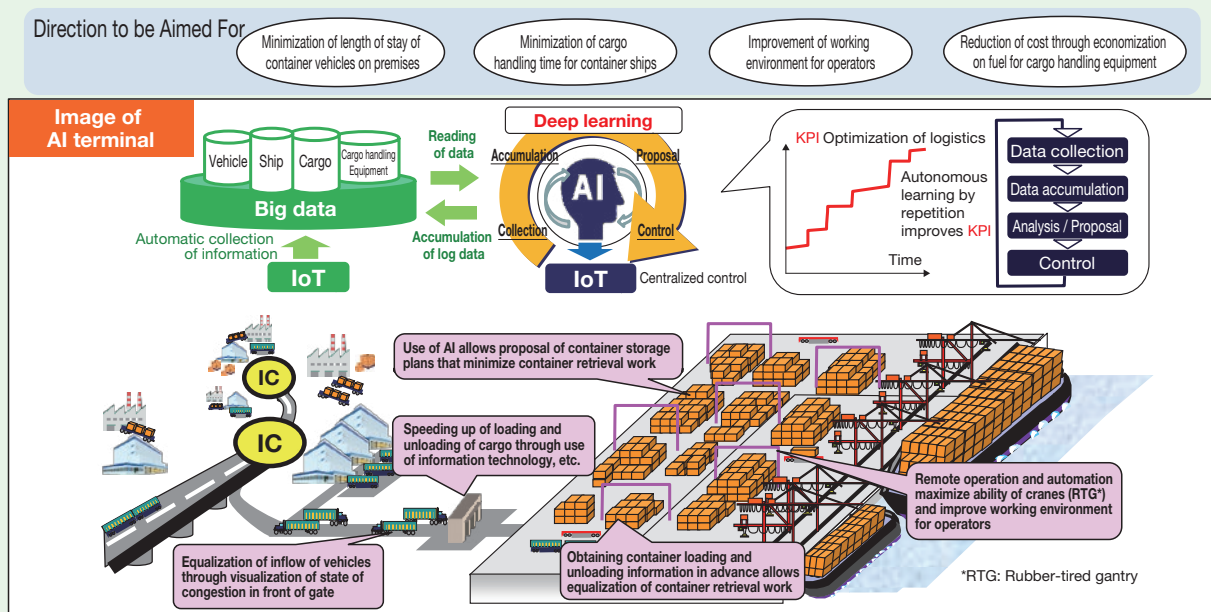
Column

Today, as a result of factors including further increases in the size of container ships and the ongoing restructuring of shipping company alliances, the number of ports of call on international trunk routes is being narrowed down. Against this background, it is essential to stably maintain and expand the international trunk routes that connect Japan to North America and Europe in order to enhance the international competitiveness of Japan’s economy and maintain and create jobs for Japanese citizens. In order to do so, it will be necessary to have Japan’s ports selected as ports of call, and this will necessitate that we increase productivity in our container terminals and ensure with the reliable shipping schedules.

To this end, we are seeking to increase the productivity of container terminals through the realization of “AI terminals,” which incorporate the AI, IoT and automation technologies which are today displaying dizzying progress in order to realize the world’s highest level of productivity and an excellent working environment.

Looking towards the realization of AI terminals, we will commence initiatives including proving trials related to the realization of increased efficiency in or optimization of container terminals operations through the use of AI and other technologies from FY2018. To provide one concrete example: The increasing number of containers to be handled when receiving container-based imports is increasing the frequency of container retrieval work; in response, we are studying a proposal for the use of AI when receiving containers in order to enable the proposal of storage plans that minimize the amount of retrieval work.

In addition, the realization of AI terminals would make it possible to package AI terminal technologies with infrastructure provision for overseas markets. By tapping into the enormous global demand for infrastructure, this could be expected to stimulate investment from Japan’s private sector and realize strong economic growth.



- Packaging of AI terminal technology with infrastructure provision and **deployment in overseas markets** by specified port operating companies and other Japanese companies
- Tapping into enormous global demand for infrastructure will stimulate investment from Japan’s private sector and **realize strong economic growth**

Source) MLIT

(2) Strengthening the Functioning of the International Marine Transportation Network

As the globalization of economy progresses, the volume of international marine transportation continues to grow year to year. From the perspective of optimizing marine transportation through large bundle shipments, container carriers and bulkers continue to grow in size. In the meantime, key Asian ports have successfully increased their volumes of freight handling, resulting in concentrated ports of call, international trunk routes making fewer calls at Japan. Furthermore, slow responses to larger vessels to carry bulk cargo^{Note} raise concerns over diminishing competitiveness in domestic industries forced into a mutually disadvantageous business environment.

In light of such conditions, Japan carries on its effort to streamline the flow of logistics that supports economic activity in Japan and life of citizens, improving the shipping entities at their location at home, which would in turn augment Japan's industrial competitiveness and realize economic reconstruction by maintaining and expanding the calls of international trunk routes at Japanese ports and simplifying and stabilizing imports of lifeblood materials, such as resources and energies.

In parallel with these approaches, efforts to shape an efficient network of marine transportation in which international and domestic transport services are integrated will be carried on, and relevant measures will be enhanced and developed at a deeper level of refinement.

(i) Enhancing the facilities of International Container Hubs

To strengthen Japanese economy's international competitiveness and to maintain and create citizens' employment, the international shipping trunk routes that directly connect Japan to North America, Europe, and other places need to be consistently maintained and even expanded.

For this purpose, the government of Japan chose Hanshin Port and Keihin Port as International Container Hubs in August 2010 to implement a full package of structural and non-structural measures. However, tumultuous change has been the defining feature of conditions surrounding Japanese ports: the size of container vessels are becoming larger and alliance between shipping companies is progressing. Based on these, the government of Japan promotes the policy of International Container Hubs that consists of three measures: (1) "Cargo collection" at International Container Hubs from wide area, (2) "Cargo creation" through industry accumulation behind International Container Hubs, and (3) "Reinforcing the competitiveness" of International Container Hubs by, among other efforts, strengthening the functions of deep-water container terminals, collaborating with port authority and port operating company.

At Hanshin Port, the government of Japan gives "Kobe-Osaka International Port Corporation" – port operating company which is partially invested by the government – subsidy for projects to collect cargo. As a result, the number of international feeder services connecting between Hansin port and ports in western Japan increased about 50%, from 68 to 101 per every week. The container throughput at the port of Kobe in 2017 recorded high.

At Keihin Port, the partially government-funded Yokohama-Kawasaki International Port Corporation has also commenced cargo collection. As a result, the number of international feeder services from ports in eastern Japan has increased by about 50%, from 33 to 48 per week. The effects of this increase are beginning to manifest, for example in the establishment of a new North American trunk route at Yokohama Port in April 2017.

Going forward, we will continue our efforts to realize container terminals ("AI terminals") that bring together AI, the IoT and automation technologies in order to achieve the world's highest level of productivity together with an excellent working environment, focusing even more vigorously on the maintenance and expansion of Japan's international trunk lines.

(ii) Development of an LNG Bunkering Hub

In response to developments such as a tightening of regulations on SO_x in general sea areas after 2020 by the International Maritime Organization (IMO) in October 2016, it is predicted that the number of vessels fueled by LNG (liquid natural gas) will increase, which produces cleaner emissions. The international competitiveness of ports may be largely determined by whether or not it has an LNG bunkering (fuel supply) hub. Japan is the world's largest LNG importer, and already possesses adequate infrastructure, including a large number of LNG bases at its ports. Given this, based on a Memorandum of Understanding signed in April 2017, a joint Singapore-Japan survey was commenced in August of the

Note Generic name for cargoes that are shipped without being packaged, such as grain, iron ore, coal, oil and timber.

same year towards the realization of cooperation with Singapore, which possesses the world's largest fuel oil bunkering base, in promoting the creation of an international network. Going forward, we will continue to cooperate with Singapore, seeking to establish Japan as a pioneering LNG bunkering hub in Asia and increase the number of calls at Japanese ports by containers and other ships.

(iii) Forming a marine transportation network for moving resources, energy sources and so on with stability and efficiency

Supply-demand balances for resources, energy, and so on, assuring Japan of stable, low-cost imports of these substances to build up industrial competitiveness of the nation's industries and to maintain and even create employment and revenues should be one of the tasks of foremost importance as the nation depends on imports for virtually 100% of its requirements.

Ten "strategic international bulk ports" were therefore chosen in May 2011 to serve as bases for resources and energy. In order to enhance the functions of these ports to allow them to serve as marine transport network hubs for bulk freight, the development of quays that can accommodate large vessels and the promotion of cooperative transportation using large vessels through corporate partnerships are being targeted, and both structural and non-structural measures are being taken with the help of subsidies and preferential tax measures.

At present, we are advancing the development of Onahama Port and Tokuyama-Kudamatsu Port as bases for handling coal imports, and Kushiro Port, Mizushima Port and Shibushi Port as bases for handling grain imports, and private sector investment related to our strategic international bulk ports is also becoming increasingly vigorous.

Going forward, we will seek to dramatically increase productivity and strengthen Japan's international competitiveness by means of efficient transportation using large ships and joint transportation involving cooperation between companies.

(iv) Building functionally core ports on the Japan Sea

Among the ports located on the coastal line of the Japan Sea geographically close to the fast economically growing nations across the sea, core ports were selected in November 2011 in an effort to capture the economic booms in these nations into Japan's growth through selection of functions and concentration of measures and through port-to-port linkage and to build a disaster-resistant logistics network following the Great East Japan Earthquake. We will continue to follow up on the progress and other aspects of the plans formulated by port management bodies.

(v) Enhancing functionalities of international ports

The MLIT not only develops international physical distribution terminals, etc. in the international maritime transport network or at regional hub ports for consolidated competitiveness, etc. of local key industries but also pushes efforts directed at enhancing the functionalities of these ports, as by pushing their migration to ICT. To address increasingly sophisticated and diversified needs for East Asian logistics, which is not much different from domestic logistics in both terms of time and distance and build a low-cost logistics system, the Ministry pushes ahead with functional enhancements to unit loading terminals^{Note} and with the construction of facilities designed to smooth the flow of cargo transshipment.

(vi) Developing a marine transportation environment

Among all international backbone routes, those that could interfere with bay navigation because of shallow waters, etc. have been improved and Aids to Navigation have been established to develop a marine transportation environment that combines the safety of navigation with the efficiency of marine transportation.

Note Terminals compatible with transportation systems that consolidate cargoes into chassis, containers, etc. (break them down into units) for loading and unloading, in order to increase the speed and efficiency of logistics.

Column

Towards the Creation of LNG Bunkering Hubs

The stringency of regulations on exhaust gases from ships is today being increased, and it is predicted that the number of ships using clean LNG will increase. The inadequate provision of bunkering hubs able to supply fuel to these LNG-fueled ships is therefore becoming an international issue. Given this, the creation of LNG bunkering hubs could be expected to both promote the use of LNG fuel in ships and increase the number of ships calling at Japanese ports, increasing the productivity of the ports.

Japan is the world's largest importer of LNG and possesses large numbers of LNG bases sited at its ports, giving the nation an advantageous environment for the creation of LNG bunkering hubs. Given this, in addition to proceeding with studies focused on ports such as Yokohama, as has been the case up to the present, we are also taking the initiative in an international effort towards the creation of a network of LNG bunkering hubs that positions cooperation with Singapore, which possesses the world's largest heavy oil bunkering hub, as its central axis.

In October 2016, in an effort to promote the introduction of LNG-fueled ships, a memorandum of understanding (MOU) concerning cooperation in the development of LNG as a maritime fuel was signed by eight representatives of seven countries, including the Port and Harbor Bureau of MLIT and the Maritime and Port authority of Singapore, looking toward the creation of an international network of LNG bunkering bases. In July 2017, a further three representatives of three countries joined the agreement, strengthening international cooperation still more.

In April 2017, the "International Symposium on LNG Bunkering in Yokohama" was co-hosted in Japan by the MLIT and the Ministry of Economy, Trade and Industry. Stakeholders involved in the promotion of LNG bunkering from throughout the world, including shipping companies, energy businesses and port authorities, came together in one place (the symposium had approximately 550 attendees from Japan and internationally) to share their awareness of the direction for efforts to be taken in order to create LNG bunkering hubs and establish an international network.

In addition, the commencement of the "Joint Japan-Singapore LNG Bunkering Survey" was announced at "Singapore & Japan Port Seminar 2017 in Singapore" in August 2017, further accelerating cooperation between the two nations.

In FY2018, we will create a support system for the establishment of the necessary facilities for bunkering hubs, and promote the creation of hubs in Japan. Going forward, while continuing to cooperate with Singapore, Japan will pioneer the creation of LNG bunkering hubs in Asia, and by this means maintain and expand the number of container routes and other shipping routes that call at Japanese ports, increasing the nation's international competitiveness.



Opening greetings from Keiichi Ishii, Minister of Land, Infrastructure, Transport and Tourism, at "Singapore & Japan Port Seminar 2017 in Singapore" (August 28, FY2017)



Simultaneous fueling and cargo handling (Image)



Commemorative photograph of organizers, co-organizers and speakers at international symposium (April 3, 2017)



Discussion between Minister Ishii and Khaw Boon Wan, Singapore's Transport Minister (August 28, FY2017)

Source) MLIT

(3) Developing Advanced Aviation Logistics Facilities to Pursue Increased International Competitiveness

The MLIT pushes efforts to consolidate the functionalities of the metropolitan airports, drive an airfreight hub implementation of Japan's hub airports, such as Kansai International Airport and Chubu International Airport, and simplify the transportation process flow in its bid to positively capture airfreight originating from and arriving in Asia as it promises further leaps.

(4) Improving Logistics for Promoting Exports of Agricultural and Marine Products and Food Products

In 2017, the export value of agriculture, forestry and fisheries products and foodstuffs from Japan was 807.1 billion yen, and 2017 was the fifth consecutive year of increase. Seeking to realize the government's target of an export value of 1 trillion yen for these products in 2019, we are promoting the more widespread use of technologies and equipment that will prevent damage during transportation and maintain freshness, conducting research and development of a new type of refrigerated container for air transport that is suited to the needs of air transportation from regional production areas, and the initiative for the international standardization of cold chain logistics services.

(5) Strategic Development and Utilization of a Logistically-Important Road Networks

Building an efficient logistics network is of crucial importance to motor-truck transportation, which accounts for about 90% of domestic transportation. Because of this, the construction of ring roads in the three major metropolitan areas, access roads to airports and ports is underway. In March 2018 the Road Act and other laws were revised in order to ensure stable transportation during both normal periods and natural disasters. The Minister of Land, Infrastructure Transport and Tourism designated the most important road transport network for logistics as "Logistically-Important Roads," and created a "Logistically-Important Road System" to enhance functions including strengthening the structure of roads to respond to the increasing size of trucks and speeding up the opening and restoration of roads following disasters and to provide priority support. In addition, we are steadily pushing forward with initiatives using ETC 2.0, such as the simplification of the special vehicle passage permit for vehicles with ETC 2.0 and a demonstration experiment of the operation management support services for ETC 2.0 vehicles. In another initiative, a strategy to save labor in truck transport and improve productivity saw the November 2016 launch of a demonstration project for double-trailer trucks (trucks able to transport the equivalent of two large trucks in a single unit) in the field, primarily on the Shin-Tomei Expressway. The aim is to realize fully-fledged introduction of these trucks in FY2018. Efforts are also underway to effectively utilize and enhance the functions of existing road networks, for example by promoting the use of a smart IC system that directly connects expressways and private-sector facilities, and continuing to construct smart ICs.

(6) Measures That Help Strengthening of International Logistics Facilities

The MLIT will push the development and redevelopment of physical distribution sites and facilities around international ports, etc., which are nodal areas for international physical distribution in metropolitan zones. They will also undertake

this at the ports that are the strongpoints of physical distribution and industry. This will be done to build up international competitiveness and form an efficient network of physical distribution as an integral part of urban environment improvement activity, while also seeking better disaster preparedness to deal with massive disasters as they occur.

2 Measures Aimed at Building an Efficient and Sustainable Logistics System in Japan

Additional approaches are underway to build an efficient and sustainable logistics system at home to toughen Japan's industrial competitiveness and increase logistics productivity while easing environmental loads.

(1) Flow of Interregional Logistics

The MLIT proceeds to develop nodal points of logistics, such as ports and freight stations, to drive combined multi-modal transportation. Cargo transportation by rail can be used more efficiently by utilizing the facilities that have been developed to increase capacities of cargo transportation by rail. The construction of combined multimodal transport terminals is also being proceeded at Toyo Port and elsewhere to consolidate coordination between marine transportation and other modes of transport.

Key road networks will also be constructed to streamline the flow of truck transportation.

(2) Optimizing Local Logistics in Cities, Depopulated and Other Areas

Urban distribution centers^{Note} have been developed in 20 cities and 29 locations (27 of which were already in service) by the end of March 2017, in accordance with the Act on the Improvement of Urban Distribution Centers, to enhance the urban functions of logistics and streamline road traffic through the intensive location of distribution facilities.

To prevent roadside parking for cargo handling purposes, the Ministry has encouraged local governments to include the mandatory installation of parking spaces for cargo handling in their municipal parking ordinances. As of the end of March 2017, municipal ordinances that stipulate mandatory installation of parking spaces for cargo handling at commercial facilities of above certain size were established in 88 cities.

In addition, we have publicized a handbook concerning the design and operation of buildings that take logistics into consideration in order to promote design of large buildings that consider logistics, and we are promoting its use.

Measures taken to optimize traffic flow include making focused attempts at eliminating congestion bottleneck points, constructing graded intersections, and resolving railway crossings that are closed at nearly all times. In parallel, nonstructural measures, such as those aimed at encouraging joint transportation and delivery pursuant to the Low Carbon City Promotion Act to boost loading efficiency, have been promoted.

Furthermore, while the number of people having difficulty in daily shopping is increasing in depopulated and other areas, the logistics efficiency is on the decline. Therefore, a model project on achieving sustainable logistics was conducted in FY2015 that has led to the accumulation and spreading of practical expertise with respect to problems and solutions that have been brought to light.

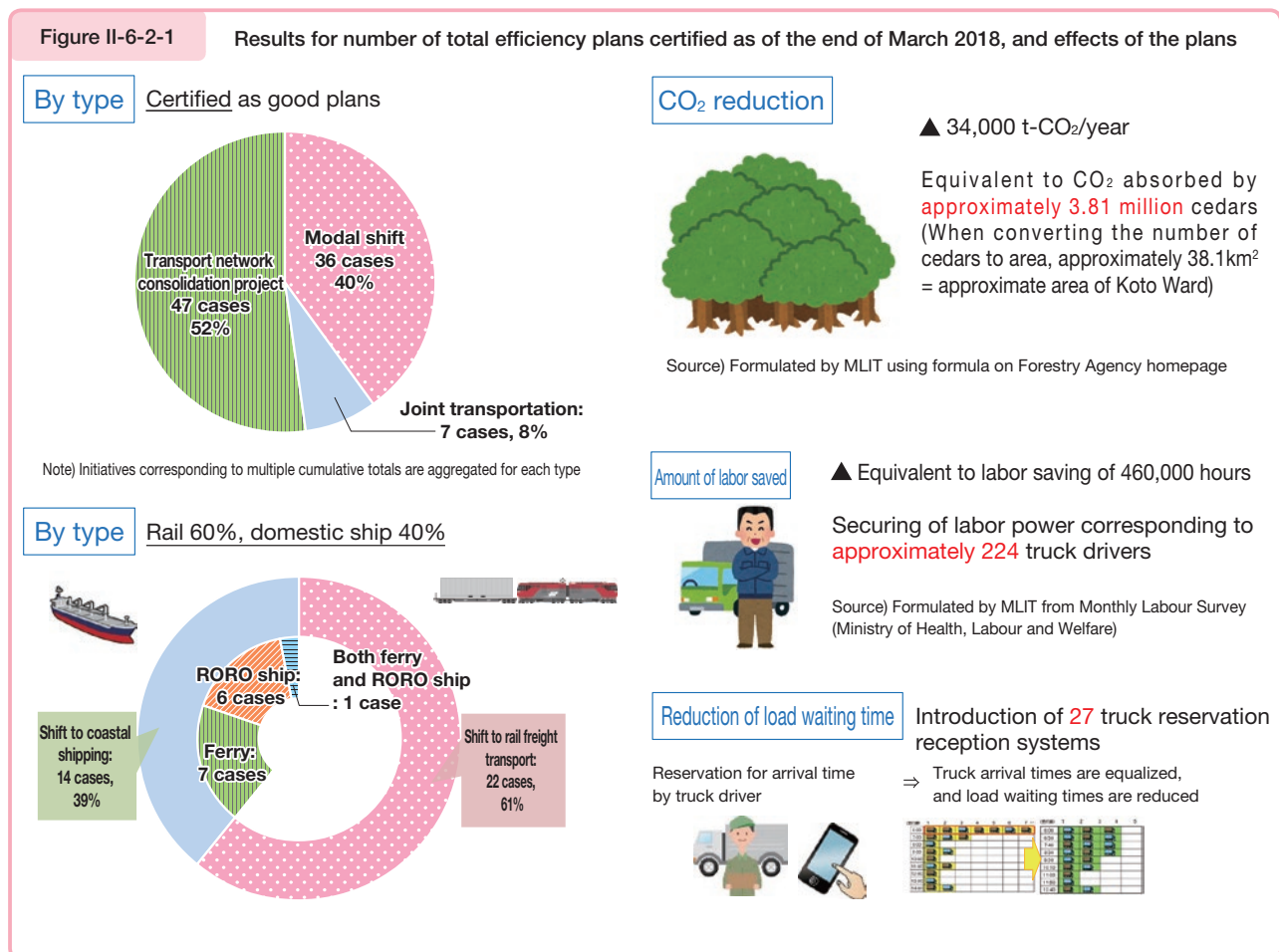
In order to ensure the sustainability of human movement and logistics services in depopulated areas, etc., the system was revised in August 2017 to enable passenger transportation and cargo transportation businesses to perform each other's duties under specific conditions.

The Panel for Reducing Redeliveries through the Promotion of Greater Parcel Receiving Method Diversity, a body made up of representatives of delivery businesses, mail order businesses, and other companies involved in the industry, issued a report in September 2015. We are working to reduce redeliveries in accordance with the findings of this report. For example, in cooperation with the Ministry of the Environment and the Ministry of Economy, Trade and Industry, MLIT is conducting the "COOL CHOICE Campaign -Why Not Receive Packages For The First Time" to increase awareness of reducing redelivery of courier delivery items. We are also cooperating with the Ministry of the Environment to promote the more widespread use of open-type delivery lockers. In addition, we are conducting a pilot program in a public-private partnership where we have installed delivery lockers at a specific core Michi-no-eki in the region to seek potential of these lockers as a scheme of reducing redeliveries in rural areas.

Note A built-up area constructed in a suitable location, such as close to an expressway interchange, as a large-scale logistics hub, and featuring intensive siting of logistics-related facilities (truck terminals, warehouses, etc.)

(3) Further Efforts to Implement Logistic Services That Are More Sophisticated, Comprehensive, and Efficient

In response to a declining labor force and a rising volume of frequent, small-lot deliveries in the logistics sector, efforts are underway to economize on labor in logistics businesses and reduce their environmental impact. The Act to Amend the Act on Advancement of Integration and Streamlining of Distribution Business seeks to support wide-ranging logistics integration and streamlining efforts conducted via collaboration between companies and organizations involved in the sector. The Act has certified and provided support (subsidization of operating expenses, etc., introduction of preferential taxation measures, etc.) for a total of 81 (as of March 31, 2018) integration and streamlining plans that detail initiatives in areas including joint transportation, modal shifts, and the consolidation of transport networks using warehouses equipped with truck scheduling systems and other software. In addition to this initiative, we are also advancing the harmonization of physical quantities by means of cooperation between logistics companies, shippers and others, and increasing the efficiency of loading and facilitating cooperation between businesses through measures including standardization of packaging and data usage.



(4) Realizing a “Logistics Revolution” through the Use of New Technologies (the IoT, BD, AI, etc.)

The utilization of new technologies in the field of logistics will turn current approaches on their heads and bring about revolutionary changes.

Unmanned aircraft (i.e. drones, etc.) have the potential to be used for transporting cargo to remote islands, depopulated rural areas and urban areas, and for transport when natural disasters occur. However, when applied to logistics, they must be capable of performing complex processes accurately and safely while flying outside of visual range. These include flying to their delivery destinations and taking off and landing when loading and unloading cargo. The development of a logistics drone port system, which will enable unmanned aircraft to take off and land safely and autonomously even when outside of the operator’s visual range, was therefore commenced in FY2016. In September 2017, the system was used in a cargo delivery trial in which an unmanned aircraft transported goods from a Michi-no-eki to an aged care home in

Ina, Nagano Prefecture. This initiative exemplifies current efforts to make cargo delivery via unmanned aircraft a reality.

The operation of unmanned convoy trucks can be expected to have a significant effect in increasing productivity, for example by alleviating the shortage of drivers. Given this, we are making efforts in areas including technological development, and as one initiative, we have commenced proving trials of manned convoy operation on the Shin-Tomei Expressway from January 2018.

(5) Reform of Work Styles in the Field of Logistics

Against the background of a falling birthrate and an aging and declining population, the aging of the workforce is also affecting the field of logistics, in particular the trucking and coastal cargo transportation industries, making measures to respond to large-scale retirement and the difficulty of securing human resources in the face of the decline of the productive-age population an ongoing necessity.

The Liaison Committee among Relevant Ministries and Agencies on the Reform of Work Styles in the Motor Carrier Industry was formed with a view towards the establishment of an environment allowing correction of the issue of long working hours in the trucking industry, and has compiled a list of 63 measures for immediate implementation.

With regard to the coastal shipping industry, measures, such as improving the onboard living and working environments, are being advanced to promote the employment of young seafarers.

Column

Efforts to reduce Redelivery by Home Delivery Services

Factors including the diversification of Japan's lifestyles are seeing e-commerce sales increase year by year. According to a survey by the Ministry of Economy, Trade and Industry, the industry reached a scale of 15.1 trillion yen in 2016, having grown approximately 1.8-fold in the preceding five years. As a result, the number of deliveries handled by home delivery services is also increasing year by year. In FY2012, approximately 3.5 billion items were handled; this figure had risen to more than 4 billion in FY2016. At the same time, the shortage of truck drivers, who ensure that items actually arrive, is intensifying, and the workforce is aging.

Against this background, the rate of redeliveries of home-delivered items has increased to approximately 15.5%. According to estimates conducted by the MLIT in 2015, the time expended on redelivery has risen to 180 million hours. If this is converted into labor power, it corresponds to the labor power of approximately 90,000 drivers for a year. Reducing the amount of redeliveries is an urgent task if we are to steadily ensure the realization of sustainable home delivery services as the shortage of drivers becomes increasingly visible. In addition, the MLIT estimates that these redeliveries are responsible for the emission of approximately 420,000 tons of CO₂ per year, making it essential to consider responses from the environmental perspective also.

In order to respond to this issue, the MLIT is encouraging the use of an application that makes it easy to change details such as the date on which you can receive an item from your smartphone, by means of initiatives including the "COOL CHOICE Campaign-Why Not Receive Packages For The First Time?," which promotes a movement to reduce deliveries, conducted in cooperation with the Ministry of the Environment and the Ministry of Economy, Trade and Industry. In addition, as a new initiative to promote the further diversification and increased convenience of methods of receiving deliveries, in cooperation with the Ministry of the Environment, we are supporting the installation of open-type delivery lockers, able to be used by multiple home delivery businesses and members of the public, in public spaces in stations, convenience stores, etc., providing a further option for receiving deliveries in addition to the offices of home delivery businesses and convenience store.



Source) MLIT

Seeking to ensure the sustainability of highly convenient delivery services and increase convenience even further, the MLIT will continue to cooperate with home delivery businesses and other stakeholders towards reducing the amount of redeliveries of home-delivered items.

Section 3 Reactivating Industries

1 Trends in Railway Industries and Measures

(1) Railway Business

(i) Trends and measures in the railway business

The number of railway passengers carried in FY2016 increased from its year earlier level. At Japan Railway, transportation on the Shinkansen increased and as did transportation on conventional railway lines, with transportation on private railways on the increase, too.

In FY2016, the annual volume (tons) and distance (kilometers) of railway freight increased from the previous fiscal year for container freight, while carload freight slightly decreased.

The railway operators are working on such initiatives as presenting guidance information in multiple languages, showing route and station names along with their alphanumeric notation and offering free public wireless services in order to enhance railway competitiveness, increase convenience in coordination with livelihood services and be better prepared in receiving inbound foreign tourists.

Additionally, traffic IC cards continue to gain growing popularity across the nation since their pioneer “Suica” was launched by JR East in 2001. Since March 2013, 10 kinds of traffic IC cards used by JR and major private railways and the like have been made interoperable. As IC cards penetrate more railway operators and areas, they could help improve passenger convenience and reactivate regional economies.

(ii) Initiatives towards the complete privatization of Japan Railways

Japan’s national railways were once operated as a centrally-managed organization run under a state-owned corporation. Improper business management and a failure to account for actual conditions in the areas of service led to high levels of long-term debt and eventual bankruptcy. This led to the division and privatization of Japanese National Railways in April 1987 and a rebirth of the rail business in Japan. April 2017 marked 30 years since the formation of the JR companies.

The breakup and privatization of Japanese National Railways resulted in the formation of a system characterized by efficient and responsible management. This led to a dramatic increase in the comfort and reliability of rail services as a whole. On the management front also, the anticipated goal of reform of Japanese National Railways is being fulfilled, for example with Kyushu Railway Company becoming a fully private entity following on from East Japan Railway Company, West Japan Railway Company, and Central Japan Railway Company.

At the same time, however, Hokkaido Railway Company, Shikoku Railway Company, and Japan Freight Railway Company have not yet reached the stage at which they are able to post sufficiently stable profits to enable them to be listed on the stock exchange, and the government is also providing each company with a variety of support to enable them to achieve business independence, for example providing assistance with capital investment and offering interest-free loans.

Of these companies, Hokkaido Railway Company in particular is facing a difficult business situation. The company has announced that sections of its routes will be difficult to maintain independently, and has commenced holding explanatory meetings and discussions with regional stakeholders regarding subjects including the status of specific sections, and the best direction for the realization of more efficient and convenient transportation services, depending on the specific region. For its part, the national government is working closely with the Hokkaido Government Office, actively taking part in regional discussions between stakeholders and providing support for initiatives towards the building of traffic systems in rural areas that will be sustainable into the future.

(2) Rolling Stock Industry

The production value of newly manufactured rolling stocks moved flatwise for domestic shipment and varied depending on the status of orders for overseas shipment. The production value in FY2016 stood at 160.1 billion yen (1,761 cars). The composition ratio of production value is 88.8% (142.2 billion yen) for domestic shipment and 11.2% (17.9 billion yen) for overseas shipment, the former declining by 2.8% over FY2015 and the latter declining by 49.2% over FY2015.

The production value of rolling stock parts (such as power generators and bogies) was 326.1 billion yen and that of signal protection devices (such as automatic train control devices and electrical interlocking devices) was 100.6 billion yen.

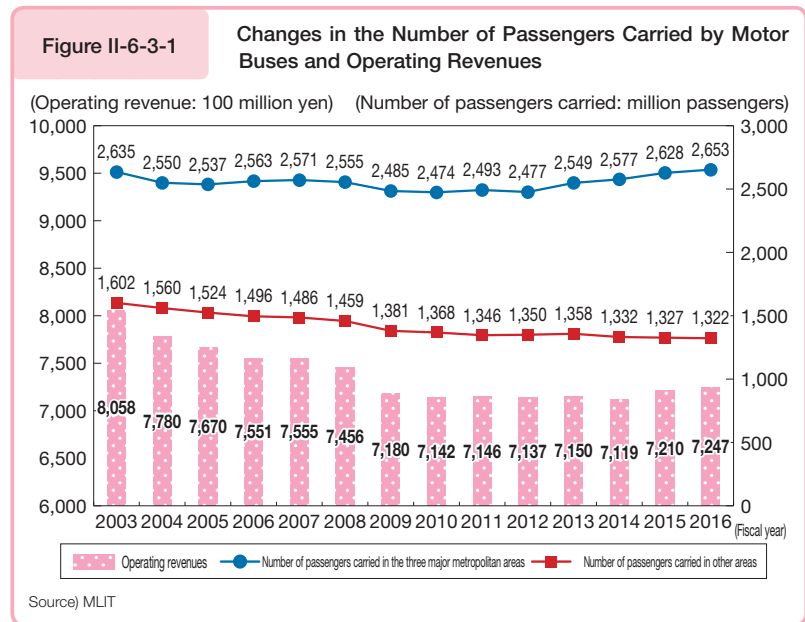
Rolling stock manufacturers and others are working to develop rolling stocks that fill diverse social needs, such as speed, safety, passenger comfort, low noise and being barrier-free, by partnering with railway operators and also to set up and even expand local production bases and maintenance bases in the U.S., U.K. and elsewhere with the recent of orders for overseas projects as an impetus.

2 Trends in Motor Truck Transport Business and Measures

(1) Passenger Vehicle Transport Business

(i) Motor bus business

While motor buses in major cities in which populations have increased have seen slight increases in passenger volume and revenues, factors that include increasing ownership of private vehicles in rural areas continue to push down the demand for public transport. The climate surrounding the motor bus business remains extremely harsh.



(ii) Chartered bus business

Since deregulations in February 2000, the chartered bus business has sponsored low-cost, diversified bus tours in its effort to deliver better user services, but competition is stiffening with increase in the population of operators in play. Meanwhile, chartered bus industry conditions are improving: Despite a previous downward trend for transport revenues due to developments such as smaller group sizes for group tours and lower prices for travel packages, revenue growth is now being seen as a result of factors that include new fares and costs systems being implemented that properly factor in safety costs and the increasing number of foreign travelers visiting Japan.

The Committee of Experts to Investigate Measures in Response to the Ski Bus Accident in Karuizawa put together comprehensive measures in response to the Karuizawa ski bus accident that occurred in January 2016. Based on these measures, efforts are being made to ensure safe and secure chartered bus services that include strengthening rules for charter bus operators.

(iii) Taxi business

In the taxi business, the Act on Special Measures Concerning the Optimization and Revitalization of the General Passenger Car Transportation Business in Specified and Semi-Specified Areas was put into effect in January 2014 in order to, among other things, improve working conditions for drivers while providing better taxi services.

Pursuant to provisions of the law, the MLIT has designated 27 specified areas and 114 semi-specified areas, working to improve taxi business productivity by making efforts to rectify the current oversupply and stimulate demand.

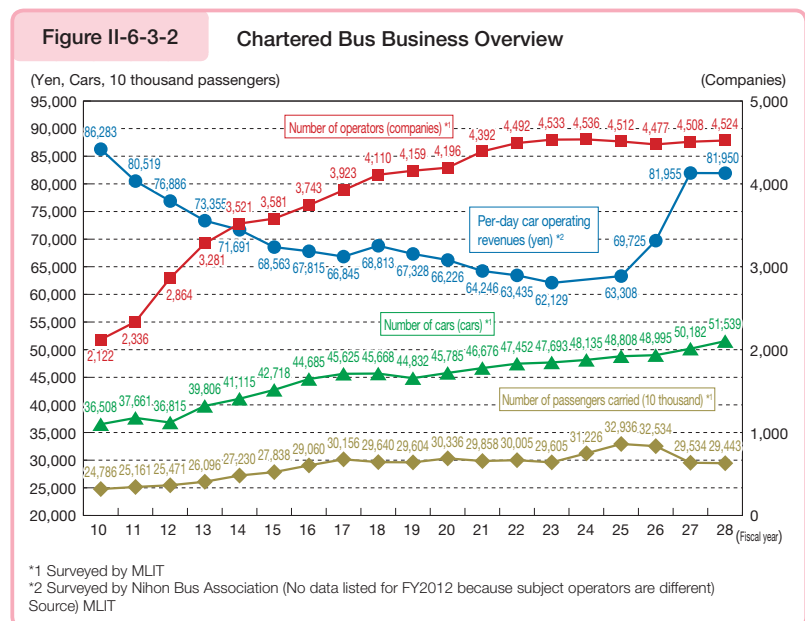
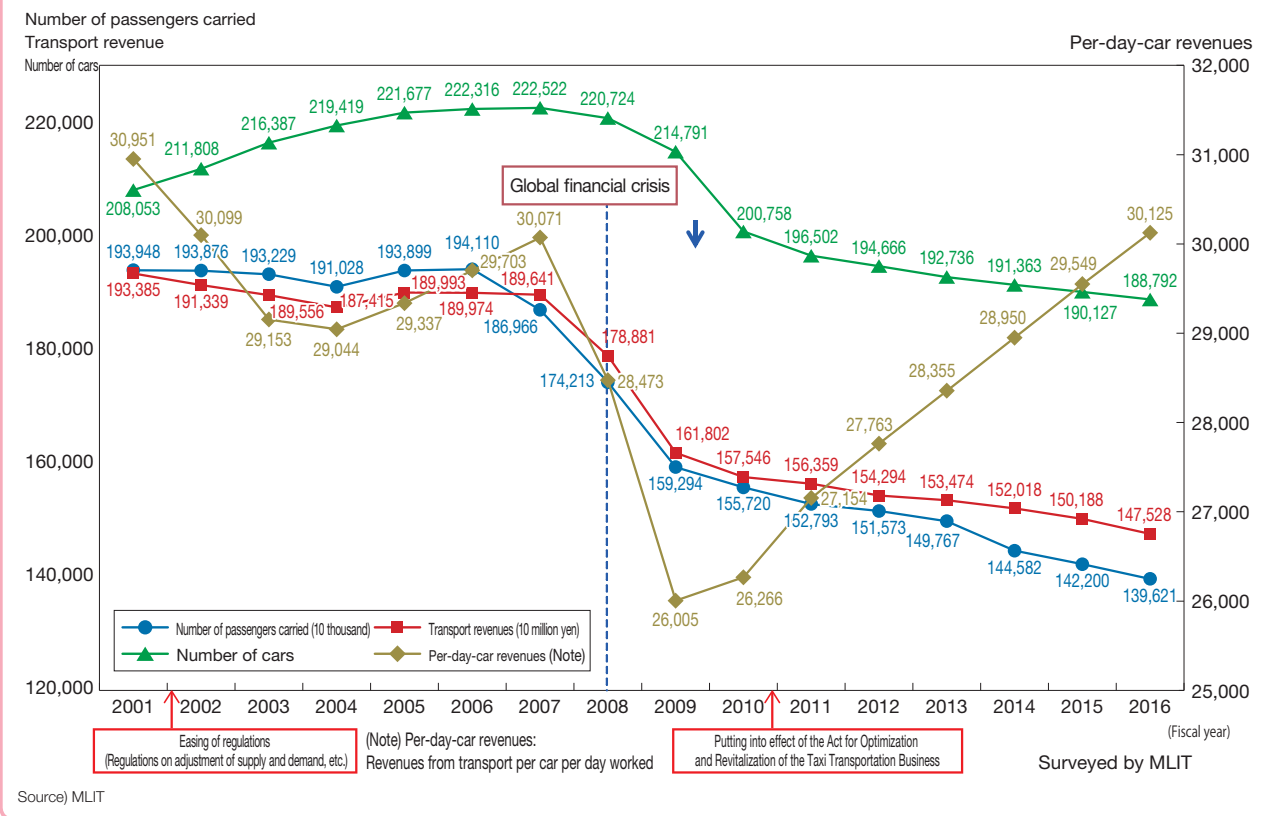


Figure II-6-3-3 Developments in Per Day-Vehicle Reviews of Hires and Taxes



(2) Replacement Driver Service

The replacement driver service is used as an alternate means of transport for drunken drivers. As of the end of December 2017, 8,850 replacement driver service providers are in operation. Keen to add to further soundness of the replacement driver service, the MLIT has formulated “Measures for Making the Replacement Driver Service More Sound for Added Safety and Security” in collaboration with the National Police Agency in March 2012 as part of its continuing effort to drive various relevant measures. Furthermore, the MLIT developed “measures to address issues concerning user protection toward appropriate operation of replacement driver services” in March 2016 in order to further ensure protection of users in replacement driver service, and these measures were implemented from April 2016.

(3) Truck Transport Business

The number of motor truck carriers had been on the rise for long, but the number of carriers has been moving crabwise at about 63,000 since 2008.

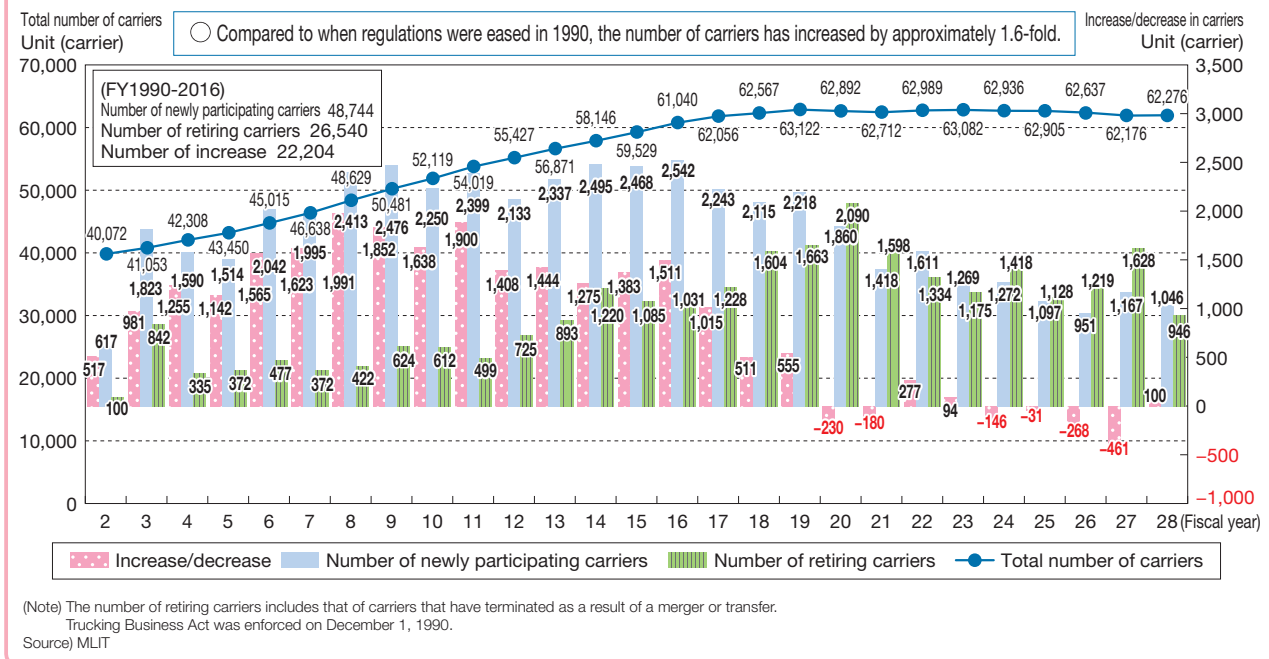
Because 99% of truck transport business operators are small and medium-sized businesses, they face issues such as being forced to accept long waiting times due to the circumstances of shippers, resulting in long working hours for drivers, and being in a weak position in relation to shippers and thus unable to demand appropriate fares. Therefore, in July 2017, in an attempt to understand the actual status of waiting times in order to reduce them, a measure was introduced obliging trucking business operators to record waiting times occurring at due to the circumstances of shippers. In other initiatives, the shipper recommendation system used when shippers have been involved in violations of laws and regulations by trucking businesses has been revised in order to increase its effectiveness, and a new approach to the operation of the system has been adopted; for example, the standards for judgment of the involvement of shippers have been clarified, and action is demanded from shippers at an early stage. In addition, as part of a framework devised by a council that has been meeting since FY2015, a pilot program was conducted in FY2016 seeking to shorten the currently long working hours of truck drivers through efforts that include decreasing standby time by means of collaboration between shippers and truck transport business operators. At the same time, an Investigative Commission for Proper Trucking Industry Fares and Fees has been established, and has begun holding discussions aimed at ensuring that the appropriate fares and fees are received.

In order to clarify the scope of “fares,” the compensation for transportation, and “fees,” the compensation for services other than transportation, the standard truck freight transportation contract was revised in August 2017, and the revision went into effect on November 4 of the same year.

Efforts have also been made toward improving business terms for truck transport business operators and conducting projects that seek to improve productivity.

As changing working arrangements is important to make working in the truck transport industry more attractive, efforts will continue to carry out these policies on a comprehensive scale.

Figure II-6-3-4 Trends in the Number of Motor Truck Carriers



(4) Securing and Fostering Bearers of Motor Carrier Businesses, etc.

Motor carrier businesses that undertake the movement of people and goods (trucking, bus and taxi businesses, and automotive maintenance business that contributes to safety assurance in these businesses) are a social infrastructural industry of vital importance to sustaining Japan’s economy and means of regional transportation.

A look into the employment structure of the motor carrier businesses, however, suggests that the workforce more or less depends on middle-aged and elderly workers, with female workers accounting only for about 2%. If this condition lasts, a serious shortage of bearers of these businesses is feared to occur in the future.

Because of this, motor carrier businesses (trucking, bus and taxi businesses), the Liaison Committee among Relevant Ministries and Agencies on the Reform of Work Styles in the Motor Carrier Industry, chaired by Deputy Chief Cabinet Secretary Kotaro Nogami, was launched in 2017, and is cooperating with related ministries and agencies to promote appropriate measures.

With regard to trucks, along with addressing issues concerning and carrying out policies aimed at driving a wider adoption of and achieving the practical application of relay transport, we are working on measures to secure bearers by, for example, disseminating information about the license for quasi-medium-size trucks program, enhancing information dissemination and awareness of business managers, leveraging “Female Truck Driver Promotion Project Site.”

The bus industry is advertising the job of bus driver as a choice for employment, and is creating flyers and leaflets targeting young female jobseekers. Bus companies are also working to recruit and train more bus drivers by creating recruiting and training handbooks.

In the taxi industry, June 2016 saw the launch of the Female Driver Support Enterprise certification program, which seeks to get and keep more women in the taxi workforce by supporting and advertising efforts aimed at improving female

driver employment and by businesses trying to make it easier for women with children to continue working.

In the automotive maintenance industry, public and private entities are working together to conduct PR and improve the perception of being a maintenance mechanic among women and younger people by means of initiatives including visiting high schools and putting up posters. In addition to this, based on the results of a survey of the actual status of the working environment and conditions for mechanics conducted by a panel of experts, further measures tailored to business type, size, etc. are being planned and initiatives pushed ahead in collaboration with industry stakeholders. In December 2017, Guidelines to Facilitate the Involvement of Female Workers in the Automotive Maintenance Industry were formulated and announced. Seminars focusing on securing human resources are also being held for the operators of automotive maintenance businesses in order to promote the securing and fostering of human resources in the industry.

Figure II-6-3-5 Employment Structure of the Motor Carrier Businesses, etc.

	Bus	Taxi	Truck	Automotive maintenance	Total industry average
Number of drivers and maintenance technicians	130,000 (FY2015)	340,000 (FY2015)	830,000 (2017)	400,000 (2017)	—
Female ratio	1.7% (FY2016)	2.7% (FY2016)	2.4% (2017)	1.4% (2017)	43.8% (2017)
Average age	49.8 (2017)	59.3 (2017)	47.8 (2017)	45.0 (2017)	42.5 (2017)
Working hours	210 hours (2017)	189 hours (2017)	217 hours (2017)	187 hours (2017)	178 hours (2017)
Annual income	JPY 4.57 million (2017)	JPY 3.32 million (2017)	JPY 4.54 million (2017)	JPY 4.27 million (2017)	JPY 4.91 million (2017)

(Notes) 1 Number of drivers and maintenance technicians: Figures for buses and taxis based on Road Transport Bureau survey
 2 The ratio of female in automotive maintenance is that for second level automotive mechanics.
 3 Figures for working hours were estimated by the MLIT's Road Transport Bureau from scheduled hours worked + nonscheduled hours worked in the Basic Survey on Wage Structure. Scheduled working hours indicate the number of hours actually worked during the hours from start time and finish time on scheduled work days in June each year as stipulated in employment rules or other such documents of the business office. Nonscheduled working hours indicate the number of hours actually worked outside the scheduled working hours and the number of hours actually worked on prescribed days off.
 4 Annual income is the figures estimated by the MLIT's Road Transport Bureau from regular salary paid in cash x 12 + annual bonuses and other special salary in the Basic Survey on Wage Structure. Regular salary paid in cash means six-months' worth of salary paid in cash (before deducting income tax, social insurance premiums, etc.) and includes base salary, rank allowance, attendance allowance, commuting allowance, family allowance, overtime allowance and the like. Annual bonuses and other special salary means the amount of bonuses and special salary such as fiscal year-end special allowance paid during the January-December period of the year preceding the survey year.
 (Source) Prepared by the MLIT's Road Transport Bureau from Labor Force Survey by the Ministry of Internal Affairs and Communications, Basic Survey on Wage Structure by the Health, Labour and Welfare Ministry, Japan's Bus Service by the Nihon Bus Association and Hire-Taxi Year Book by the Japan Federation of Hire-Taxi Associations, and Automotive Maintenance White Paper by the Japan Automobile Service Promotion Association.

3 Trends in Maritime Industries and Measures

(1) Achieving Stable Marine Transportation

(i) Achieving Japanese-flagged vessels and Japanese seafarers

As Japan is a nation with limited resources surrounded by the sea in all its sides, international shipping, which depends on 99.6% of the Japan's trade, plays a significant role in ensuring the country's economic security. As such, even in times of emergency, it is critical to maintain a sufficient number of Japanese vessels and Japanese mariners to eliminate jurisdictional competition with the country of vessel registry, and these numbers have been in decline as a result of weakened cost competitiveness brought about by a yen that has appreciated since the Plaza Accord.

To address this situation, a tonnage tax system^{Note} went into effect in FY2009 for Japanese vessels owned by Japanese overseas ship operators who have been certified under the Japanese-flagged Vessels and Japanese Seafarers Securing Plan in accordance with the Marine Transportation Law. In FY2013, the system sought to supplement the number of Japanese vessels by expanding the scope of the system to vessels that are owned by the foreign subsidiaries of Japanese overseas vessel operators and that have taken measures to be flagged as Japanese-flagged vessels when navigation orders are given (referred to as Deemed-Japanese-flagged vessels). These efforts are helping to increase the number of Japanese vessels and mariners.

Furthermore, as a move to promote the more rapid achievement of stable marine transport, the Revised Marine Transportation Law and Mariners Act went into effect in October 2017. Among other things, this law allows foreign vessels that are owned by the foreign subsidiaries of Japanese vessel owners to be added to the list of Deemed-Japanese-flagged vessels if the vessels satisfy certain conditions. With this as a precondition, a new standard tonnage tax system will be launched in FY2018.

These initiatives aim to stabilize the marine transport business in Japan as quickly as possible.

Note A tax system in which the amount of corporate tax is calculated in relation to a fixed deemed profit based on the tonnage of the company's ships rather than annual profit. This system has been introduced by major shipping nations throughout the world.

(ii) Acquiring and fostering seafarers (Seamen)

Acquiring and fostering Japanese ship's seafarers, human resources of marine transportation, is of essential importance to boosting Japan's economy and maintaining and upgrading national life. The ratio of coastal shipping seafarers aged 60 or older is increasing, but the number of young seafarers is also on the increase, in part as an effect of public-private efforts to secure young seafarers. However, it is also essential to secure and foster an adequate number of young seafarers in the future. In response, efforts are underway to expand employment opportunities for new seafarers. One such effort involves strengthening the system for supplying seafarers, for example by diversifying the avenues by which seafarers are able to find employment through measures including providing support for conducting short-term training courses for individuals who have not graduated from a mariner training institute, and offering direct invitations to culinary schools to participate in company briefing sessions. Another effort involves supporting business operators that systematically employ and foster new seafarers.

On the other hand, a certain number of ocean-going Japanese sailors need to be secured and fostered from economic security and other perspectives. Therefore, we are making efforts to secure Japanese seafarers, including steady implementation of the plan to secure Japanese vessels and seafarers.

As Asian seafarers account for a greater proportion of the total seafarers aboard Japanese merchant fleet, training aimed at improving the skills of mariner's instructors in the developing nations has been conducted to help secure and foster more capable Asian seafarers.

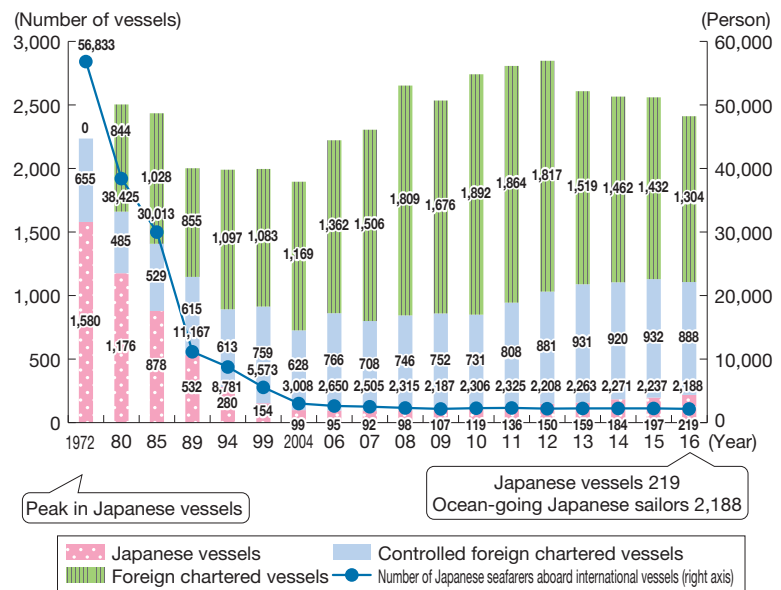
Japan agency of Maritime Education and Training for Seafarers (JMETS) is Maritime Education and Training institutions over which the MLIT holds jurisdiction. JMETS is the largest Maritime Education and Training institute in Japan. It provides education and training for newcomers, practical training according to needs of shipping companies, and on board training for students of maritime universities and colleges of technology.

Going forward, JMETS is steadily pushing forward the securing and fostering young seafarers by advancing training contents and making the best use of its resources.

In addition to these efforts to secure and foster seafarers, continued efforts will be directed at promoting On-board Occupational Health and Safety Management System and Work Improvement on Board (WIB), a continual approach to reducing seafarers accidents to add to the vocational charms of the job of being a seafarer.

Figure II-6-3-6

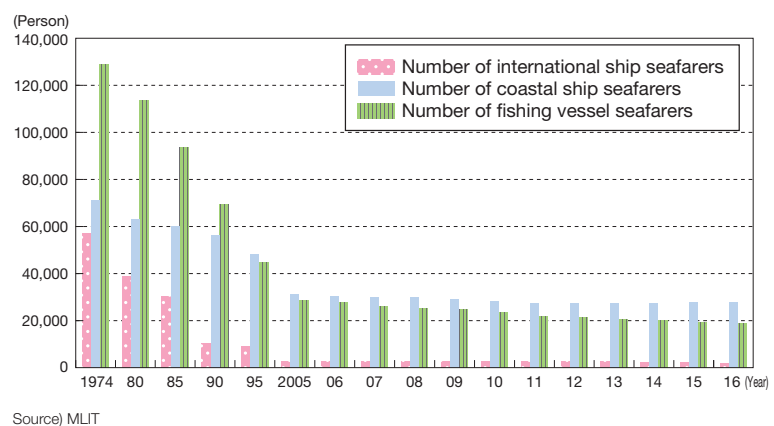
Trend in Number of Japanese Seafarers Aboard International Vessels, Japanese Merchant Fleet



Source) MLIT

Figure II-6-3-7

Changes in the Number of Japanese Seafarers



Source) MLIT

(iii) Promotion of the understanding of ocean by the public

While achieving stable marine transportation is crucial in supporting the Japanese economy and national life, the understanding of sea by the public is not necessarily sufficient. To this end, the MLIT is working with local governments, businesses, related groups, schools, boards of education, and other organizations to promote the understanding by the public -young people in particular- on maritime affairs through initiatives that include a variety of events such as the Sea-Festa (held in Kobe City in 2017) in Ocean Month, which centers on Marine Day, and commending those who have been instrumental in helping Japan to grow into a maritime nation (Prime Minister's Commendation). In addition, we worked on "The Ocean and Japan Project" throughout the year.

Further to this, maritime education programs for elementary and secondary school education have been created in response to the fact that the description of the importance of the oceans and maritime affairs has been enhanced in the Ministry of Education's curriculum guidelines for elementary and junior high schools (revised in March 2017). Going forward, we will further strengthen cooperation between regional transportation bureaus/related organizations and Boards of Education, etc. working to realize maritime education with a focus on elementary and junior high schools that is firmly based on the particular characteristics of specific regions.

(2) Marine Transportation Industry

(i) International shipping

The volume of cargo movement on ocean in the world for 2016 stood at 11.091 billion tons (up 2.7% year-on-year) with Japan's volume of seaborne trade for the same year at 0.93522 billion tons (down 1.2% year-on-year).

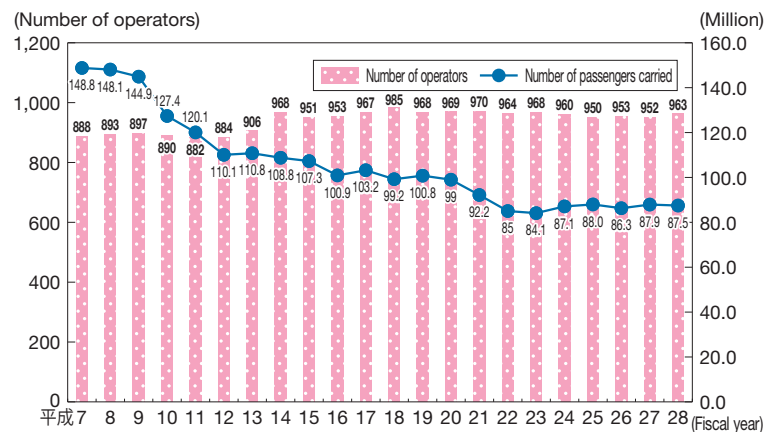
Despite an improvement in the business environment for the international shipping sector as a result of factors including a moderate economic recovery and a decline in fuel oil prices centering on the US and China from the second half of the previous year, overall, international shipping business conditions were severe in FY2017 due to a historically low level of shipping fares.

(ii) Domestic passenger shipping business

Domestic passenger shipping business demand was 87 million passengers (0.5% down from the previous year) in FY2016. The trend is downward on a long-term basis attributable to changes in Japan's demographic structure, among other factors. Fuel prices are recently stable, but business environment is still in difficult situation. The domestic passenger shipping business plays an important role as a means to transport people and daily commodities from region to region, and holds promise as a way to increase tourism among those interested in maritime scenery and other opportunities. The ferry business has modal shift potential and serves a key role in providing transport after natural disasters occur.

This has prompted the MLIT to provide support for the construction of highly energy-efficient vessels through preferential tax measures and a joint shipbuilding program administrated by the Japan Railway Construction, Transport and Technology Agency. In addition, in order to further promote modal shift in shipping, we have established the "Council for the Promotion of Maritime Modal Shift" in November 2017, made up of RORO ship, container ship and ferry operators, in addition to actors including consigned freight forwarding businesses, trucking businesses, shipper, and the authorities, and the council is proceeding with discussions towards the creation of a creation of centralized search system for operating information on modal shift ships and the establishment of a new award, the "Maritime Modal Shift Award (tentative name)."

Figure II-6-3-8 Trends in the Number of Domestic Passenger Ship Operators and Number of Passengers Carried



(Notes) 1 Sum total for general passenger liner routes, specified passenger liner routes and passenger non-liner routes
2 Number of operators as of April 1 of each year (as of August 1 for 1965-1969)
Source) MLIT

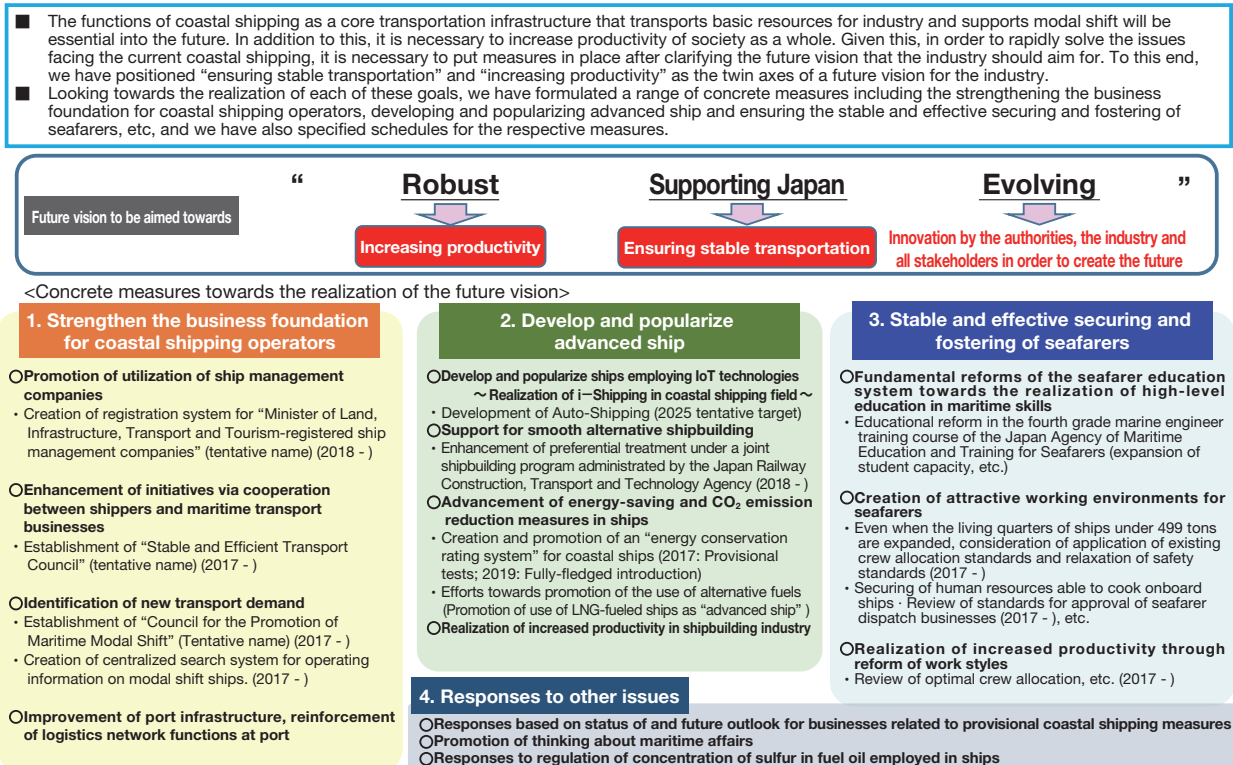
At the same time, the MLIT is supporting the development of new tourism-related services under the “Model Zones for Boat Travel Revitalization” system, which was launched in April 2016 (18 zones had been established as of the end of March 2018). In addition, the “Project for Emergency Measures to Develop the Environment for Receiving Foreign Tourists Visiting Japan” is advancing necessary measures to increase convenience for overseas visitors, for example by supporting the establishment of free public wireless LAN environments and the use of multiple languages on information signs, etc.

(iii) Coastal shipping

The coastal shipping volume in FY2016 was 180.4 billion ton-km. Although recent years have not seen any significant decline, the long-term view trends downward for transport demand for industrial base materials, in particular, due to factors that include a stagnant domestic economy, intensifying international competition, and business mergers among shippers. Coastal shipping accounts for 44% of domestic logistics and roughly 80% of industrial basic materials transport, and constitutes a core transport infrastructure supporting Japan’s economy and the lifestyles of its people. Along with ferry transport, it is a key element for achieving modal shift. However, overage vessels comprise 70% of all domestic vessels at sea and more than 50% of seafarers are 50 or older. This “dual aging” of vessels and seafarers presents a systematic problem.

In response to these issues, the “Panel to Consider Future Measures for Coastal Shipping Revitalization” was established in April 2016, and commenced discussing directions for measures to promote development of coastal shipping that ensure the sustainable provision of safe, high-quality transport services. In June 2017, the panel compiled the “Plan for the Future Creation of Coastal Shipping” as a new industrial policy. As a future vision for the coastal shipping, the plan positions “ensuring stable transportation” and “increasing productivity” as its twin axes, and sets out concrete measures towards the realization of these goals, including strengthening the business foundation for coastal shipping operators, developing and popularizing advanced ship and ensuring the stable and effective securing and fostering of seafarers, etc.

Figure II-6-3-9 Future vision and concrete measures specified by the “Plan for the Future Creation of Coastal Shipping”



Source) MLIT

(iv) Port and harbor transportation business

The port and harbor transportation business plays a significant role as an interconnecting node between marine sea and land transportation in support of Japan's economy and national life. As of the end of March 2017, there were 865 transporters (0.3% down from the previous year) in the general port and harbor transportation business at the 93 ports nationwide that are governed by the Port and Harbor Transportation Business Act. Vessel loading and unloading volumes for FY2016 were approximately 1.4 billion 1,128 million tons nationwide (up 0.9% from the previous year).

(3) Shipbuilding Industry

(i) Present status of the shipbuilding industry

Japan's shipbuilding industry is an extremely important industry that contributes to regional economy and employment by providing a stable supply of quality vessels tailored to ship owner's varied needs. Japan possesses a clustered integration of maritime industries in which the marine transport business, shipbuilding business and ship machinery business are closely linked to one another.

In the shipbuilding industry, due to factors including the improvement of conditions for competition as a result of the correction of the excessive appreciation of the yen since the end of FY2012, the market for high-performance, high-quality Japanese vessels demonstrated a recovery, with order volume in Japan increasing for three consecutive years. However, in 2016, the volume of orders received by Japan dropped precipitously, linked to a decline in the global order volume as a result of the effect of factors including worsening of the maritime shipping market and an excess of freight space.

The 2017 domestic construction volume was 13.17 million gross tons (versus 67.63 million gross tons globally), giving Japan 19.5% of the global market (a 0% year-over-year increase). The manufacture of ship machinery products for 2016 was valued at 975.7 billion yen (down approximately 4.5% year-over-year), with an export amount of 387 billion yen (up about 9.8% year-over-year).

Figure II-6-3-10 Japan's Maritime Industry Cluster

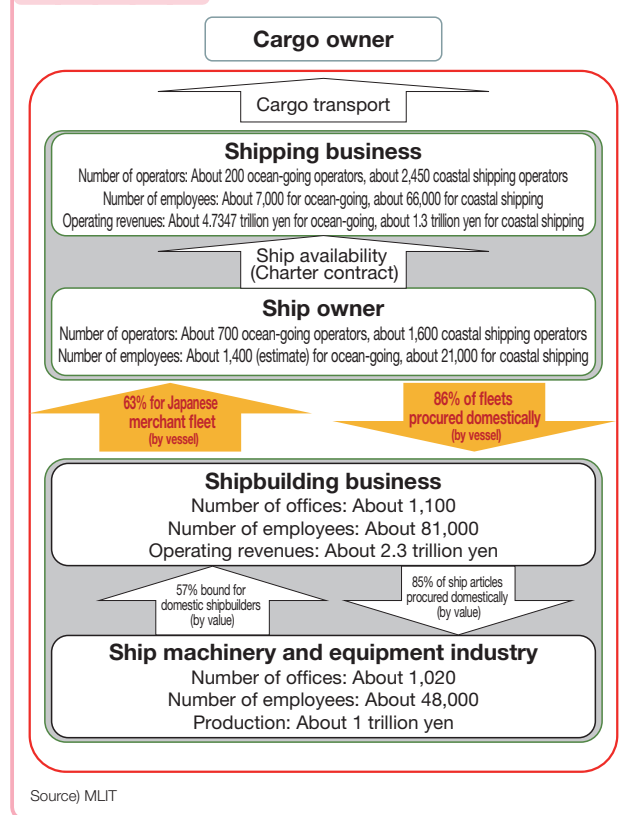
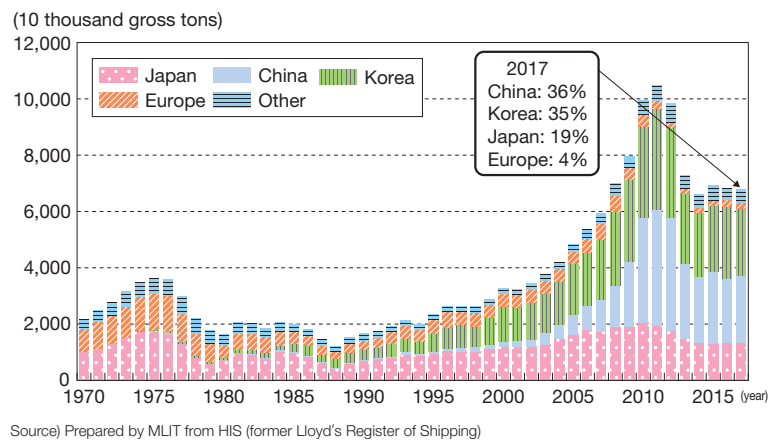


Figure II-6-3-11 Developments in the Volume of Newly Built Ships in the World





(ii) Approaches to consolidating the international competitiveness of the shipbuilding industry

In order to help ensure that the domestic shipbuilding industry wins out in fierce competition into the future, it will be essential to actively utilize technologies including ICT, which has displayed rapid development in recent years, in Japan's shipbuilding and shipping industries, seeking to further increase the level of production efficiency and improve the energy-saving technologies that are particular strengths of the shipbuilding industry.

To this end, since 2016, the MLIT has been using ICT and other technologies through all phases of seagoing vessel preparation, including development, construction, and sending into service. The result is an initiative known as i-Shipping, which seeks to improve production site productivity, cut down on the wasteful use of fuel, and completely eliminate losses of time due to malfunctions.

Specifically, efforts are underway to speed up the development of new types of vessel, improve the productivity of production sites, and introduce high value-added ships. Support is being provided to businesses that are making active efforts to increase productivity by means of initiatives including subsidization of technological development and the introduction of tax measures related to capital investment. Discussions have also been commenced regarding the formulation of a roadmap towards the practical realization of "Maritime autonomous surface ship". In addition, seeking to provide impetus to the practical realization of advanced ships, the revision of the Marine Transportation Act and Mariners Act in April 2017 established a certification system for plans regarding the introduction of advanced ships. The system commenced operation in October 2017, and has been providing support for the formulation of relevant plans.

Coordinated efforts by government, industry, and academia are under way with the goal of acquiring and training more personnel for the shipbuilding industry, one of the core principles of i-Shipping. These efforts include promotion of internships for high school teachers and students to deepen their understanding on appeals of shipbuilding, and improving the quality of shipbuilding education provided at technical high schools. As an urgent and time-critical measure, in order to enable the utilization of foreign human resources, we have modified the system in relation to businesses that accept foreign shipbuilding workers to allow, for example, workers who commenced employment by the end of FY2020 to continue working until FY2022 at the maximum. By means of these measures, we are working to bolster Japan's international competitiveness, seeking to increase the global market share of Japan's shipbuilding industry to 30% by 2025.

(4) Offshore Industries

Offshore development, represented by offshore oil and natural gas production, is an area in which medium- to long-term growth is expected. In addition, there are many types of vessels used in this field and the revenue per construction is considerable. As such, offshore development is an important field for Japan's maritime industries (e.g. marine transportation and shipbuilding). However, as there is no domestic field for offshore resource development, the offshore industries in Japan are still immature. j-Ocean, one element of the MLIT's Productivity Revolutionization Project, is therefore aiming to improve such areas as the technical capabilities of Japan's maritime industries in a wide range of fields, from the design to the construction to the operation of facilities used in the area of offshore development, and gain business in offshore development market. Setting the continuing development and improvement of educational materials for the

training of offshore development engineers, which represents a pressing need, as our first agenda, we have developed educational materials for university students.

(5) Promoting Awareness of Maritime Affairs (C to Sea Project)

On Marine Day in 2017, the Prime Minister issued a message expressing his hope that each and every citizen of Japan would bring interest and understanding to the ocean, would make contact with the ocean, and would come to know the ocean. Based on this message, as part of “The Ocean and Japan Project”, MLIT commenced the “C to Sea Project”, which seeks to help a greater number of people, in particular children and young people, to get to know the pleasures of the ocean and boats in summer 2017. This project is advancing a diverse range of initiatives, such as the holding of events to allow citizens to become more familiar with the oceans and the strategic issuing of information, on the basis of public-private collaboration.

4 Trends in Air Transport Business and Measures

In regards to circumstances surrounding the aviation industry, demand was robust overall due to a rise in the number of inbound foreign visitors during a moderate recovery in domestic and overseas economies. A survey of Japan’s air transport results shows that numbers began to increase from FY2012 as a result of factors including demand generated by efforts towards recovery from the Great East Japan Earthquake and increased demand with the entry of LCC to the market. In FY2016, the number of domestic passengers reached 98.12 million (up 2.1% year-over-year), and the number of international passengers reached 21.05 million (up 11.7% year-over-year). Both of these figures represented new records against past figures.

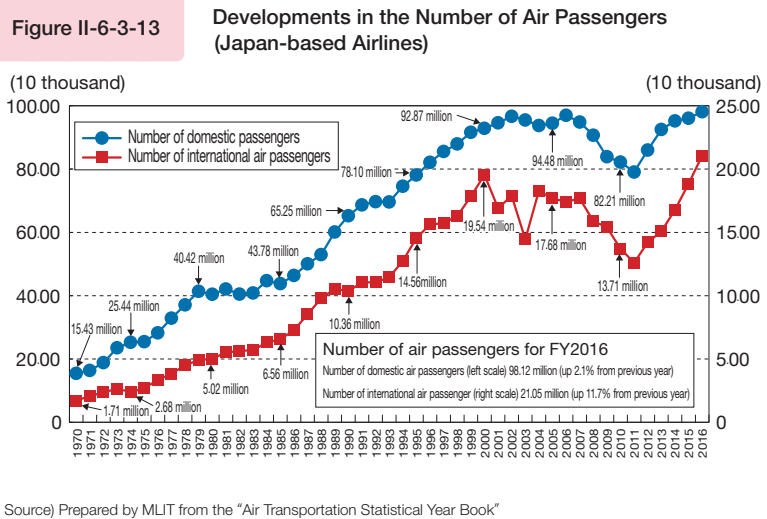
Since March 2012, LCC have successively entered the Japanese market, and as of March 2018, five Japanese LCC were in operation. Peach Aviation operates 15 domestic and 14 international routes; JetStar Japan, 17 domestic routes and nine international routes; Vanilla Air, six domestic routes and seven international routes; Spring Airlines, two domestic routes and four international routes; and Air Asia Japan, one domestic route. In FY2016, Japanese LCC held a 9.7% share of passengers on domestic routes, and an 18.9% share of passengers on international routes.

5 Trends in the Consigned Freight Forwarding Business and Measures

The consigned freight forwarding business^{Note} is combined with multiple means of transport to provide services specific to varied user needs. Recent years have witnessed growing entry into the aircraft- and ship-based segments of international shipment to reflect the cargo owners’ needs for globalization.

Further, while international trade becomes increasingly important and its speediness is globally required, safety assurance during transportation is also essential. The MLIT works to ensure the availability of safe and secure logistics services, as by conducting audits, etc. to consolidate thorough operator code compliance.

Note Businesses that provide cargo transportation services using the transport methods (motor freight vehicles, rail, airplanes, ships) of actual transportation companies (i.e., companies that actually transport freight themselves) to provide door-to-door service, from cargo collection to delivery.



6 Trends in the Warehousing Business and Measures

Commercial warehouses play a significant role as nodal points for logistics. With an increase in the scale of logistics facilities in order to increase operational efficiency and introduce a greater range of functions in warehouse work in response to an increase in mail order sales and the need to concentrate functions, demand for human resources to work in logistics facilities including warehouses is increasing. At the same time, an increase in factors such as the siting of these facilities in the suburbs, beyond a ready supply of labor, is making it difficult to secure human resources, including resources for warehouse work. Against this background, we are advancing efforts that will contribute to saving labor and increasing productivity in warehouse work.

7 Trends in the Truck Terminal Business and Measures

The truck terminal business plays a significant role in streamlining the flow of transport, mitigating congestion and so on as a nodal point of trucking between a trunk line and a terminal. In recent years, the construction of facilities that provide the functionality of a distribution center (sorting, processing for distribution and so on), as well as loading and unloading, is in progress to meet the sophisticated and diversified needs for logistics.

8 Trends in the Real Estate Business and Measures

(1) Real Estate Business Trends

The real estate business is one of the key industries that command 3.0% of the total sales of all industries and 11.6% of the total number of corporations (FY2016).

According to 2018 official land prices (as of January 1, 2018), with regard to the average rate of fluctuation, the national average for residential land prices increased for the first time in 10 years after leveling out in the previous year, while commercial land prices increased for the third consecutive year, and industrial land prices increased for the second consecutive year. Average prices for residential properties, commercial properties and industrial properties increased in each of the three major metropolitan areas. In addition, the amplitude of decline in residential land prices in rural areas continued to shrink, while commercial and industrial land prices increased for the first time in 26 years. In FY2014 the number of housing starts dropped to 880,000, a decline against the previous year, against the backdrop of a last-minute surge in demand in the previous year in response to a consumption tax hike. The number then increased to 920,000 in FY2015, and increased further, to 970,000, in FY2016.

In the existing housing distribution market, the number of successful deals was 1,790,000 in FY2017 (up 0.4% from the previous fiscal year) according to the Real Estate Information Network System (REINS)^{Note}.

(2) Status of the Real Estate Industry

The Ministry endeavors to ensure precise administration of the Real Estate Brokerage Act to protect consumer interest involved in housing land and building deals and to expedite distribution. The number of real estate dealers was 123,416 at the end of FY2016.

The MLIT, along with prefectural and municipal governments, endeavor to prevent complaints and disputes by working in conjunction with the bodies concerned while imposing severe supervisory dispositions on those entities that have breached the law. In FY2016, 251 supervisory dispositions were imposed (including 168 revocations of licenses, 55 suspensions of business and 28 orders).

To ensure the proper management of condominiums, the MLIT is taking measures aimed at registering condominium managers and ensuring proper business operations in accordance with the Act on Advancement of Proper Condominium Management. As of the end of FY2016, the number of condominium management service entities was 2,131.

Moreover, on-site inspections are being conducted and the necessary guidance and oversight is being provided to con-

Note A system by which the parties to a real estate transaction register information regarding the transaction with a designated distribution mechanism, and the information is exchanged between businesses. Information including the transaction price of contracted properties is accumulated by the designated distribution mechanism.

dominium management service entities in the interest of, among other things, preventing wrongdoing.

Since December 2011, a “system of rental housing management entity registration” that places a certain set of rules on the fulfillment of rental housing management services has been put into effect to foster and develop a good-quality rental housing business. As of the end of FY2016, the number of registered rental housing management entities was 3,896. In response to revision of the system in August 2016, we organized a review meeting and reconsidered the standard leasing agent and property management agreements.

In addition, in June 2017 the Residential Accommodation Business Act was passed in order to promote min-paku services based on appropriate regulation. The residential accommodation business was defined as a new form of business related to short-term leasing. Following this, we worked to ensure the smooth entry of the law into effect in June 2018, through initiatives including the formulation of standard management subcontracting agreements and the organization of explanatory briefing sessions regarding the system.

(3) Conditioning the Environment for Market Reactivation

(i) Status quo of the real estate investment market

Japan’s real estate had a total asset value of about 2,562 trillion yen as of the end of 2016^{Note 1}.

The book value of the real estate or the trust beneficiary interest in real estate that were acquired by J-REITs (real estate investment corporation), real estate specified joint enterprises, specific-purpose companies and so on as objects of securitization during FY2017 stood at about 4.8 trillion yen.

J-REITs play a central role in the real-estate investment market. As many as three brands were newly listed in just one year in FY2017. As of the end of March 2018, 60 brands were listed on the Tokyo Stock Exchange. Total book value of assets under management of J-REITs amounts to 18.6 trillion yen and the market value of the real-estate investment securities adds up to about 11.9 trillion yen.

The Tokyo Stock Exchange REIT Index, which indicates price movements across the entire J-REIT market, declined from around 1,850 points to around 1,600 points as a result of factors including instability in long-term interest rates and the cancellation and sale of monthly dividend-type investment trusts in 1H 2017. At the beginning of the second half of 2017, the index rose to around 1,700 points due to a focus on the high level of yield consequent upon a decline in REIT stock prices. Following this, after declining again to close to 1,600 points due to factors including an increase in long-term interest rates, geopolitical risk (the situation in East Asia, etc.), and the price of US stocks, buying proceeded as a result of a perception that prices were undervalued, and the index rose to higher than 1,650.

The amount of yearly property acquisition in J-REITs stood at about 1.3 trillion yen for 2017.

(ii) Conditioning the environment for real estate investment market

In June 2017, we formulated the Action Plan for the Growth of the Real Estate Investment Market^{Note 2}, which seeks to realize a target of approximately 30 trillion yen in assets held by J-REITs, etc. by 2020.

(iii) Promotion of utilization of public real estate

By means of dispatching experts to local governments and conducting consultations with stakeholders such as private-sector businesses, we surveyed and considered the conditions for proceeding with the securitization of public real estate (PRE), and we revised our handbook for local government employees.

Note 1 Total asset value of buildings, structures and land based on national economic accounting.

Note 2 The pillars of the concrete measures are: 1. Reform of CRE, etc. (Invigoration of corporate/organization real estate market); 2. Reform of J-REIT market, etc.; 3. Reform of investment environment for real estate investors; 4. Reform of development of human resources

(iv) Promotion of diversification of J-REITs

Up to the present, J-REITs have mainly focused on offices, residences and commercial facilities when acquiring assets, but more recently the acquisition of assets including hotels, logistics facilities and healthcare facilities has been progressing. In order to contribute to the further expansion of the J-REIT market, we held seminars concerning healthcare REITs for nursing care and medical facilities in cooperation with related ministries and agencies.

(v) Promotion of spread of environmental real estate

Based on the global trend of ESG investment, which is seeing investors demand that companies consider the environment, society and governance, we conducted reviews towards the promotion of the spread of an approach to real estate that focuses on factors such as health and comfort. In addition, in order to facilitate the formation of high-quality real estate including environmental real estate, in FY2017 we decided to contribute to a public-private fund that will invest in four environmental refurbishment projects as part of our project for the promotion of the formation of earthquake-resistant/green buildings.

(vi) Promotion of specified joint real estate ventures

The Act for the Partial Revision of the Act on Specified Joint Real Estate Ventures, which has among its chief points of focus the creation of small-scale specified joint real estate ventures, the establishment of an environment to respond to crowdfunding, and the creation of projects limited to Qualified Special Investors, was promulgated in June 2017, and went into effect in December of the same year. In addition to holding explanatory briefing sessions and seminars regarding the law throughout the country, providing an overview of the revision to businesses and other stakeholders, we have put in place the necessary measures to ensure the appropriate implementation of the law, for example by formulating procedural handbooks and model contractual provisions, in addition to making efforts to promote the utilization of the new system, for example by dispatching experts to businesses considering receiving registration in relation to specified joint real estate ventures.

(vii) Creation of an environment for real estate information

MLIT is publishing information related to real estate by the following means, in order to increase the transparency of the real estate market and facilitate and invigorate transactions in the market.

(a) Real estate transaction price information

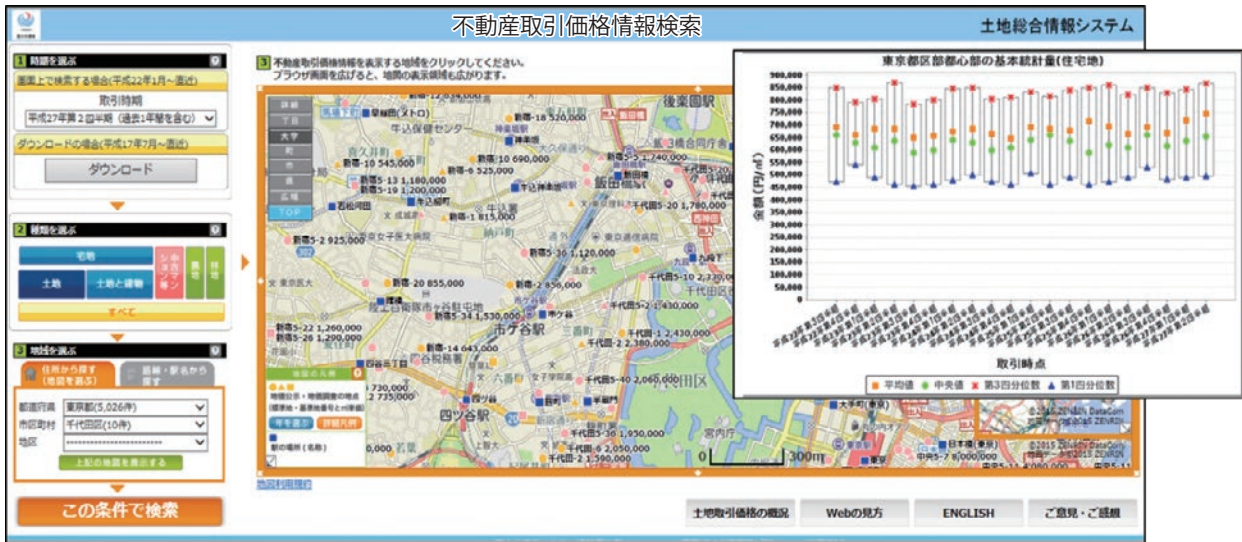
We conduct surveys of real estate transaction prices throughout the country. Based on the information that we obtain by means of these surveys, we publish information including the location, area and price of the real estate subject to the transactions via the Internet (in the Land General Information System), taking care to ensure that individual transactions cannot be identified. As of the end of March 2018, information concerning 3,265,830 transactions had been presented, and site access had reached approximately 790 million.

(b) Property price index

Based on standards formulated by the IMF and other international organizations, we publish a property price index (residential) every month. We also publish property price index (commercial) on a quarterly basis, but this is currently at the stage of test operation.

Figure II-6-3-14 Land General Information System

- Since April 2006, transaction price information based on questionnaires conducted among parties to real-estate deals has been posted every quarter on an MLIT website, with care to protect the properties in question from being identified easily.
- As of the end of March 2018, information on 3,265,830 properties was posted, attracting a total of about 790 million Web accesses.



土地総合情報システム Land General Information System

平成25年第3四半期～平成27年第2四半期の東京都千代田区の土地取引件数 1,409 件

検索条件: [種類] 土地 [地域] 東京都 千代田区 [取引時期] 平成25年第3四半期～平成27年第2四半期
検索結果: 35件中 1件目～20件目を表示中(1/2ページ目)

件数表示	所在地	地域	種別	用途	取引時期	売却価格	買値	土地	面積	形状	用途	築年	築年	築年	築年	取引時期
1	千代田区一橋町	住宅地	単独門	391	460,000万円	650万円	2,000㎡以上	200万円	標準形状	8.0m	区道	北東	2棟建	60%	400%	H25/10-12月
2	千代田区船橋	商業地	単独門	491	5,600万円	320万円	60㎡	97万円	ほぼ正方形	6.0m	区道	北東	商業	80%	600%	H26/01-03月
3	千代田区内神田	商業地	小川の(東京)	591	11,000万円	330万円	70㎡	160万円	ほぼ正方形	6.0m	区道	北	商業	80%	600%	H26/10-12月
4	千代田区船橋	商業地	単独(東京)	491	11,000万円	540万円	70㎡	160万円	扇形	4.0m	区道	北西	商業	80%	600%	H26/04-06月
5	千代田区船橋	商業地	単独(東京)	391	90,500万円	1,000万円	300㎡	300万円	標準形状	10.0m	区道	南東	商業	80%	600%	H26/01-03月
6	千代田区船橋	商業地	単独	291	31,000万円	1,100万円	90㎡	340万円	ほぼ正方形	22.0m	都道	南東	商業	80%	600%	H25/10-11月

Source) MLIT

(viii) Conditioning the existing home circulation market

The MLIT is working to condition the existing home trading environment to promote the circulation of existing homes, which have a low share of the total volume of housing in circulation when compared with the U.S. and Europe.

In FY2017, looking towards the putting into effect of the Revised Real Estate Brokerage Act (formulated in June 2016 and going into effect in April 2018), which will promote the use of building condition surveys (inspections) conducted by experts by the parties to transactions involving residential buildings, we worked to ensure that stakeholders were aware of the system, for example by holding explanatory briefing sessions concerning the details of the system.

In addition, in order to enhance intermediary and buyer matching functions in relation to empty houses, we revised the Remuneration Notification^{Note} in order to allow, in relation for example to low-price empty houses for which a higher amount of on-site survey expenses than normal are required, an amount of remuneration that considers these fees in addition to the standard upper limit for remuneration to be received from the seller. In addition, we have commenced trial operation of a National Empty House/Vacant Land Bank that allows users to search information on empty houses and vacant land throughout the country in one location.

Note "The Amount of Remuneration receivable by a Building Lots and Buildings Transaction Business in relation to the Buying and Selling, etc. of Residential Land or Buildings" (1970, Ministry of Construction Notification 1552)

(ix) Utilization of land tax system

In addition to extending measures for adjustment of the burden of land-related fixed asset taxes and the reduction system ordinance, the 2018 reform of Japan's taxation system also extended the deadline for the application of special measures to the real-estate acquisition tax related to land.

(x) Improvement of institutional infrastructure supporting the real estate market

The Panel concerning the Real Estate Appraisal System, convened to consider the issues of the real estate appraisal system, compiled a Future Orientation for the Real Estate Appraisal System (Proposals for Immediate Measures).

In addition, in order to further increase the reliability of real estate appraisal, we monitored appraisals, for example by accompanying appraisers during appraisals.

9 Building a Sustainable Construction Industry

(1) Conditions Surrounding the Construction Business

As an essential player in developing social infrastructure, the construction industry plays a major role in helping to achieve a bright future for Japan through efforts that include urban revitalization and rural area development. It is also a very important defender of Japan's communities, helping with recovery from earthquakes, taking measures to prevent and mitigate disasters, carrying out strategies to address aging facilities, and performing maintenance.

However, the rising proportion of elderly citizens in Japan is leading to systemic problems that include a declining number of young workers in the construction industry and a greater proportion of older workers. Addressing these problems, and building a sustainable construction industry, will be critical.

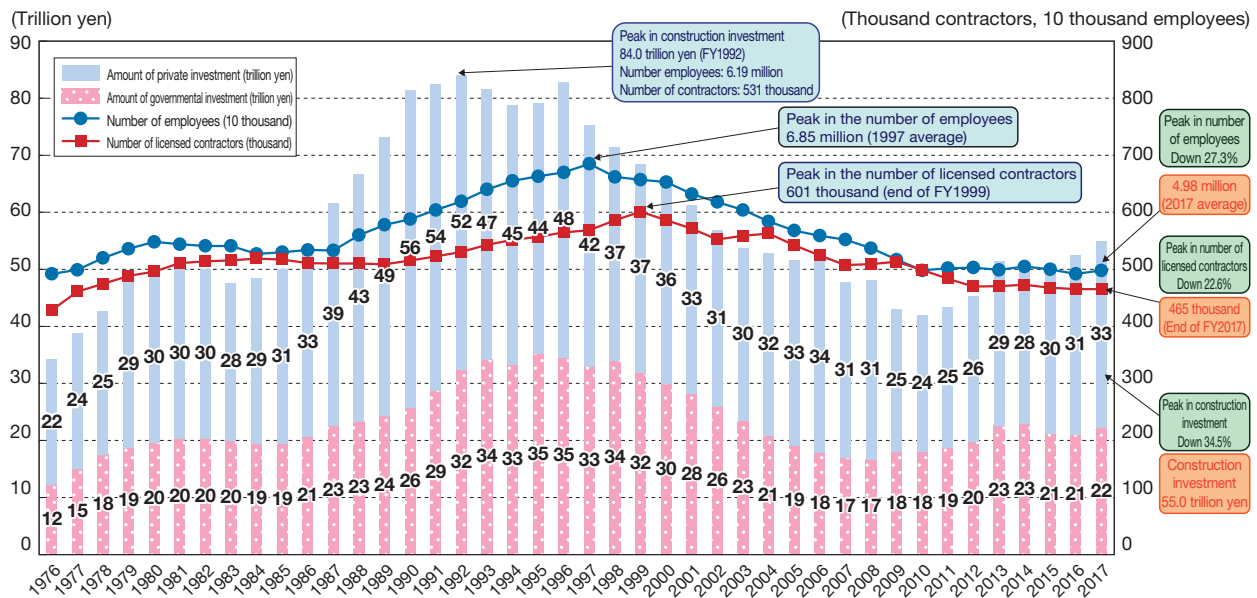
Under this circumstance, the Construction Industry Policies Research Group was launched in October 2016, and conducted studies regarding the basic framework for systems related to Japan's construction industry, seeking to ensure that the industry maintains its capacity at the construction site while also boosting its productivity 10 years into the future. In July 2017, the Research Group compiled the report Construction Industry Policy 2017 + 10 – Talking to Young People about Tomorrow's Construction Industry. Taking this report into consideration, MLIT has been working with a sense of urgency to steadily implement and materialize the policies it proposes, for example by conducting a survey of management items and revising the standard contractual provisions for construction contracting in July 2017, and formulating the Guidelines for Appropriate setting of Construction Periods, etc. in August 2017.

In addition, a Basic Plan based on the December 2016 Act ensuring the Safety and Health of Construction Industry Employees was approved by the Cabinet in June 2017.

Figure II-6-3-16 shows trends in construction investment, the number of licensed contractors and number of employees.

Figure II-6-3-15 Trend in Construction Investment, Number of Licensed Contractors and Number of Employees

- The amount of construction investment, after peaking at about 84 trillion yen in FY1992, dipped to about 41 trillion yen in FY2010, but is now forecast to get back to about 55 trillion yen in FY2017 (about 35% down from its peak).
- The number of contractors was about 460,000 as of the end of FY2017, down about 23% from its peak (at the end of FY1999).
- The number of construction employees (2017 average) was 4.98 million, down about 27% from its peak (1997 average).



(Notes) 1 The amount of investment is the actual results up to FY2014, estimates for FY2015 and FY2016 and a forecast for FY2017.

2 Number of licensed contractors at the end of each fiscal year (end of March of the next year)

3 The number of employees is a yearly average. Supplementary estimates for the three quake-stricken prefectures (Iwate, Miyagi, Fukushima) in 2011 have been calculated by retrospectively correcting the estimated population based on the findings of the 2010 National Census.

Source) "Construction Investment Forecasts" and "Licensed Constructor Count Survey" by the MLIT and "Labor Force Survey" by the Ministry of Internal Affairs and Communications

(2) Securing and Fostering Human Resources to Work for the Construction Industry

The construction industry is an industry made up of large numbers of *people*. While the number of construction industry employees in Japan has been holding steady in recent years, large-scale age-related resignations are expected in future, and in order to ensure that the construction industry continues in its role as a pillar of support for Japan's rural areas, it will be important to secure and foster workers, in particular young people, in addition to making efforts to reform work styles in the industry.

To this end, based on the Construction Industry Work Style Reform Acceleration Program formulated in March 2018, we are working to improve conditions in the industry by attempting to correct the problem of long working hours, in addition to advancing initiatives including guaranteeing appropriate wage levels, ensuring enrolment in social insurance, and creating a system to allow construction industry employees to develop their careers. In addition, taking into consideration the future decline in Japan's workforce, we are working to increase productivity via initiatives including the introduction of i-Construction to worksites, the improvement of the multilayered subcontracting structure, and the provision of effective and recurrent construction industry education, using ICT to enable industry employees to acquire the necessary skills.

To enable young people to get up to speed in the industry as quickly as possible, we are also proceeding with reform of the skills certification system, and, in order to ensure the smooth passing on of skills, enhancing education and training. In addition to this, we are promoting the further participation of female employees in the industry.

These initiatives are being advanced on the basis of public-private cooperation, and we are working to create an environment that encourages the seeking of employment in the construction industry and allows workers to devote themselves to their jobs with pride.

In addition, the project of receiving foreign construction workers is in place since April 1, 2015 as a time limited measure to handle increased construction demand due to one-off factors such as hosting of the 2020 Tokyo Olympic and Paralympic Games. Under this framework, 2,983 foreign construction workers entered Japan (as of March 31, 2018).

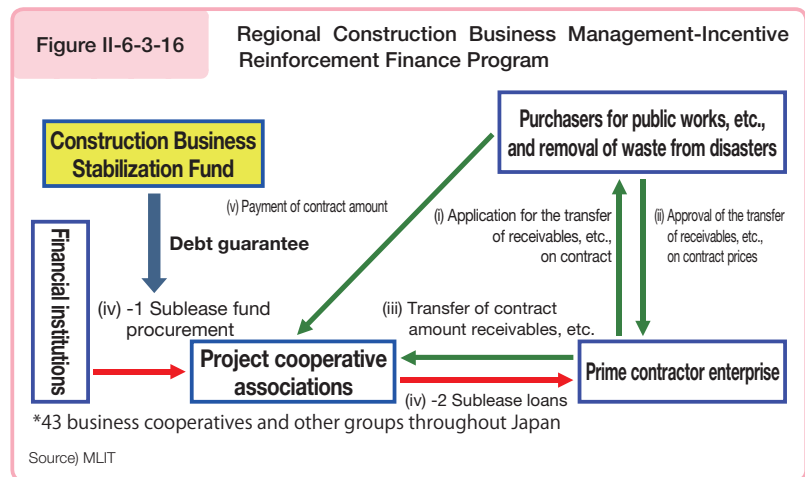
(3) Establishing a Framework of Fair Competition

The construction industry must establish a framework of fair competition among contractors, including thorough legal compliance, to enable those of them who are superior in their technical strength, construction capability and management power to keep up with their growth. Accordingly, MLIT has conducted surveys including surveys of the status of subcontracting transactions and on-the-spot surveys, established the “Construction Business Transaction Normalization Center” as a liaison for consultation regarding issues such as problems related to contracts for construction work, and established Construction Business Normalization Promotion Month. In addition, we are working to ensure appropriate transactions between prime contractors and subcontractors in the construction industry by formulating and distributing a Handbook for Appropriate Transactions in the Construction Industry.

(4) Measures Aimed at Supporting Construction Companies

(i) Regional construction business management-incentive finance program

The regional construction business management-incentive finance program allows prime contractors to acquire loans from money lending business operators (e.g., cooperative association) on security of the public works contract price credit obligations, according to the completed amount of works. Its purpose is to smooth their cash flow. This program aims to secure loan funding and reduce the borrowing rate and other costs by providing debt guarantee to sublease loans, which the money-lending operator borrows from financial institutions when extending loans.

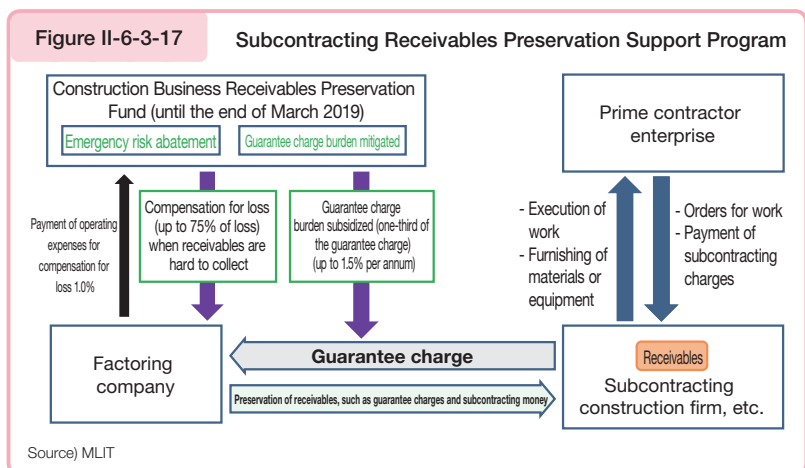


Effective since November 2008, this program will be carried forward through FY2018 and onwards.

(ii) Subcontracting receivables preservation support program

The subcontracting receivables preservation project aims to prevent chain-reaction bankruptcies of subcontractors in association with failure of their primary contractor by reducing the burden of guarantee charge when the payment of such receivables is guaranteed by a factoring company^{Note} and by indemnifying the factoring company for part of losses, it may suffer upon fulfillment of the guaranteed obligations.

This program has been implemented since March 2010 and will be carried on through FY2018.



Note Finance business companies that guarantee or purchase and collect accounts receivable held by other parties. At present, 10 factoring companies, including bank companies, pre-payment guarantee companies and leasing companies are operating this type of business.

(iii) Project to support the realization of increased productivity in the construction industry

Our project to support the realization of increased productivity in the construction industry is an initiative in which advisors offering consultation and support (specialists in the development of human resources, SME diagnosticians, etc.) provide advice to small and medium-sized construction companies, which support regional communities in areas including the provision, maintenance and management of social capital and the prevention and mitigation of disasters, regarding approaches to resolving the various problems faced by the construction industry. In addition, as a priority support measure, we provide partial support for expenses in the implementation stage of planned initiatives that contribute to the realization of increased productivity by means of cooperation between multiple companies and other entities and serve as excellent models. In FY2017, we selected five initiatives for support.

(5) Promoting Construction-related industry

Information about the total number of companies registered in the construction-related industry (such as surveying, construction consulting and geological surveying) is published each month and analyses of the financial conditions by sector based on that information are released at the end of the next fiscal year. In addition, the MLIT works to encourage sound development of the construction-related industry and make effective use of the registration system, as by holding explanatory sessions for students before attending society in collaboration with the associated bodies.

(6) Present Status of Construction Machinery and Growth of Construction Production Technologies

The number of units of major construction machinery owned by organizations and people in Japan totaled approximately 870,000 in FY2013. Market share by industry for units of construction machinery purchased was about 54% for the builder's equipment leasing industry and around 25% for construction businesses.

Pursuant to the second phase "Computer-Aided Construction Promotion Strategies" (formulated in March 2013), to encourage and diffuse the practice of computer-aided construction, the MLIT seeks to promote proactive use of machine control/machine guidance technologies realizing high-precision and efficient construction under automated control. As current deployment of computer-aided construction equipment is inadequate to encourage and diffuse the practice of computer-aided construction, it will be essential to develop the construction industry, as well as to support a healthy builder's equipment leasing industry, since this industry accounts for a major share of construction machinery purchases.

(7) Settling Disputes Arising from the Execution of Construction Works

To promptly resolve disputes arising from the execution of construction work contracts, the Construction Works Dispute Review Panel implements dispute settlement procedures. In FY2016, the Panel received 33 applications (four of arbitration, 23 for conciliation and six for mediation) at the central level and 99 applications (17 for arbitration, 63 for conciliation and 19 for mediation) at the prefectural level.

Chapter 7 Building a Safe and Comfortable Society

Section 1 Realizing a Universal Society

1 Realizing Accessibility through a Universal Design Concept

The “Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc.” embodies the universal design concept of “freedom and convenience for anywhere and anyone”, making it mandatory to comply with “Accessibility Standards” when newly establishing various facilities (passenger facilities, various vehicles, roads, offstreet parking facilities, city parks, buildings, etc.), mandatory best effort for existing facilities as well as defining a development target for the end of FY2020 under the “Basic Policy on Accessibility” to promote accessibility.

Also, in accordance with the local accessibility plan created by municipalities, focused and integrated promotion of accessibility is carried out in priority development district; to increase “caring for accessibility”, by deepening the national public’s understanding and seek cooperation for the promotion of accessibility, “accessibility workshops” are hosted in which you learn to assist as well as virtually experience being elderly, disabled, etc.; these efforts serve to accelerate accessibility measures (sustained development in stages).

Taking the opportunity of changes in the environment surrounding the “Barrier-free Law” and the 2020 Tokyo Olympics and Paralympics, in February 2018, we submitted to the Diet a bill to partially amend the “Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc.” in order to further promote accessibility nationwide, with the aim of realizing an inclusive society.

Specifically, we intend to take measures such as: (1) establishment of a plan and system to promote integrated initiatives for structural and non-structural measures by public transport operators; (2) establishment of a policy and system to encourage smoother transportation, in order to strengthen initiatives in local communities aimed at accessible town planning; and (3) application of the Barrier-free Law to general chartered passenger vehicle operators, in order to enhance initiatives aimed at ensuring greater user friendliness, provision of a wide range of accessibility information, including on buildings, and creation of opportunities to evaluate the content of measures with the participation of physically-challenged people.

Figure II-7-1-1 Current Accessibility of Public Transportation

(as of March 31, 2017)

○ Passenger Facilities (over 3,000 persons/day using on average)

Percentage of facilities with “elimination of steps”	Total Facilities	“Elimination of steps” complete	Percentage of total number of facilities (as of the end of FY2016)	Target value (percentage) as of the end of FY2020
Railway stations	3,559	3,098	87.0%	100%
Bus terminals	46	42	91.3%	100%
Passenger ship terminals	15	15	100.0%	100%
Airport passenger terminals	35	31	88.6%	100%

(Notes) 1 Regarding the “elimination of steps”, it is calculated in accordance with conformity to Article 4 (which covers width of the travel path, ramps, elevators, escalators, etc.) of the “Standard for Smooth Transport, Etc., with Public Transportation” based on the Barrier-Free Law.

○ Vehicles

Percentage of “Vehicles compliant with smoothness of transport”	Total Number of Vehicles, etc.		Percentage of total number of vehicles (as of the end of FY2016)	Target value (percentage) as of the end of FY 2020
	As of the end of FY2016	As of the end of FY2016		
Railway carriages	52,212	35,343	67.7%	About 70%
Low-floor buses (excluding exemption-certified vehicles)	45,467	24,241	53.3%	About 70%
Lift-equipped buses (excluding exemption-certified vehicles)	14,962	901	6.0%	About 25%
Welfare taxis	—	15,128	—	About 28,000 cars
Passenger ships	663	267	40.3%	About 50%
Airplanes	612	594	97.1%	About 90%

(Notes) 1 “Compliance with smoothness of transport vehicles” is calculated based on each vehicle’s compliance with the Accessibility Standards for Public Transportation.

Source) MLIT

(1) Accessibility of Public Transportation

In accordance with the “Act on Promotion of Smooth Transportation, etc. of Elderly Persons, Disabled Persons, etc.”, public transportation administrators are required to comply with “Accessibility Standards for Public Transportation” when carrying out new development of passenger facilities or large-scale improvements as well as introducing new vehicles and for existing facilities. Efforts must be made to comply with these standards and staff must be educated and trained as needed to strive for accessibility as part of the stipulated requirements for mandatory efforts. In addition, assistance measures are available to support the accessibility of passenger ships as well as train stations and other passenger terminals along with the implementation of non-step (low-floor) busses, lift-equipped busses, welfare taxis, and other initiatives. Furthermore, in March 2018, we revised the content of the Accessibility Standards. The revisions included requirements to create several accessible paths in rail stations, to shorten accessible paths in stations and other passenger facilities, and, when installing elevators, to decide their number and size in consideration of use by the elderly and physically-challenged people.

(2) Accessibility of Living and Housing Environments

(i) Accessibility of housing and architecture

In order for those such as the elderly and disabled to have secure, safe, and comfortable housing in communities, the conversion of housing to barrier-free housing is supported by measures such as reducing interest rates on the Japan Housing Finance Agency’s (Incorporated Administrative Institution) Flat 35 S Loan for obtaining houses that meet a certain standard of barrier-free criteria; providing subsidies for barrier-free renovations; making new public housing and Urban Renaissance Agency rental housing constructed as part of the housing rehabilitation project barrier-free as a standard specification; and providing assistance and other options for the development of serviced housing for the elderly by private sector businesses and others.

In addition, for architectural structures used by the general public, including those such as the elderly and disabled, architecture that is greater than a certain scale is required to be accessible in accordance with the “Barrier-free Law.” Specific approved buildings that meet certain requirements are eligible for support measures such as subsidy programs. For government facilities that are used by many unspecified users, development is promoted in accordance with the standards for encouraging smooth travel for buildings based on the “Barrier-free Law,” thereby ensuring that all people including the elderly and disabled can use the facilities safely, comfortably and smoothly. For this, initiatives are being carried out to reflect the opinions of facility users such as the elderly and disabled in facility development.

Figure II-7-1-2 Approval of Architecture for Specified Designated Buildings in Accordance with the “Barrier-free Law”

Fiscal year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Number of certified plans (Fiscal year)	11	120	229	320	382	366	332	232	280	367	386	348	331	289	255	184	208	130	196	174	208	187	162
Number of certified plans (Total)	11	131	360	680	1,062	1,428	1,760	1,992	2,272	2,639	3,025	3,373	3,704	3,993	4,348	4,432	4,640	4,770	4,966	5,140	5,348	5,535	5,697

(Source) MLIT

(ii) Accessibility of walking spaces

In accordance with the Barrier-free Law, areas such as roads and station squares that are connected to facilities, such as stations, government facilities, and hospitals, must allow everyone, including the elderly and disabled, to pass through comfortably. This is achieved by promoting the barrier-free design of pedestrian spaces through measures that include the following: creating wide sidewalks, reducing unevenness, slopes, and grades, eliminating utility poles, and laying down guiding blocks for the visually impaired.

(iii) Accessibility of urban parks and other areas

For the development of urban parks, there are standards and subsidies under the “Barrier-free Law” for safe and comfortable usage, such as eliminating grade disparities at entrances, exits, and passages, as well as ensuring that facilities such as restrooms are usable by the elderly and disabled, among others. In addition, to ensure that anyone can enjoy

natural spaces such as rivers and ports, development of waterfronts and renovation of passenger ship terminals for better accessibility are being promoted as an integral part of town planning.

2 Creating an Environment that Supports Child-rearing Under an Low Birthrate Society

(1) Supporting the Balance of Work and Child-rearing

(i) Supporting the supply of housing suitable for child-rearing households

In order to secure housing and living environments suitable for child-rearing households, a relocation system that allows comparatively spacious housing owned by those such as the elderly to be provided as rental housing to those such as child-rearing households and for this the Japan Trans-housing Institute's (General Incorporated Association) owned home leasing program is being promoted. Also, support is provided through local government for the development and reduced rent of rental housing (high-quality regional rental housing) for child-rearing households as well as integrated development of public rental housing with child care support and other facilities.

(ii) Promotion of teleworking

Teleworking is a flexible work style that uses information and communication technology (ICT) to make effective use of time and place. It must be promoted, as it helps ensure employment continuity for workers engaged in raising children or caregiving, contributes to the realization of the dynamic engagement of all citizens through the participation in society of such people as women, seniors, and people with disabilities, and leads to the revitalization of regional cities through the creation of new places to work as well as to improvements in productivity of corporate activities and work-life-balance.

The "Declaration to Become the World's Most Advanced IT Nation: Basic Plan for the Advancement of Public and Private Sector Data Utilization," decided by the Cabinet on May 30, 2017, as well as the "Plan for Dynamic Engagement of All Citizens," the "Future Investment Strategy 2017," and the "Basic Policy on Economic and Fiscal Management and Reform 2017," all promote teleworking. The "Action Plan for the Realization of Work Style Reform" also mentions its importance. In ways such as this, the momentum to promote teleworking has increased greatly.

Relevant ministries and agencies, in cooperation with Tokyo Metropolis, business groups, companies, and others, designated July 24, on which the opening ceremony of the 2020 Tokyo Olympics is slated to take place, as Teleworking Day. In 2017, the first year, over 60,000 people in more than 900 organizations participated in a nationwide day of teleworking.

The MLIT has quantitatively ascertained the actual conditions associated with the teleworking style of work and the population of teleworkers and conducted a study of policies for promoting the development of locations at which teleworking can be deployed.

(2) Creating a Relaxed and Safe Environment for Children to Grow

To ensure the safety and comfort of children and other park users, various facility administrators are made aware of "Guidelines for Safety of Playground Equipment at Urban Parks (Edition 2)," "Pool Safety Standards Guidelines," and "Guidelines for Safety Inspections of Park Facilities," and social capital development general subsidy provide focused support to local governments for safety and comfort measures of park facilities.

3 Ageing Society Measures

(1) Creating a Living Environment for the Elderly to Live Comfortably

The Silver Housing Project provides a package including the supply of public housing and other accessible facilities, life support advisors to counsel daily living needs, and emergency response services and as of FY2016 is implemented at 969 housing projects (24,963 housing units).

Also, in order to promote development of the “Housing and City for smart wellness” where various families with the elderly and small children can live and act actively, the promotion projects for the housing for smart wellness supports the development of housing with service for the elderly, welfare facilities etc. in housing developments etc. and pioneering living and town planning measures for the elderly.

(2) Providing Transport Services That Meet the Needs of an Aging Society

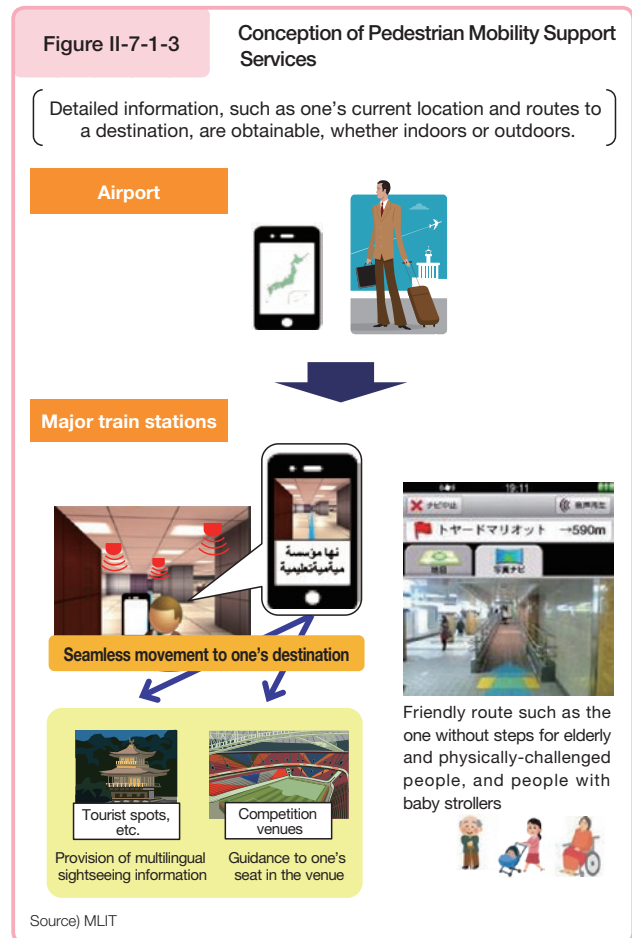
In order to respond to the demand for the transportation of disadvantaged such as the elderly and disabled to hospitals and other care facilities, the implementation of welfare taxis^{Note} is being promoted, and as of the end of FY2016, 17,197 vehicles were in operation. In addition, the Investment Subsidy to Ensure the Procurement, Maintenance and Improvement Regional Public Transportation is being utilized to support the implementation of welfare taxis needed in regional areas and since FY2012, universal design taxis that are easy for the elderly and various people have been granted preferential measures regarding motor vehicle tonnage tax and vehicle excise tax if the vehicle meets standard specifications and is certified by the government. As of the end of FY2016, 3,131 organizations were providing fee-based passenger transport services to allow municipal governments and NPOs to provide fee-based transport services using private vehicles in cases in which the parties representing regional residents agree that services by bus or taxi companies are deemed difficult to provide and the private fee-based passenger transport services are required to ensure passenger transport that is necessary for local residents.

4 Promotion of the Dissemination of Pedestrian Mobility Support

We are promoting the dissemination of pedestrian mobility support services that utilize ICT to establish a society in which anyone, including foreign visitors, elderly and physically-challenged people, can participate in social activity freely and without stress both inside and outside buildings.

In light of the recommendations of the Study Committee for Promoting ICT-assisted Pedestrian Mobility Support (led by Ken Sakamura, Dean of the Faculty of Information Networking for Innovation and Design at Toyo University), we considered methods to continually gather, as well as means to efficiently maintain and update data needed for mobility, such as information on facility and route accessibility. We also provided a tool to input and digitize such information as slopes and steps in pedestrian spaces. Also, we developed a seamless indoor/outdoor digital map containing such information as slopes and steps, covering the area from Shin-Yokohama Station to International Stadium Yokohama (Nissan Stadium), and conducted a demonstration test of a navigation system that guides users along routes with no steps.

Note Taxi vehicles with lifts and other facilities so that those using wheelchairs or gurneys (stretchers) can board and disembark as is or taxi vehicles serviced by those with various qualifications, such as home care workers.



Section 2 Natural Disaster Measures

Japan's national land is subject to severe conditions in such terms as climate, geography, and geology. Such natural disasters as earthquakes, tsunamis, floods, and sediment disasters occur almost yearly. The year 2017 saw a series of natural disasters in different parts of the country including the Northern Kyushu Heavy Rain in July, heavy rain with the seasonal rain front from July 22, and typhoons Talim and Lan making landfall as well as eruption of Mt. Kusatsu-Shirane (Mt. Moto-Shirane) the following year. The Northern Kyushu Heavy Rain in July 2017 in particular caused enormous damage from outflows of debris and drift woods in addition to flooding of small and medium-sized rivers in Fukuoka and Oita prefectures. The importance of natural disaster measures is more urgent than ever before because there is concern over water- and sediment disasters that are occurring more frequently and seriously due to climate change as well as over the occurrence of giant earthquakes that are expected to strike, including Nankai Trough Mega Earthquake and Tokyo Inland Earthquake. To this end, disaster prevention and mitigation must be fundamentally bolstered, and structural and non-structural measures are being taken to protect lives and living standards.

1 Shifting to a Society with Higher Disaster Prevention Awareness

In light of the lessons of the many disasters that occurred recently, we are undertaking a general mobilization of structural measures with major impacts and non-structural measures from the perspective of residents, in a shift to society to raise disaster prevention awareness that all actors, including government, residents, and companies, are sharing knowledge and perspectives of disaster risks prepare for all kinds of disasters, including — flooding, earthquakes, and sediment

disasters.

Given the notion that major flooding exceeding the capacity of facilities engineering will inevitably occur, we are carrying out integrated structural and non-structural initiatives to restructure “society with higher flood prevention awareness,” so that society as a whole prepares for flooding, in response to water disasters that are becoming more frequent and more serious. Based on the Small and Medium-sized River Project of emergency countermeasures, which was organized in light of issues such as the Northern Kyushu Heavy Rain in July 2017, we will urgently advance flood control measures over the next three years (aiming for completion in FY2020) in small and medium-sized rivers nationwide.

Given the concerns about the growing frequency and intensity of water disasters, sediment disasters, and droughts caused by climate change, we are making steady progress with facilities improvement and also working on measures against external forces that significantly exceed the capacity of facilities. In particular, with regard to measures to prevent catastrophic damage to society and the economy, the Kanto, Chubu, and Kinki Regional Development Bureaus published projected damage and countermeasure plans, including for areas outside flood zones, by August 2017. Building on these projections and plans, the MLIT is making an all-out effort to implement integrated structural and non-structural disaster prevention and disaster mitigation measures, in order to minimize damage to society and the economy.

In response to the projected Nankai Trough Mega Earthquake and Tokyo Inland Earthquake, which are thought to be steadily approaching, we are promoting effective measures, including the development of evacuation routes and evacuation shelters, and the strengthening of levees in zero meter areas against earthquakes, according to the specific damage features anticipated.

In particular, with around two and a half years until the 2020 Tokyo Olympic and Paralympic Games, we are expending all possible means to ensure disaster-prevention measures in the capital region based on the Roadmap of Measures Against the Tokyo Inland Earthquake Ahead of the Tokyo Olympic and Paralympic Games established in August 2017.

(1) Accelerating the Rebuilding Flood-Conscious Societies

(i) Policy Vision on Rebuilding Flood-Conscious Societies

In order to shift awareness to the notion that “major flooding exceeding the capacity of facilities engineering will inevitably occur,” in light of the fact that water disasters have been becoming more frequent and more serious in recent years, we established the Policy Vision on Rebuilding Flood-Conscious Societies in December 2015. We have set up councils composed of river administrators, local governments, and others to share goals for natural disaster reduction, and are carrying out structural and non-structural measures in an integrated, systematic manner for all rivers under ministerial jurisdiction and municipalities along the rivers.

Under these circumstances, torrential rain brought by tropical cyclones that struck successively in August 2016 caused flood damage, including levee breach on small and medium-sized rivers in Hokkaido and Tohoku regions. The Omoto River, which is administered by Iwate Prefecture, especially was a scene of tragic harm, when residents of a facility for people requiring assistance became victims because they were unable to escape. In response, in January 2017, the Infrastructure Development Council reported on its recommendations for Rebuilding Flood-Conscious Societies regarding small and medium-sized rivers.

(ii) Responses based on torrential rain disasters such as the Northern Kyushu Heavy Rain in July 2017

We established a Small and Medium-sized River Project of emergency countermeasures based on the results of emergency inspections of small and medium-sized rivers nationwide conducted in light of torrential rain damage in recent years, such as the Northern Kyushu Heavy Rain in July 2017. Under the project, we will further accelerate initiatives for the Rebuilding Flood-Conscious Societies by carrying out structural and non-structural measures over the next three years or so (aiming for completion in FY2020). These will include construction of open-type Sabo dams that are highly effective at capturing debris and drift woods, excavating river channels to reduce flood damage to lots of homes and important facilities, and the installation of risk management-type water level gauges (low-cost water level gauges specialized for floods).

Figure II-7-2-1 Policy Vision on Rebuilding Flood-Conscious Societies

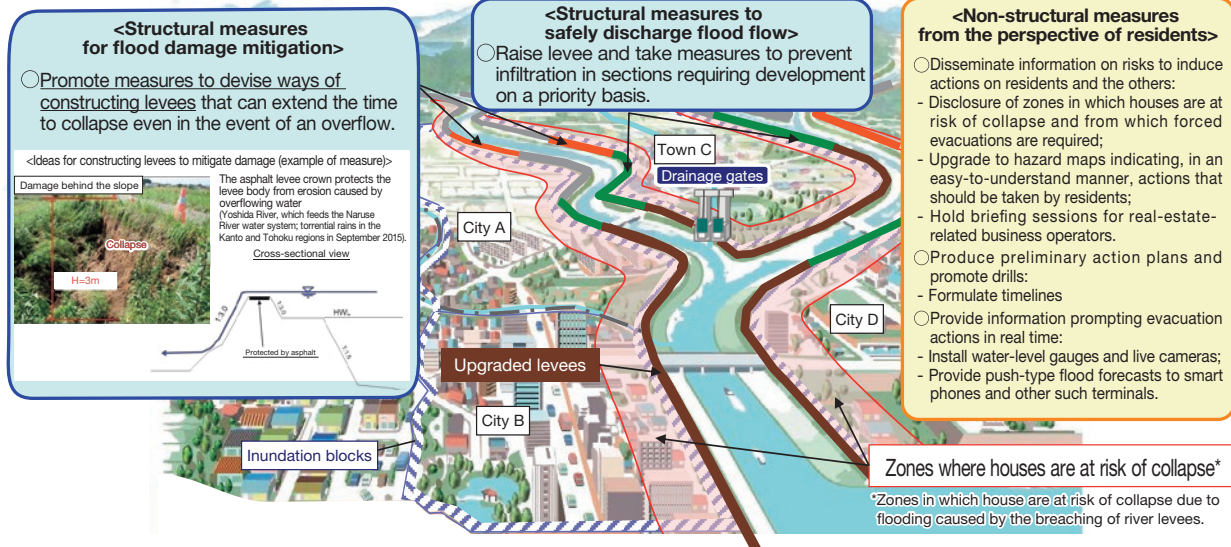
In response to torrential rains that fell in the Kanto and Tohoku regions, the Rebuilding Flood-Conscious Societies is to be newly incorporated into FY2020 targets applicable to all rivers under ministerial jurisdiction and municipalities along such rivers (109 water systems, 730 municipalities) in accordance with **the Policy Vision on Rebuilding Flood-Conscious Societies**.

<Non-structural measures> - Carry out a shift to more effective non-structural measures from the perspective of residents and implement these measures on a priority basis by the 2016 flood season in order to enable residents to detect risks themselves and evacuate autonomously.

<Structural measures> - In addition to structural measures to safely channel away floodwaters, adopt crisis management-type structural measures to mitigate damage in the event of inundation and implement these measures by FY2020.

Key measures

Set up new councils comprising river administrators, prefectural government officials, municipal officials, and other members in each region, share targets for disaster mitigation, and promote structural and non-structural measures in an integrated, systematic manner.



Source) MLIT

Column The Future of Weather Disaster Prevention Work in Regional Areas

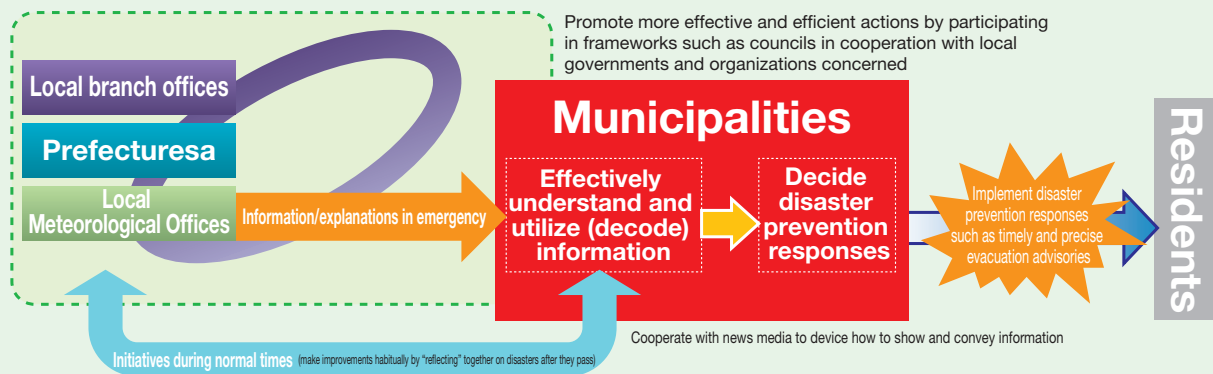
In order to contribute to the shift to a “society with higher disaster prevention awareness,” the Japan Meteorological Agency gathered experts and held a Review Meeting on the Future of Weather Disaster Prevention Work in Regional Areas (chaired by Atsushi Tanaka, Professor at University of Tokyo Graduate School) to examine the direction of work at meteorological observatories that could contribute further to weather disaster prevention in regional areas. In August 2017, “The Future of Weather Disaster Prevention Work in Regional Areas” (a report) was compiled as a product of the review.

- Contribute further to weather disaster prevention in regional areas through cooperation among local governments and relevant organizations

- Advance initiatives in normal times further so as to ensure municipalities can more deeply “understand and utilize” (decode) weather information for disaster prevention in their decisions on disaster prevention responses during emergencies

In response, the Japan Meteorological Agency decided to strengthen initiatives during normal times, including establishing “face-to-face relationships” and to carry out weather disaster prevention work in regional areas in cooperation with persons concerned with weather disaster prevention, gradually advancing initiatives such as providing strong backing for municipalities’ disaster prevention responses by providing timely and precise explanations during emergencies, such as through hotlines.

Image of role and initiatives of Local Meteorological Offices in weather disaster prevention in regional areas



Source) Japan Meteorological Agency

[Establishment of JMA Emergency Task Teams (JETT)]

In May 2018, the Japan Meteorological Agency established JMA Emergency Task Teams (JETT) to support local governments' disaster responses by swiftly dispatching meteorological observatory personnel as TEC-FORCE members to prefectural or municipal governments in order to provide explanations of weather conditions according to needs on the ground in disaster responses, when a disaster is predicted or has occurred. JETT are composed of personnel with a thorough knowledge of the local area around Local Meteorological Offices on-site and in the vicinity.

[Example of Hotline Utilization]

During torrential rain that fell on Akita Prefecture in July 2017, the head of the Akita Local Meteorological Office used hotlines to the mayors of municipalities expected to suffer damage to make direct phone calls and strongly urge them to go on heightened alert against heavy rain. The head of the River Office also used a hotline to provide information about river water levels and directly consult with mayors about the dispatch of personnel and pump trucks. In such ways, we supported evacuation advisory decisions and disaster prevention activities.

Column

Promotion of the "Small and Medium-sized River Project of emergency countermeasures" Including Construction of Open-type Sabo Dams and Installation of Risk Management-type Water Level Gauges

(1) Damage from the Northern Kyushu Heavy Rain in July 2017

During the Northern Kyushu Heavy Rain in July 2017, floodwaters from multiple simultaneous slope failures associated with intensive rainfall surged downstream with large amounts of debris and drift woods. This resulted in sediment clogging the river channel and the accumulation of drift woods at bridges blocking the river channel. Additionally, floodwaters exceeding the flow capacity of the river channel overflowed, together with debris and drift woods, into the surrounding area, causing the destruction of houses and human damage.

(2) Small and Medium-sized River Project of emergency countermeasures


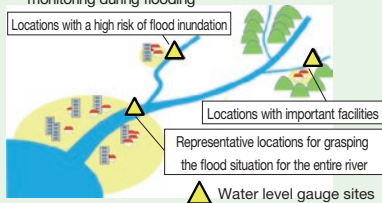
A Chikugo River Right Bank Watershed Technical Review Committee for River and Sabo Restoration was established in response to the Northern Kyushu Heavy Rain in July 2017. Issues in the Northern Kyushu Heavy Rain identified by the committee were: (i) amplification of damage by large amounts of debris and drift woods in rivers in mountainous areas, (ii) occurrence of repeated flood damage by small and medium-sized, and (iii) inability to grasp the river's situation in real time during the flooding. It is thought that these issues are shared in common between the river that produced damage during the Northern Kyushu Heavy Rain and rivers in other regions with similar characteristics.

Accordingly, we conducted emergency inspections of small and medium-sized rivers nationwide from the above three perspectives. In light of the results, we organized measures to implement over the next three years or so (aiming for completion in FY2020) on small and medium-sized rivers nationwide into the Small and Medium-sized River Project of emergency countermeasures. Specifically, it was decided to construct open-type Sabo dams that are highly effective at capturing debris and drift woods^{*1}, excavate river channels and construct levees to reduce flood damage to lots of homes and important facilities, and install risk management-type water level gauges^{*2}.





Promotion of the Small and Medium-sized River Project of emergency countermeasures

- <Issues revealed by recent torrential rain disasters>
- (i) Amplification of damage by large amounts of debris and drift woods in rivers in mountainous areas
 - (ii) Occurrence of repeated flood damage by small and medium-sized rivers
 - (iii) Inability to grasp the river's situation in real time during the flooding

Emergency inspections conducted in cooperation with prefectures

<p><Sediment/debris countermeasures></p> <ul style="list-style-type: none"> ➤ Construct open-type Sabo dams on around 700 mountain streams nationwide with a high risk of damage from debris and drift woods  <p>Example of sediment/debris damage (Akatani River)</p>	<p><Countermeasures to prevent repeated flooding></p> <ul style="list-style-type: none"> ➤ Excavation and construction of levees along around 300 km of rivers nationwide with a high risk of repeated flooding  <p>Repeated flood damage</p>	<p><Water level monitoring during flooding></p> <ul style="list-style-type: none"> ➤ Installation of risk management-type water level gauges (low-cost water level gauges specialized for floods) at around 5,800 locations with a high need of water level monitoring during flooding  <p>Image of countermeasure locations</p>
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^{*1} Open-type Sabo dams that are highly effective at capturing debris and drift woods: Mechanism of capturing drift woods
 In sediment disasters, there are many examples of damage to houses, etc., increasing due to drift woods flowing downstream together with sediment when torrential rain or an earthquake causes a mountainside to collapse. The construction of open-type Sabo dams that are highly effective at capturing debris and drift woods is an important countermeasure. Sabo dams are divided roughly into two types: closed-type Sabo dams and open-type Sabo dams. Both have the ability to capture drift woods. The open-type is especially efficient at capturing drift woods, since it can capture drift woods and sediment together without holding the water back. That is why we are promoting the construction of open-type Sabo dams in locations where there is a risk of debris flows. At the same time, at locations where sediment can flow constantly, there is a need to use closed-type Sabo dams to prevent new slope failures and sediment sliding.

 <p>Closed-type Sabo dam</p>	 <p>Some logs float over the dam and flow downstream</p>
 <p>Open-type Sabo dam</p>	 <p>Logs are captured together with sediment</p>

*2 Development and installation of management-type water level gauges through government-led open innovation
The technological development of risk management-type water level gauges (low-cost water level gauges specialized for floods) was carried out with a sense of speed, beginning with open recruitment in November 2016 for participation in open innovation. A pitch event was held in January 2017, development teams formed in March, field-testing conducted in August, and device development completed in December. What enabled the speedy development of the device in about a year were the fact that MLIT clearly defined the required standard and the fact that matching that drew on the strong points of companies (12 teams began development) was used. The characteristics of the water level gauge are a cost under 1/10 of a conventional device (less than 1 million yen per device) and long-term maintenance-free operation (five years or longer without supplying electricity). We will install the devices at high priority sites on rivers under ministerial jurisdiction within FY2018 and will encourage their installation by FY2020 on rivers managed by prefectural governments.

Column

Implemented First River Improvement through National Government Since Amendment of the Rivers Act, and Sediment Disasters Countermeasures Directly Managed by the National Government in Region Affected by the Northern Kyushu Heavy Rain in July 2017

Of the rivers that sustained major damage in the Northern Kyushu Heavy Rain in July 2017, the damage was especially large in the Akatani River basin. Here, new river improvement was carried out through national government agency. Also, measures were implemented to restrain the discharge of sediment through emergency construction of Sabo dams as projects directly managed by the national government. In such ways, measures were carried out that coordinated river projects with Sabo projects.

<<National government agency for disaster recovery construction on rivers managed by prefectural governments (river projects)>>

There was considerable accumulation of large amounts of debris and drift woods that were discharged in slope failures in the upper reaches of the Akatani, Oyama, and Otoishi Rivers, which are part of the drainage system of the Chikugo River managed by Fukuoka Prefecture. Emergency countermeasures were needed, as there was an extremely high risk of secondary damage with even a little rain. Moreover, as the highly fluid nature of the discharged sediment made construction difficult, a high level of technological capability was required. Accordingly, upon request from the governor of Fukuoka, the national government carried out an emergency response through national government agency beginning on July 18, 2017. This national government agency system was newly created based on the Rivers Act, which had been amended in June 2017. This was the first time it had been applied.

Also, the full-scale restoration work conducted following the emergency countermeasures also required a high level of technological capability, since, in addition to the nature of the soil, changes in the riverbed due to sediment during the stage of construction had to be monitored and adaptive responses taken. Accordingly, a request was received from the governor of Fukuoka on November 30, 2017, and on December 1 it was decided to conduct the work through national government agency.

Over the next five years or so, we will conduct full-scale restoration work, including widening the river, improving bank protection, improving flow by easing areas with sharp bends, and improving storage facilities for drift woods.

Immediately after disaster



Emergency countermeasures completed



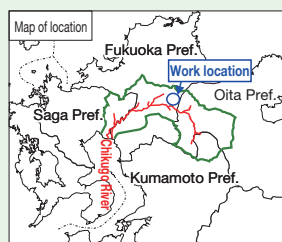
<< Sediment disasters countermeasures directly managed by the national government in the Akatani River basin (Sabo project)>>

The Northern Kyushu Heavy Rain in July 2017 caused many incidents of sediment disaster due to debris and drift woods associated with slope failures. A Sabo project directly managed by the national government was carried out in the Akatani River basin—which is part of the drainage system of the Chikugo River—where damage was especially large.

In order to prevent secondary disasters due to debris and drift woods remaining upstream moving again, in response to a request from the governor of Fukuoka, it was decided on August 10, 2017 that the national government would conduct an Urgent Sabo Project for Sediment Disaster. Construction work began on August 16. The emergency construction included building Sabo dams and sand pocket.

Also, on December 1, 2017, it was decided that, following the emergency construction, the national government would focus on improving Sabo dams over the next five years or so, in order to prevent wide-area sediment and flood damage.

- Emergency Sabo construction is underway in the Akatani River basin, which is part of the drainage system of the Chikugo River, in order to prevent secondary disasters due to unstable sediment, etc. accumulated in the basin moving again. (Urgent Sabo Project for Sediment Disaster)
- Following the Urgent Sabo Project for Sediment Disaster, **efforts are to be focused on improving Sabo dams over the next five years or so**, in order to prevent wide-area sediment and flood damage. (Specified Sabo Project for Sediment Disaster)
- Furthermore, in order to manifest the effect of the Specified Sabo Project for Sediment Disaster as soon as possible, “emergency funds for disaster countermeasures” are to **be used to quickly construct Sabo dams**.



Legend	
	Sabo dam
	Strong wire net
	Sand pocket

	Urgent Sabo Project for Sediment Disaster (implemented in 2017)
	Specified Sabo Project for Sediment Disaster (to be implemented from 2018)
	Emergency funds for disaster countermeasures (implemented in 2017)

Project	Disaster Prevention	Special Control	
			Emergency funds (included in Special Control Project)
Cost	Approx. 2.7 billion yen	Approx. 17.5 billion yen	540 million yen
Content	Sabo dams: 2 Sand pocket: 1 Strong wire nets: 4	Sabo dams: 24	Sabo dams: 1
Period	FY2017	FY2017 – FY2022	FY2017



(2) Preventing and Mitigating Water Disasters

Large-scale water disasters caused by tropical cyclones or the like (for example, disasters caused by Typhoon Wipha visited Izu Oshima Island and other regions in Japan in 2013 and storm surge disasters caused by Hurricane Sandy in US in 2012) are occurring more frequently and seriously. With this situation in mind, the “Underground Mall, Subway, Etc. Working Group,” “Disaster Action Plan Working Group” and “Catastrophic Damage Prevention Working Group” have been set up under the “Water Disaster Prevention and Mitigation Headquarters, MLIT” chaired by the Minister of Land, Infrastructure, Transport and Tourism in January, 2014, to study the measures to be taken when water disasters occur.

The Underground Malls, Subways, Etc., Working Group has summarized responses to issues concerning underground settings and disseminated this summary to the relevant organizations. Accordingly, flood measures have been applied on a coordinated basis to underground malls, subways, and connected buildings in the three major metropolitan areas.

The Disaster Action Plan Working Group provides support to enable the heads of municipalities to issue evacuation instructions at appropriate times and has formulated timelines focused on the issuance of evacuation instructions for rivers under the direct jurisdiction of the national government, as well as timelines for bringing together many concerned parties, including local governments, railways, electricity power operators, telecommunications operators, and welfare facilities,

in the downstream basin of the Arakawa River. Modeled on this approach, councils have been established for Ishikari River (Hokkaido), Kuma River (Kumamoto), and other blocks throughout the country and are conducting studies on timelines for bringing together many concerned parties. In August 2016, we established and announced the first version of a Policy on Formulating and Using Timelines (Disaster Action Plan) and disseminated it to municipalities and organizations concerned with disaster prevention. We are also preparing timelines for rivers managed by prefectural governments, focusing on flood forecast rivers and water level alert rivers.

In the Catastrophic Damage Prevention Working Group, the objective is to protect lives and preventing catastrophic damage being caused to society and the economy in the context of an ideal way of engaging in disaster prevention and mitigation for the new stage, as declared in January 2015. The group aims to prevent catastrophic damage caused to society and the economy in accordance with the necessity of a collective societal response informed by a shared sense of crisis. In Tokyo, Nagoya, and Osaka, Regional Development Bureaus, in cooperation with companies and other entities, studied projected damage and countermeasure plans, including for areas outside flood zones, for things such as power outages and suspended railways. These were published by August 2017.

In August 2017, we convened the Fifth MLIT Water Disaster Prevention and Mitigation Headquarters and accelerated initiatives for the “Rebuilding Flood-Conscious Societies.” We decided that MLIT would put an all-out effort into structural and non-structural disaster prevention and disaster mitigation measures, in order to minimize damage to society and the economy by avoiding catastrophic damage from large-scale floods. We also decided responses to take in light of the Northern Kyushu Heavy Rain in July 2017 and priority measures for FY2018. As specific examples of priority measures for FY2018, it was decided to: (i) study measures to lower storm surge risk in harbor land not protected by levees, and (ii) strengthen weather disaster prevention support in local communities.

(3) Responding to Climate Change

There are growing concerns about the intensified frequent occurrence of water disasters (river water flooding, inland water flooding, storm surges), sediment disasters, and drought damage caused by climate change. In August 2015, the Infrastructure Development Council issued a report entitled “Approach to Climate Change Adaptations in the Field of Water-related Disasters: Becoming a Society that Strives to Reduce Natural Disasters by Sharing Disaster Risk Information and a Sense of Crisis.”

Regarding natural hazards that could occur relatively frequently, continue to steadily promote improvements that have been ongoing to date for the construction of levees, flood control structures, and sewer systems. Regarding natural hazards that exceed the capacity of facilities, endeavor to reduce risk by making improvements in facilities’ operations, design and implementation procedures. For natural hazards that significantly exceed the capacity of facilities, aim for the protection of human life to the greatest extent possible and avoid catastrophic damage to the society and the economy, considering worst-case scenarios, and by developing measures with an emphasis on nonstructural measures.

In the future, we will work on measures to adapt to the effects of climate change based on the Plan for Adaptation to the Impact of Climate Change, adopted by a Cabinet decision in November 2015, and on the MLIT Climate Change Adaptation Plan of November 2015.

(4) Responding to Nankai Trough Mega Earthquake and Tokyo Inland Earthquake

If Nankai Trough Mega Earthquake occurs, it is predicted that a wide Pacific-side area from the Kanto region to Kyushu will experience strong shaking with a seismic intensity of weak 6-7 and a huge tsunami will attack the wide Pacific-side coastal area within a short period of time. Deaths will reach a maximum of about 320,000 people, a critical situation including the interruption of transport infrastructure and paralysis of urban functions along the coast will be created, and the lives and economic activities of Japanese citizens are expected to suffer extremely serious effects all over Japan.

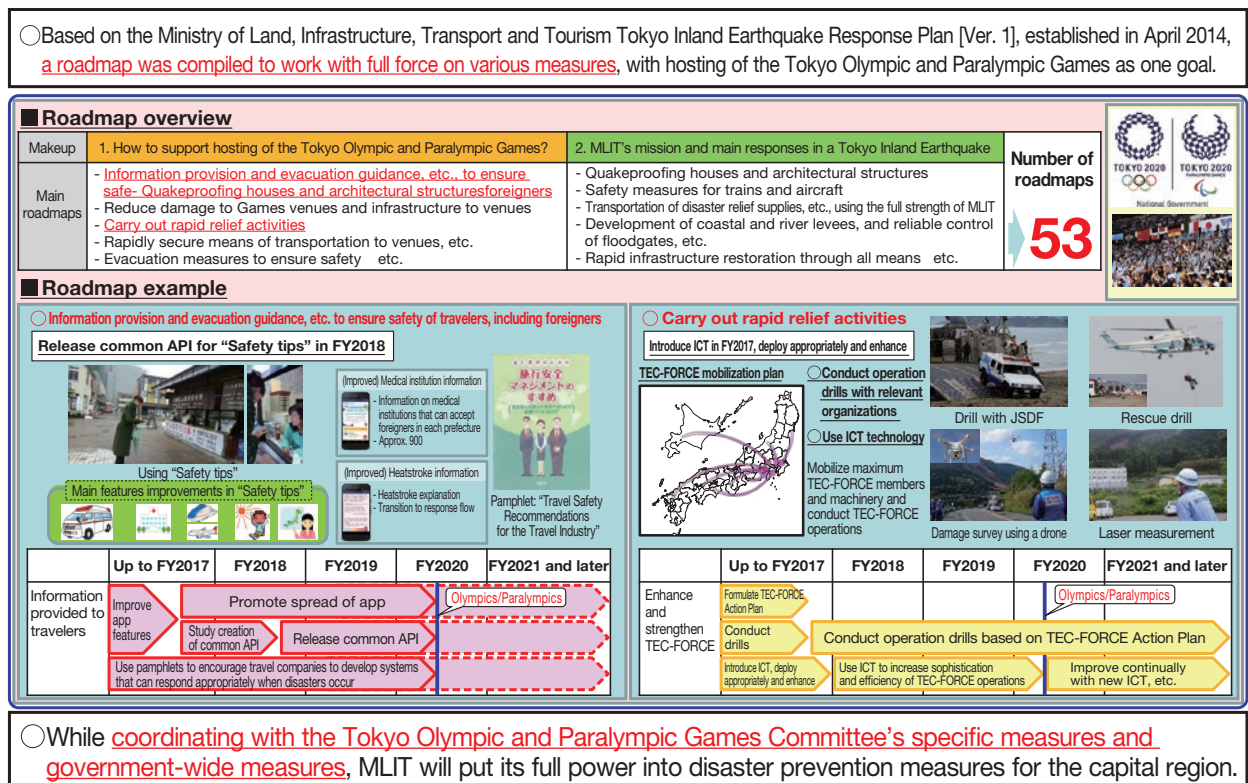
If the Tokyo Inland Earthquake occurs, it is expected to cause strong shaking with a seismic intensity of weak 6-7 along the entirety of the Tokyo Metropolitan area. In the Tokyo Metropolitan area, population, buildings, economic activities and others are concentrated extremely compared with other areas, and so it is expected that human, property, and economic damages become tremendous. In addition, in the Tokyo Metropolitan area, political, administrative, and economic functions of the capital are concentrated, and so it is expected that the Tokyo Inland Earthquake exerts impacts upon national economic activities and others as well as overseas countries.

In order to cope with such a national crisis, the Ministry of Land, Infrastructure, Transport and Tourism—which is in charge of the development and management of a lot of infrastructures and the protection of human lives and properties at sea and which has many field agencies all over Japan—established the Ministry of Land, Infrastructure, Transport and Tourism Nankai Trough Mega Earthquake and Tokyo Inland Earthquake Response Headquarters and a Response Plan Making Working Group in 2013, and formulated the Ministry of Land, Infrastructure, Transport and Tourism Nankai Trough Mega Earthquake Response Plan and Ministry of Land, Infrastructure, Transport and Tourism Tokyo Inland Earthquake Response Plan on April 1, 2014, in order to determine the reality-based responses to be taken by collective effort. Regarding Nankai Trough Mega Earthquake, more specific and practical Regional Response Plans were developed for each regional block along with the abovementioned plans. In August 2017, under the purview of the Seventh Nankai Trough Mega Earthquake and Tokyo Inland Earthquake Response Headquarters, we decided to accelerate initiatives to shift to a society with higher disaster prevention awareness. We also decided Ver. 1 of the Roadmap for Tokyo Inland Earthquake Responses in Preparation for Hosting the Tokyo Olympic and Paralympic Games. The roadmap reflects the Ministry of Land, Infrastructure, Transport and Tourism Tokyo Inland Earthquake Response Plan. Additionally, we decided the TEC-FORCE Action Plan for Tokyo Inland Earthquake, which plans for the prompt dispatch of TEC-FORCE and other response teams after an earthquake. Finally, priority measures were determined after taking into account the status of implementation to date of both response plans.

As specific examples of priority measures for FY2018, it was decided to: (i) establish a portal site on Tokyo Inland Earthquake responses, with a view toward the Tokyo Olympics and Paralympics (disaster prevention portal), (ii) enhance the road re-opening plan, and (iii) implement marine transport countermeasures in the deployment of regional support teams.

Figure II-7-2-2

Roadmap for Tokyo Inland Earthquake Responses in Preparation for Hosting the Tokyo Olympic and Paralympic Games [Ver. 1]

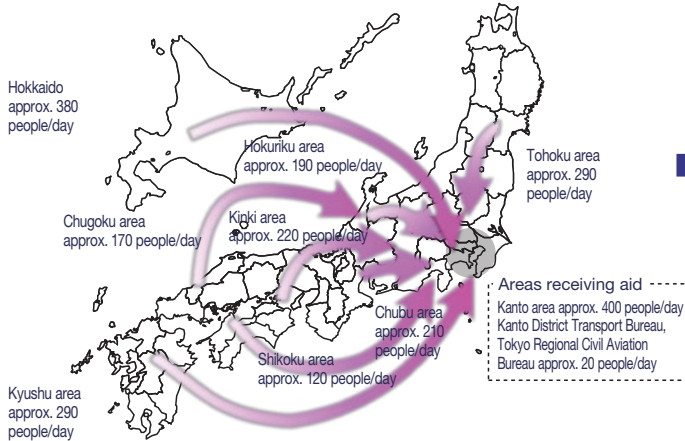


Source) MLIT

Figure II-7-2-3 Overview of the TEC-FORCE Action Plan for a Tokyo Inland Earthquake

- A mobilization plan for TEC-FORCE and a timeline for wide area deployment have been prescribed in order to conduct emergency response operations swiftly and smoothly in immediate response to the enormous damage of a Tokyo Inland Earthquake.
 - TEC-FORCE from areas providing aid **advance to wide area staging bases**, which are the first goal to reach. Following instructions from the areas receiving aid, they move to various operations bases, **secure emergency transportation routes, perform emergency water drainage, and conduct damage surveys, etc.**
- * Formulated based on the Basic Plan for Carrying Out Tokyo Inland Earthquake Emergency Measures (March 2015, Cabinet decision) and the Tokyo Inland Earthquake Response Plan (April 2014, MLIT).

TEC-FORCE mobilization plan (maximum deployment from each area)



* Additionally, District Transport Bureau to deploy approx. 70 people/day

Maximum mobilization of TEC-FORCE people and machinery

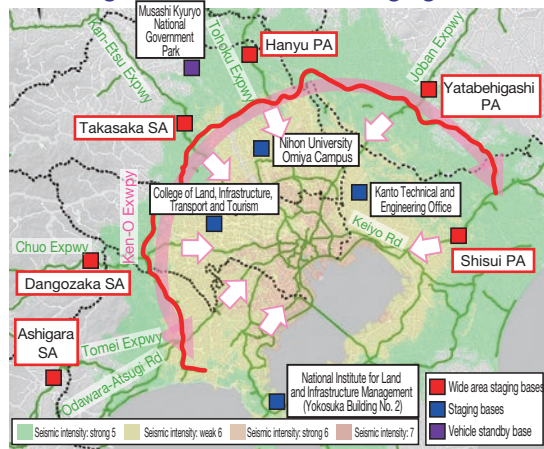
- TEC-FORCE:	Approx. 8,900 people (max. 2,360 people/day)
- Helicopters for disaster measures:	8
- Machinery for disaster measures:	Approx. 514
- Ships for disaster measures:	26

Source) MLIT

Conception of wide area deployment timeline

- Day 1: Dispatch teams to wide area staging bases immediately after the disaster occurs
- Day 2: TEC-FORCE from areas receiving and providing aid start unified operations
- Day 3: Maximum number of TEC-FORCE members and machinery in action

Arrangement of wide area staging bases



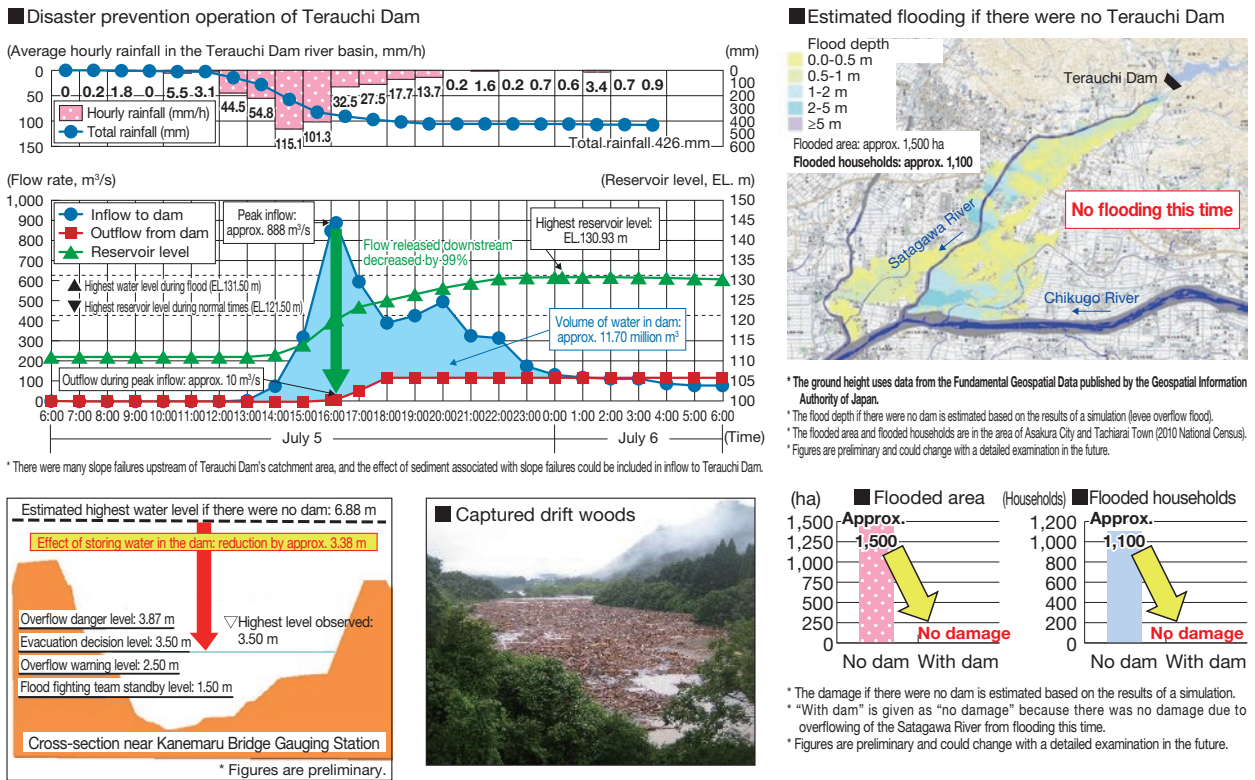
2 Shaping National Land that is Safe and Resilient to Disasters and Enhancing and Strengthening the Framework of Preparedness for Crisis Management

(1) Flood Measures

Many of Japan's major cities are positioned on low-lying districts that are lower than the river level during flooding, making the latent danger of flood inundation quite high. Water control measures, such as those involving the expansion of the river channel to safely flush away floods, embankments, the development of discharge channels, dams to temporarily hold back floods, and retarding basin, have steadily improved the degree of water control safety. However, flooding occurred in various locations throughout the country in 2017 due to the Northern Kyushu Heavy Rain in July and typhoons Talim and Lan making landfall. In order to mitigate and reduce damage caused by flood disasters which occur frequently and seriously, structural measures such as preventative flood control measures and measures to prevent re-occurrence as well as non-structural measures such as strengthening of the flood defense system and provision of river information are being promoted in a comprehensive manner taking into account the influence of climate change.

In incidents involving inundation and other forms of flooding that occurred in 2017, the value of flood control projects implemented previously was demonstrated. For example, during the Northern Kyushu Heavy Rain, there was record-breaking rainfall, exceeding 400 mm in total, in the Satagawa River Basin, and the Terauchi Dam recorded the largest volume of flow since its management began. However, through disaster prevention operation, the flow released downstream from the dam was reduced by up to 99%, reducing the water level in the downstream river by around 3.4 meters and capturing a large amount of drift woods in the dam's reservoir.

Figure II-7-2-4 Effect of Disaster Prevention Operation of Terauchi Dam (the Northern Kyushu Heavy Rain in July 2017)



(Source) MLIT

(i) Preventative water control measures implemented systematically

In light of the increasing frequency and intensity of flood damage associated with climate change, it is important to systematically carry out water control measures against floods that have a comparatively high frequency of occurrence. For this reason, we are systematically promoting such measures as developing levees, excavating river channels, flood-retarding basins, discharge channels, and dams. In addition, in order to use the existing facilities effectively, we are working on dam improvement, including through such measures as raising the height to increase a dam's storage capacity and the flexible operation of dams to make use of service water capacity for flood control and making use of flood control capacity for other purposes.

Additionally, we are developing high standard levees, in cooperation with town planning, in low-lying areas such as zero meter areas in the capital region and Kinki region, where population and assets are concentrated. The development of high standard levees will produce a variety of effects, including avoidance of severe damage caused by levee breaches, function as evacuation sites for residents living in the vicinity during disasters, and provision of good living environments and urban spaces.

Column

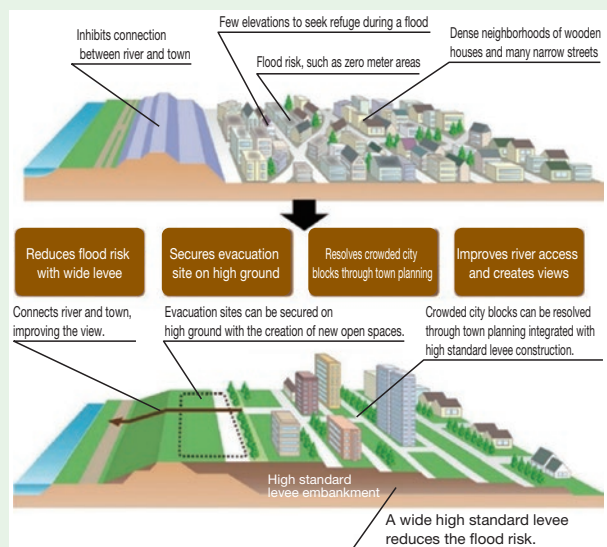
Toward Efficient High Standard Levee Promotion

The highest priority in developing high standard levees is to protect human life. They are constructed to avoid levee breaches caused by overflow, infiltration, and erosion in low-lying areas such as zero meter areas in the capital region and Kinki region. Also, where they have been developed in some sections of a series of sections or when the basic cross-sectional shape has not been completed, the safety of places where the high standard levees have been constructed improves dramatically. These places function as evacuation sites for residents living in the vicinity during flooding and as bases for various activities. They also provide good living environments. High standard levees therefore have diverse effects. In the Komatsugawa district on the right bank of the Arakawa River, for example, after a high standard levee was constructed, it has served as a park where residents can relax during normal times and a center of disaster prevention as an evacuation site for approximately 200,000 people during disasters.

A review committee for efficient development of high standard levees, composed of individuals with relevant knowledge and experience, was formed to widely discuss the current state of and issues with past high standard levees. The committee met three times, beginning in May 2017, and compiled recommendations for measures to more efficiently promote high standard levee development.

The main promotion measures recommended were for promoting the development of high standard levees through joint projects with private sector businesses. The recommendations included establishing a system to give incentives to project partners, such as utilizing the site on the reverse slope from the river, which becomes usable with the development of high standard levees, for parks and roads, and factoring it in as a site area for buildings. Another recommendation was to establish a system that would allow integrated construction of buildings and foundations together with embankment and foundation improvement for a high standard levee, with a view toward shortening the construction period and expanding the discretion of project partners.

Going forward, we will actively call for promotion of high standard levee development based on the recommendations and also flesh out promotion measures and steadily promote the development of high standard levees.



Source) MLIT

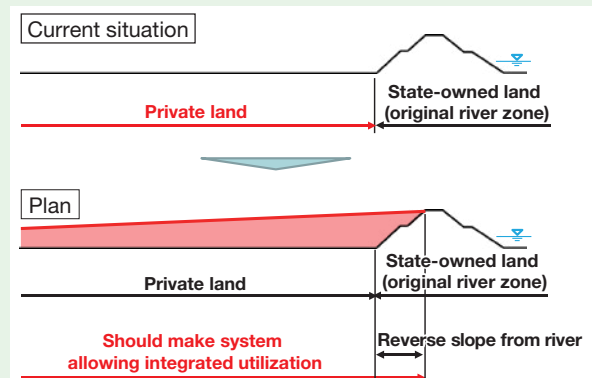
Used as a park during normal times and an evacuation site during disasters (Arakawa River, Komatsugawa district)



Source) MLIT



Utilizing the site on the reverse slope from the river



Source) MLIT

Column

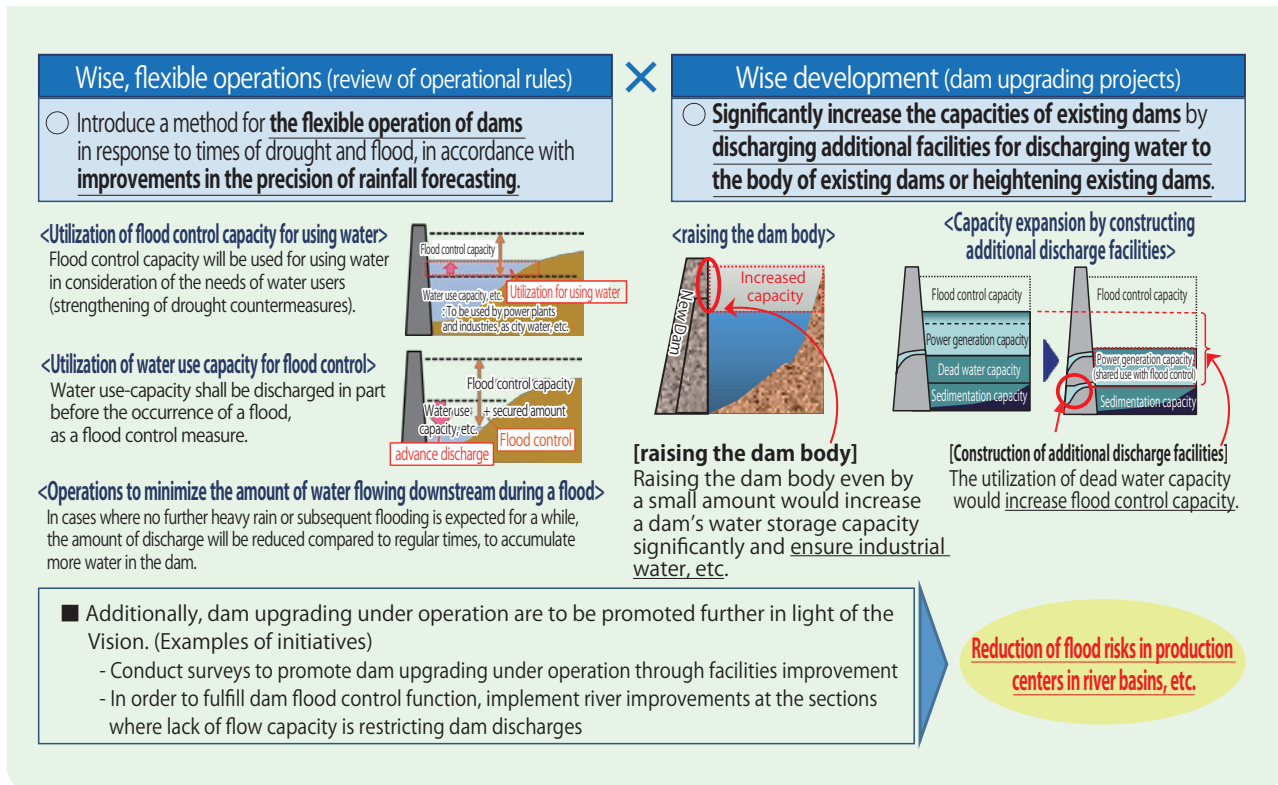
Productivity Innovation Project: dam upgrading under operation –Early Upgrading of Water Utilization and Flood Control Capacities to Support Local Economies–

Effective ways to quickly reduce the risk to corporations' production activities posed by the frequent droughts and floods seen in recent years are introducing new construction technologies and making the best possible use of the storage capacity of existing dams.

Under the Vision on Upgrading Dams under Operation (enacted June 2017), structural and non-structural measures that maximize the use of existing dams (smart and flexible operation × smart improvement) will be strategically and systematically implemented to achieve early effects in both water supply and flood control operations.

At present, we have conducted a general review of the operation rules for 123 dams nationwide managed by the national government or the Japan Water Agency and have made facilities improvements, including heightening the body of existing dams and constructing additional facilities for discharging water, at 19 dams nationwide (as of March 2018).

In FY2018, we started three projects: Uryugawa Dam Upgrading Project, Yahagi Dam Upgrading Project, and Sameura Dam Upgrading Project. We also established "A subsidy for planning of dam upgrading under operation" to support the planning of dam upgrading by prefectural governments by expanding eligibility for General Social Infrastructures Development Subsidies (dam improvement projects).



(ii) Preventing the reoccurrence of flood disasters

In regions where the frequent occurrence of flood damage and inundation above floor level have caused loss of life and serious problems in people's daily lives, river channel excavation and levee construction, among other measures, are being implemented intensively over a short time span in order to improve the flow capacity of rivers, in an effort to prevent the recurrence of disasters.

(iii) Flood control measures tailored to river basin characteristics

For rivers that experience a significant decline in flood control safety due to river basin development or existing urban areas regularly subject to flood damage, it is important to ensure the water retention and flood dissipation functions of the river basin. Rivers such as these require the promotion of river basin measures and a variety of methods that taken into consideration regional characteristics to ensure safety and comfort.

a. Comprehensive flood control measures

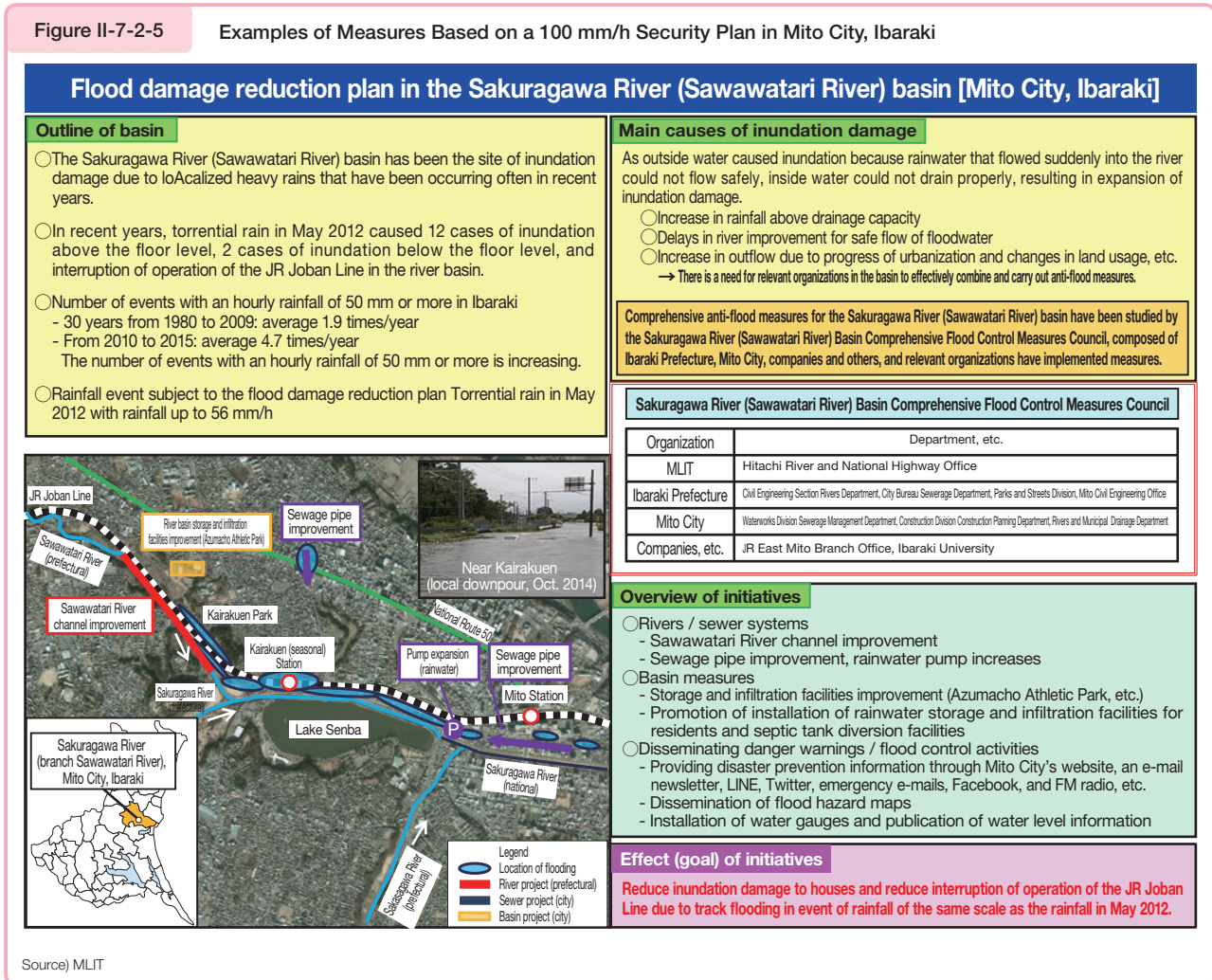
With factors, such as an increase in the impermeable land area following the development of urban areas and peripheral areas, as well as an increased discharge from flooding rivers, for urban rivers where flood control safety is significantly compromised, it is important to carry out comprehensive flood control measures, in addition to river development, such as securing the water retention and flood dissipation functions of the river basin, directing land use in regions at high risk of disasters occurring, and establishing a precautionary evacuation framework. As part of these efforts, we are cooperating with the relevant local authorities to promote the suppression of rainwater drainage through the development of infiltration facilities for storage of rain water, as well as measures to reduce civilian damage.

In addition, to prevent the disruption of urban functions due to flooding as well as the flooding of underground malls in accordance with the Act on Countermeasures against Flood Damage of Specified Rivers Running Across Cities, river administrators, sewage system administrators, and local government are working together to promote river basin flood damage countermeasures such as developing rainwater harvesting and infiltration facilities as well as regulations to suppress the drainage of rainwater.

b. Localized downpours measures

In recent years, due to inundation damage caused by phenomenon such as concentrated heavy rains in localized areas, to ensure that residents can live safely even during localized heavy rains exceeding planned levels, a plan created with the support of residents (groups), private sector companies, and others that stipulates a comprehensive approach implemented to reduce flood damages known as the “100 mm/h security plan” is registered and initiatives to promote mitigation measures against flood damages are being implemented in addition to the development of rivers and sewerage.

Figure II-7-2-5 Examples of Measures Based on a 100 mm/h Security Plan in Mito City, Ibaraki



c. Integrating flood control measures with land use

Land use combined with a circle levee^{Note} and the regulation of land use, such as designation of disaster risk areas, is promoted with local governments when the measure is more efficient and effective than constructing levees from the viewpoint of recent damage from flooding and situation of land use.

d. Inland water measures

To prevent flooding through inner water inundation and strive for the steady development of cities, the improvement of facilities such as sewer pipes and drainage pump stations are being promoted. However, in recent years, the frequency of concentrated downpours that far exceed planned scales the increased rainwater drainage due to the advancement of urbanization, the increased complexity of the urban landscape including the concentration of population and wealth as well as the increased use of underground spaces make the risk of damage due to inner water inundation even greater. For this reason, measures such as integrated projects for the reduction of sewer flooding damages and integrated projects for

Note A levee that surrounds districts with housing and other structures

inland water emergency measures are being utilized with the cooperation of relevant parties including regional authorities and affected residents to carry out structural measures such as proactively implement rainwater drainage reduction facilities; non-structural measures such as providing rainfall information, land use regulations, and creation of inland water hazard maps; and self-help initiatives such as the placement of water stops and sandbags as well as evacuation activities in combination for the promotion of integrated inundation measures.

(iv) Strengthening the flood prevention framework

In collaboration with prefectural governments, flood prevention administrative bodies, neighborhood associations, and other stakeholders, we have been implementing joint inspections of sections at high risk of flooding prior to the arrival of flood season, carrying out information-transmission drills, holding flood-prevention technical workshops and flood-prevention drills, endeavoring to disseminate flood-prevention technologies, and otherwise providing support for the strengthening of the flood prevention framework in order to minimize damage caused by flooding.

In order to reinforce the ability of local areas to prevent floods with the participation of various key players, we are also supporting initiatives tied to plans for the securing of evacuations and the prevention of inundation in underground malls (including those slated to be constructed and those that are under construction) situated in areas expected to become inundated, facilities for people with special needs, and large-scale factories.

(v) Announcing forecasts and warnings of flooding and providing river information

The Minister of Land, Infrastructure, Transport and Tourism or the Prefectural Governor designate rivers with large river basins that are at risk of causing great damage to the nation's economy or other great losses as flood forecast rivers and announce flood forecasts indicating the water level or flood volume jointly with the Director-General of the Japan Meteorological Agency. Also, aside from flood forecast rivers, important small and medium-sized rivers are designated as water level alert rivers, and during floods, when the hazardous water level (special caution water levels of flood), this information is also released. As of the end of March 2017, there are 421 flood forecast rivers and 1,597 water level alert rivers. Additionally, the Director-General of the Japan Meteorological Agency releases flood warnings when there is a risk of flooding due to the weather conditions.

The water level, precipitation amount, flood forecasts, flood prevention warnings and other river information is collected, processed, and edited in real-time and made available to river administrators, municipalities, residents, and others on the website "River Flood Information" ^{Note} to be utilized in issuing warnings and evacuation during flooding.

The push-based flood risk information service, which began in September 2016 in Joso City, Ibaraki and Ozu City, Ehime, which are local governments in the Kinu River and Hiji River basins, was expanded in June 2017 to 412 municipalities in 68 river systems that are flood forecast rivers managed by the national government.

In addition, the data broadcast function of digital terrestrial television is being used in cooperation with broadcasters for efforts to provide river water levels and precipitation amount.

XRAIN (eXtended RAdar Information Network), which can accurately monitor concentrated heavy rainfall and localized heavy rainfall with high-resolution and high-frequency in order to help facilitate appropriate river management and disaster prevention activities, is used in rainfall observation. Rainfall information is also made available on the Internet.

(vi) Designation of expected inundation area by flooding

To reduce the flood damage by means of smooth and rapid evacuation and prevention from inundation when a flood occurs, districts that are likely to be inundated when the river floods (expected inundation area by flooding) are designated and information such as the depth of inundation is publicized in accordance with the Flood Control Act. With the 2015 amendments to the Flood Prevention Act, expected inundation area by flooding because of conceivable maximum-scale rainfall will be sequentially designated and publicly disclosed.

In order produce hazard maps that are directly tied to more effective evacuation actions in municipalities located in expected inundation area by flooding, for the benefit of users, we have revised and published guidelines for the production of flood damage hazard maps and are providing support tools that make it easy to produce hazard maps containing the

Note River Flood Information website: <http://www.river.go.jp> [PC version], <http://www.river.go.jp/s> [smartphone], <http://i.river.go.jp> [mobile]

minimum information required as well as technical support for their dissemination and utilization.

Expected inundation area by flooding have been designated and publicly disclosed for approximately ninety-eight percent ^{Note} of flood-forecasted rivers and rivers for which water levels are publicly disclosed. Flood hazard maps have been produced for approximately ninety-eight percent ^{Note} of municipalities included in areas that are expected to become inundated.

Additionally, with the 2017 amendments to the Flood Control Act, when the mayor of a municipality has a record of past inundations for small and medium-sized rivers that are not designated as flood-forecasted rivers and rivers for which water levels are publicly disclosed, this information is publicly disclosed as water damage risk information.

MLIT not only allows for tax subsidies for inundation prevention facilities obtained by the owner or managers of underground malls, etc. in probable inundation zones in accordance with inundation prevention plans, it also supports voluntary flood defense initiatives carried out by underground malls, facilities for people with special needs, and large-scale factories via the disaster information dissemination office established within the river-related office of Regional Development Bureaus across the nation as a contact point for businesses and others.

(vii) Strategic maintenance and management of rivers

The condition of river channels and facilities are assessed and appropriate maintenance and management is carried out in accordance with any changes to ensure that the river administration facilities function as intended during floods and other situations.

In the course of river development carried out, the number of facilities, such as levees, weirs, floodgates, and drainage pump stations, under management greatly increased, and the age degradation of these facilities is advancing. For river management facilities, a transition to condition-based maintenance is being implemented where conditions are known through inspections so that measures are taken at appropriate times. Also, lifetime extension plans have been formulated for major river infrastructure administered by the nation so as to extend facility life cycles and updating in a planned manner. In addition, necessary technological development for extending lifetime will be furthered and technical standards for middle to small rivers will be studied in cooperation with prefectures for appropriate maintenance and management. In addition, technical support is provided through permanent consultation services made available by regional development bureaus.

The River Law, which was partially revised in 2013, clarifies the need for the administrator of river management facilities or authorized structures to maintain river management facilities or permitted structures in good condition through maintenance and repair. Based on this, we have revised the Technical Criteria for River Works: Maintenance (River) and have developed various procedures such as for the inspection of levees and other river management facilities and river channels for the promotion of appropriate maintenance.

(viii) Measures against illegally moored vessels in rivers

Illegally moored vessels in rivers can impede flood control (such as by impeding river construction work, blocking the downstream flow during flooding, and damaging river management facilities) and otherwise impede the management of rivers (such as by causing water pollution through the leakage of fuel and impeding river usage). For these reasons, river administrators are providing administrative guidance to the owners of unlawfully moored vessels on relocation to lawful mooring and storage facilities and, if necessary, they remove unlawfully moored vessels themselves.

In May 2013, the Plan for Promoting Comprehensive Measures for the Proper Management of Pleasure Boats and Improvements to Their Usage Environment was formulated. In June 2015, the results of a nationwide survey on the conditions surrounding pleasure boats that was conducted on a consolidated basis for three areas of water (ports and harbors, rivers, and fishing harbors) in order to verify the effects of measures implemented under this plan were publicly disclosed. In accordance with the 2013 amendments to the Order for the Enforcement of the River Act, river administrators are strengthening prosecution of those who abandon vessels inside river areas.

(ix) Road submergence measures

Road underpasses in Tochigi and Hiroshima Prefectures were submerged in water due to the concentrated heavy rain-

Note As of the end of March 2017.

fall that occurred in August and September of 2008, causing vehicles to sink. To prevent such accidents, information concerning submergence risk locations is shared with road administrators, police agencies, fire departments, and other relevant authorities. The framework for information exchange and passage prohibition is established, and the development and installation of submergence alert systems and monitoring facilities, as well as the publication of submergence risk locations that are publicized on the website^{Note}, are promoted.

(2) Countermeasures Against Sediment Disasters

Japan has a steep geography and vulnerable geology over a wide area. In addition, Japan has a low number of plains and development of residential land has extended to hills and piedmont slopes along with the development of economy as well as the increase in population. As a result, there are about 520,000 areas vulnerable sediment disasters such as debris flows, landslides, and slope failures where a lot of people are forced to live cheek by jowl with a risk of sediment disasters. There have been 1,000 cases of sediment disaster caused by heavy rain and earthquake annually on average in the past 10 years (from 2008 to 2017). In 2017, there were 1,514 cases, causing great damage and leaving 24 people dead or missing.

In order to prevent and mitigate the damages by sediment disasters, combination of non-structural and structural measures, such as construction of sediment disaster prevention facilities and improvement and enhancement of early warning and evacuation systems are being promoted.

The Northern Kyushu Heavy Rain in July 2017 caused several sediment disasters in Fukuoka and Oita that resulted in significant damage, including 23 deaths and missing persons. In Asakura City, Fukuoka Prefecture, debris and drift woods logs from a slope that collapsed in the torrential rain flowed downstream, but existing Sabo dams captured much of the drift woods, demonstrating their effectiveness in mitigating damage. Additionally, sediment disaster prevention facilities already constructed in each area also demonstrated their effectiveness.

(i) Fundamental countermeasures against sediment disasters

Large-scale sediment discharge from devastated mountainous areas can cause serious damages to important community facilities such as downstream towns, roads, and railways. Construction of sediment disaster prevention facilities is being promoted to prevent large-scale sediment discharge from devastated mountain areas and riverbed rise in the downstream area, and to protect lives, property, and important community facilities from the damages by sediment discharge.

(ii) Emergency countermeasures against sediment disasters in sediment disaster-affected areas

In order to ensure safety and security, and to maintain and promote socio-economic vitality in the areas where sediment disasters caused loss of life and great damages to people's living, concentrated construction of sediment disaster prevention facilities for preventing recurrence of disasters is being promoted.

Figure II-7-2-6

Effect of Sabo Dams in the Northern Kyushu Heavy Rain in July 2017 (Asakura City, Fukuoka)



Note "Road Disaster Information Web Map" web site: http://www.mlit.go.jp/road/bosai/doro_bosaijoho_webmap/index.html

(iii) Countermeasures against sediment disasters to protect those requiring support in evacuation

The elderly and children, who cannot evacuate by themselves, are liable to fall victim to sediment disasters. Among the dead and missing of sediment disasters, the percentage of elderly and children is high. So, in order to protect the social welfare facilities, and medical facilities, etc., used by the elderly and children, construction of sediment disaster prevention facilities such as Sabo dams is promoted in a focused manner.

In accordance with the Act for Promotion of Measures to Prevent Sediment Disasters in Sediment Disaster Risk Areas, etc., (Sediment Disaster Prevention Act), measures combining structural and non-structural elements are being promoted, such as by stipulating the names and addresses of facilities for persons requiring support in evacuation and the information transmission system in sediment disaster risk areas in municipal plans for the prevention of local disasters and by restricting certain development in sediment disaster special risk areas.

Furthermore, the Sediment Disaster Prevention Act, as amended in light of inundation damage to a social welfare facility caused by typhoon Lionrock in August 2016, went into effect in June 2017. The act requires the managers of facilities for persons requiring support in evacuation indicated in municipal plans for the prevention of local disasters to prepare a plan to ensure evacuation and to conduct training based on the plan. In light of this fact, we provided support to ensure smooth and rapid evacuation at facilities for persons requiring support in evacuation.

(iv) Countermeasures against sediment disasters for urban areas near mountain base slopes

For urban areas near mountain base slopes, forestry bands are fostered as green belts on the mountain base slopes adjacent to urban areas to enhance sediment disaster safety and maintain and create urban environments and landscapes with abundant greenery.

(v) Countermeasures against sediment disasters for slopes near roads

Slope disaster prevention measures are taken for the slopes which have a risk of landslide near roads.

(vi) Countermeasures against sediment disasters to promote regional disaster prevention

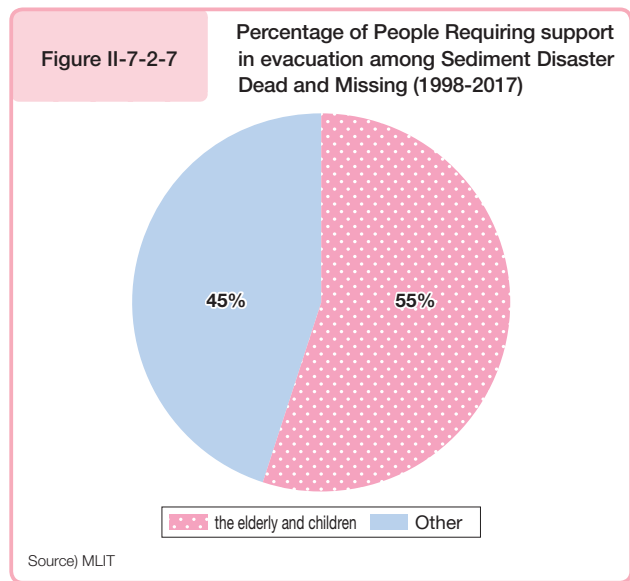
In hilly and mountainous areas at high risk of sediment disasters which has a large impact on community people, construction of sediment disaster prevention facilities for protecting people's lives, as well as maintaining the important facilities, such as evacuation shelters, evacuation routes, and town offices, that play an important role in regional disaster prevention is promoted for sustention and development of regional society. Also, we are providing support for initiatives to enhance and reinforce evacuation systems in sediment disaster alert areas.

(vii) Promoting countermeasures against sediment disasters based on the Sediment Disaster Prevention Act

a. Promoting sediment disaster prevention measures through designation of sediment disaster hazard areas

In accordance with the Sediment Disasters Prevention Act, in order to reveal areas of land where there is a risk of a sediment disaster occurring, areas where a sediment disaster could threaten the lives of residents, etc., or cause them bodily harm are designated as sediment disaster hazard areas while areas where a sediment disaster could damage architectural structures and threaten the lives of residents, etc., or cause them serious bodily harm are designated as special sediment disaster hazard areas. Furthermore, prior to area designation, the results of basic surveys are made public to inform residents, etc., of the danger of sediment disasters at an early stage.

Non-structural countermeasures taken include the development of warning and evacuation systems through the speci-



fication of evacuation shelters and evacuation routes, etc., in municipal plans for the prevention of local disasters for sediment disaster hazard areas and the restriction of certain development activities and the placement of structural controls on buildings in special sediment disaster hazard areas. Also, we release guidelines and case studies for the development of warning and evacuation systems as well as the creation of hazard maps and encourage municipalities to take initiatives.

Additionally, sediment disaster warning information has been clearly denoted as information that contributes to decisions on evacuation advisories and efforts have been made to establish an information transmission system, including obligating prefectural governors to notify relevant municipal mayors of such information and to disseminate it to the general public.

b. Promoting the relocation of housing at risk

Houses near cliffs vulnerable to slope failures are prompted to relocate using the program for relocating at-risk housing located near cliffs. In FY2017, this program decreased risky houses by 30 and 16 new houses were built to replace risky houses.

(viii) Countermeasures for large scale sediment disasters

In order to reduce the damages caused by deep-seated landslide, combination of structural and nonstructural measures are taken by, for example, development of sediment disaster prevention facilities as well as strengthening of the warning and evacuation system by use of deep-seated landslide risk evaluation maps.

If there is a risk of a natural damming of a river (landslide dams) or debris flows following volcanic eruptions, Emergency Investigation are conducted in accordance with the “Sediment Disaster Prevention Act” to provide municipalities with information on the land areas vulnerable to sediment disasters as well as the timing of occurrence. In recent years, sediment disasters have occurred frequently due to localized rainfalls more concentrated and intensified and volcano getting more active. So, training for enhancing the ability to respond for implementation of Emergency Investigation and strengthening cooperation with relative organizations are promoted.

(ix) Issuing a Sediment Disaster Alert

In case that the risk of sediment disasters (or landslides*) increases due to heavy rainfall, Sediment Disaster Alert is jointly issued by prefectures and the Japan Meteorological Agency over the respective-municipalities. Issuance of the Sediment Disaster Alert is expected to lead issuance of evacuation orders announced by the municipalities and/or self-evacuation of residents. In order to support such operation, the Agency also provides Real-time Landslide Risk Map indicating the risk of landslides as well as detailed rainfall data.

Figure II-7-2-8

Designated Sediment Disaster Hazard Areas Nationwide (End of the March, 2018)

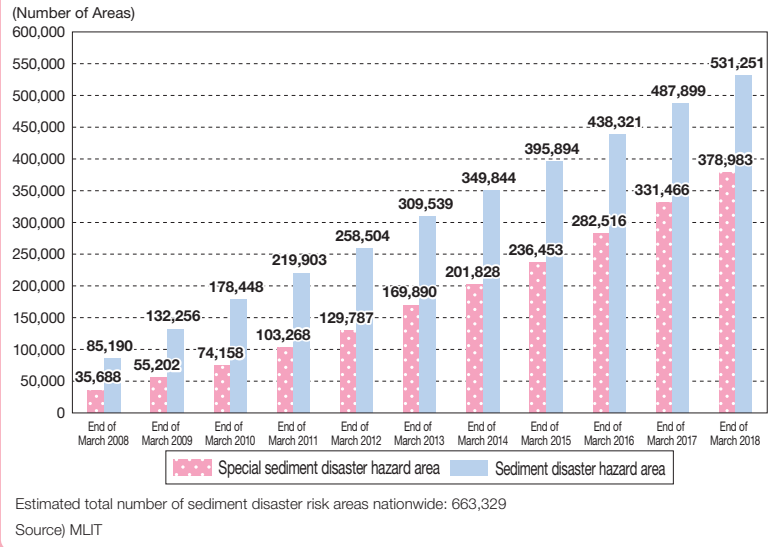
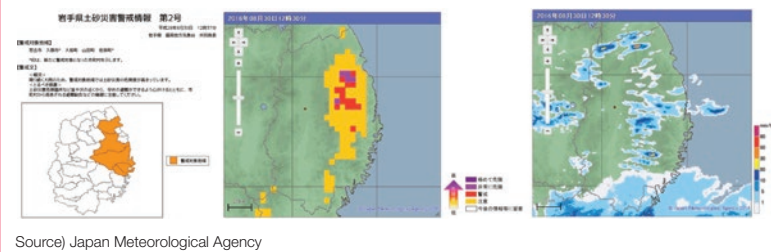


Figure II-7-2-9

Sediment Disaster Alert Information, and Real-time Landslide Risk Map and “High-resolution Precipitation Nowcasts”



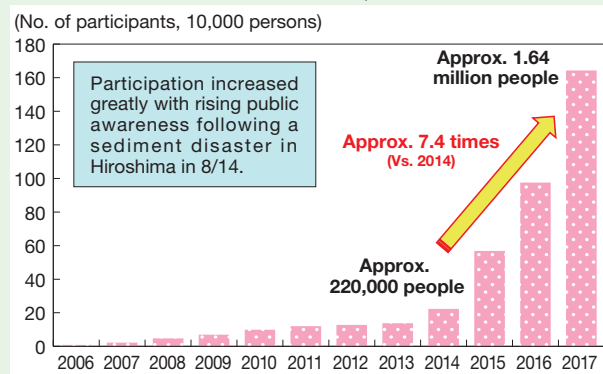
Column Enhancing Warning and Evacuation Systems for Sediment Disasters

The Northern Kyushu Heavy Rain in July 2017 caused tremendous damage, including over 40 people dying or going missing. However, the government and local residents had worked together to raise disaster prevention awareness, including conducting evacuation drills for sediment disasters, and informing people of evacuation shelters through production and distribution of voluntary disaster prevention maps. It is thought that this led to smooth and quick evacuation by residents, thereby reducing damage.

Specifically, Toho Village in Fukuoka Prefecture conducted drills in which nearly half the village residents participated. The drills were conducted so that residents could evacuate based on their own judgment when given the heavy rain situation and evacuation advisories. Also, an evacuation assistance plan was prepared for each district, and assistance givers decided in advance conducted confirmations of people's whereabouts and led evacuees. Thanks to such routine training, there are cases in which calling on elderly persons in the neighborhood helped with evacuation, thereby reducing damage during the Northern Kyushu Heavy Rain.

The MLIT, in cooperation with prefectural governments and others, conducts sediment disaster and nationwide disaster prevention drills with resident participation in an effort to enhance the evacuation system and increase disaster prevention awareness regarding sediment disasters. In light of the Hiroshima sediment disaster in 2014, public awareness increased and in 2017 a record 1.64 million people participated in the drills. In 2018, we will continue conducting sediment disaster and nationwide disaster prevention drills under the slogan, "Everyday preparation saves lives!"

Number of participants (per year) in sediment disaster and nationwide disaster prevention drills



Case of drills conducted in Toho Village, Fukuoka, and damage mitigation


Practical evacuation drills with participation by many residents (Toho Village, Fukuoka)

[Features of drills]


- Evacuation drills for sediment disasters were conducted (for three years) so that residents could evacuate based on their own judgment.
- A list of people needing evacuation assistance was created and a system of assistance givers (residents) established.

(i) [Participation in evacuation drills for sediment disasters]
 (Toho Vil. population (as of 5/17): Approx. 2,200)
 June 25, 2017: Approx. 1,050 (about half population)

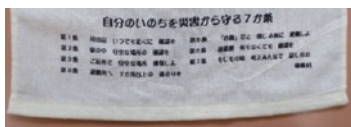
- Evacuation upon hearing evacuation advisories giving heavy rain situation and warnings.
- Meetings held to consider evacuation assistance for people needing evacuation assistance in each district.



Resident evacuation drill




Sign that evacuation complete




"Evacuation towels" with the "seven rules of evacuation" distributed to each household

(ii) [List of people needing evacuation assistance and drills]

- A list of people needing evacuation assistance was created for each district.
- In the drills, assistance givers confirm the whereabouts and guide/help people to a shelter



避難行動要支援者支援計画



Hoshuyama River

Debris flow

House on high ground to which people evacuated

[Evacuation case: Evacuation and disaster in Yashii District, Toho Vil.]
 (Interview with resident during on-site survey of the Northern Kyushu Heavy Rain in 7/17)

July 5, 2017

Just past 15:00: - Rain at workplace (about 6 km downstream from Yashii District) exceeded the torrential rain in 2012, so I left work to check my house and neighborhood.

- Neighbors had evacuated to my house, as there is no hill behind it. I went around to make sure no one had failed to escape and then went back home.

Around 16:30: Debris flow occurred

- After the debris flow, the water stopped flowing. I thought it could be dangerous if water collected upstream, so my neighbors and I moved to Iwaya Shrine and escaped harm.

[Resident opinion]
 The disaster prevention drills made me think to go call on my neighbors during a disaster.

(3) Volcanic Disaster Countermeasures

(i) Countermeasures for sediment disasters following volcanic activity

In preparation for the volcanic mudflow caused by volcanic eruptions and the debris flow caused by rainfall, Sabo dams, training dikes, and so on for preventing or reducing damage are being constructed. In addition, for facilities that are unable to properly maintain their functions due to continued and massive debris flow, removing sediment deposition and other measures are being carried out to keep effectiveness.

Sediment disasters following volcanic eruptions could lead to large-scale disasters. In addition, it is very difficult to predict the position or scale of an eruption, that causes serious damage, with good accuracy beforehand. For this reason, a Sabo plan for the emergency mitigation of the effects of a volcanic eruption is being formulated in order to mitigate damage through agile responses to volcanic conditions in combination with the development of facilities in

advance; this plan targets forty-nine volcanoes that exhibit active volcanic activity and that are at risk of causing sediment disasters in the wake of an eruption. The amended Active Volcanoes Act came into force in December 2015 and prefectural governments, Regional Development Bureaus, and other Sabo departments, as members of the Volcanic Disaster Management Council, decided that they would study volcanic hazard maps from the standpoint of sediment disasters caused by eruptions. Thus, by developing volcanic Sabo hazard maps (volcanic hazard maps that relate to sediment disasters), support was provided for a series of studies on alerts and evacuation systems by the Volcanic Disaster Management Council.

In response to the eruption of Mt. Shinmoedake in October 2017, observation of topographical changes was conducted using survey aircraft equipped with SAR equipment. Also, a survey of ash fall was conducted by helicopter and on land, and information was provided to the relevant local authorities. In response to the eruption of Mt. Kusatsu-Shirane (Mt. Moto-Shirane) in January 2018, observation of topographical changes was conducted using survey aircraft equipped with SAR equipment. Also, a survey of ash fall was conducted by helicopter, etc., new observation equipment was set up, and information was provided to the relevant local authorities.

(ii) Measures against ash falling due to active volcanoes

Since the ash falling on roads due to volcanic eruption has a great social impact, such as traffic obstruction, a framework is being developed in order to remove ash quickly and appropriately from roads using street sweepers.

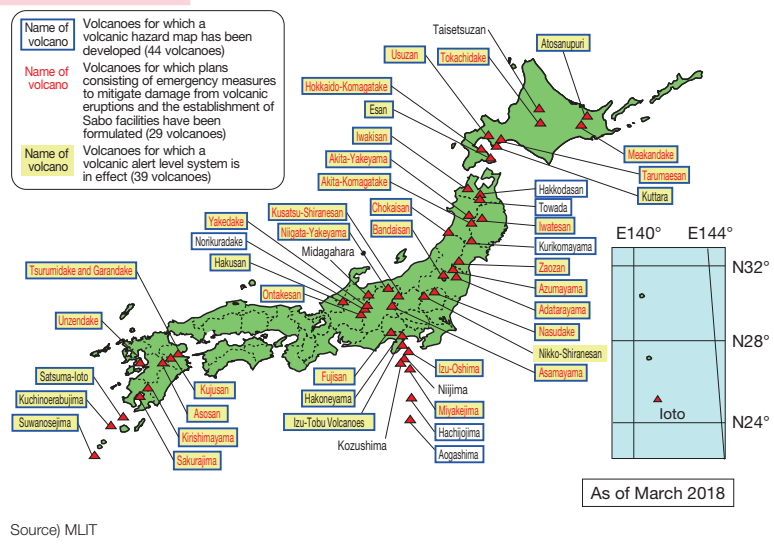
(iii) Japan Meteorological Agency initiatives

To prevent and mitigate volcanic eruption disasters, domestic volcanic activity is monitored and volcanic warnings are issued in a timely manner. Especially for the fifty volcanoes in need of more intensive monitoring/observation for volcanic disaster mitigation selected by the Coordinating Committee for Prediction of Volcanic Eruption observation facilities have been deployed and volcanic activity is being monitored around the clock (volcanoes subject to continuous observations).

Also, Volcanic Alert Levels are being applied and improved through coordination of evacuation planning at local Volcanic Disaster Mitigation Councils (applied to thirty-eight volcanoes as of the end of January 2018).

Figure II-7-2-10

Development of volcanic hazard maps, formulation of volcanic eruption emergency disaster-mitigation measures and Sabo plans, and the state of the operations of eruption warning levels for fifty volcanoes that have been selected by the Coordinating Committee for the Prediction of Volcanic Eruptions as volcanoes requiring an upgraded system of monitoring and observations for the prevention of volcanic disasters



In accordance with recommendations (March 2015) issued at an investigative meeting of the Coordinating Committee for Prediction of Volcanic Eruptions held in response to the disaster caused by the eruption of Ontakesan (Mt. Ontake) in September 2014, the Japan Meteorological Agency (JMA) has upgraded and strengthened systems to observe and evaluate volcanic activity and release disaster prevention information. The agency is also continuing to strengthen volcanic activity observation, evaluation systems, and information provision through an ongoing close study and publication of volcanic alert level criteria, etc.

(iv) Japan Coast Guard initiatives

Airborne observations are routinely conducted on submarine volcanoes and volcanic islands, and the information on eruptions or discolored water as a precursor phenomenon of eruptions is immediately provided to mariners. In addition, to serve as basic data to predict the eruption of submarine volcanoes and volcanic islands, comprehensive surveys are conducted to gather basic information such as seafloor topography, geological structure and so on. Continuous GNSS observations in the Izu Islands area are also conducted to monitor crustal movements.

With respect to the Nishinoshima Island Volcano, which erupted in November 2013, JMA reduced the precaution scope for the volcanic warning on August 17, 2016, and navigational warning was canceled in response to the canceling of a marine warning. The Japan Coast Guard also conducted a survey to produce a nautical chart, including land, from October to November 2016 and published the chart for Nishinoshima Island in June 2017. The volcano erupted again in April 2017, and the area of the island had increased to approximately 3.0 km² as of August 2017, but no volcanic activity has been observed since August 2017. Monitoring of volcanic activity and status of the island using aircraft will be continued in the future.

(v) Geospatial Information Authority of Japan initiatives

a. Improved observation and monitoring of volcanic activities

At active domestic volcanoes, continuous three dimensional crustal deformations are monitored by GNSS-based control stations (continuous GNSS ^{Note 1} observation network called GEONET), automatic distance and angle measurement devices, and Remote GNSS Monitoring System (REG-MOS). In addition, the GNSS observation data conducted by other institutions are integrated into the analysis to monitor the crustal deformation around volcanoes in more detail. Ground surface deformation of volcanoes are being monitored with SAR interferometry ^{Note 2}, by using the data of Advanced Land Observing Satellite “DAI-CHI-2”.

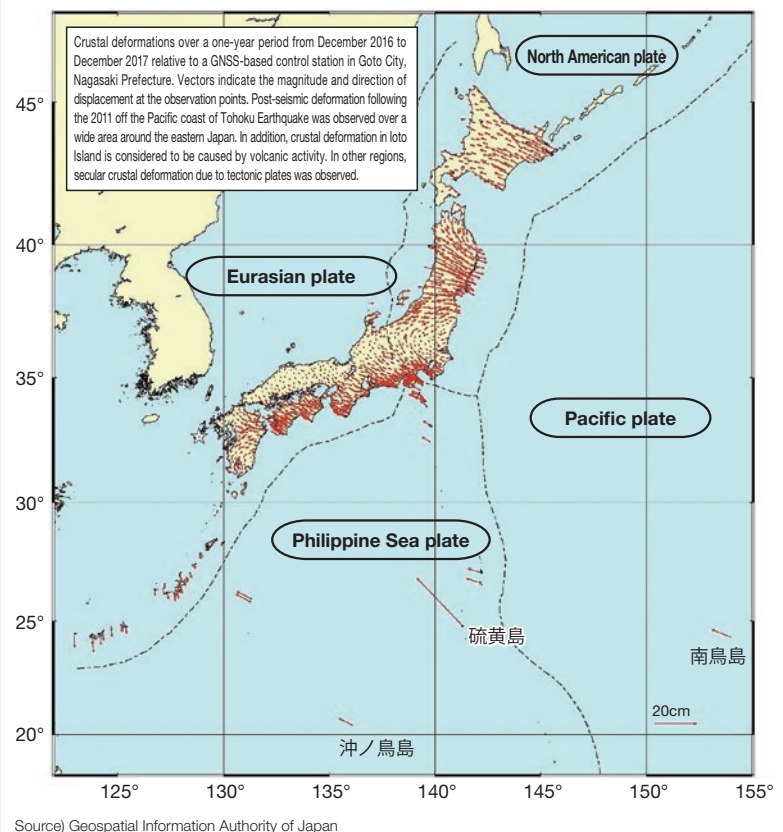
b. Development of geospatial information about volcanoes

Volcanic Base Maps that show details, such as a volcano’s distinctive geographical features, are being developed and updated.

With respect to Nishinoshima Island,

Figure II-7-2-11

Movements of Japan Archipelago Captured by Continuous Observation with GNSS



Note 1 Global Navigation Satellite System

Note 2 Technology that monitors ground surface deformation from satellites in space.

which erupted in November 2013, the first 1:25,000 topographical map and volcanic base map data since the eruption were produced based on aerial photographs taken in December 2016 and provided in June 2017.

c. Research on natural disasters following volcanic eruptions

Research and development is being conducted to improve precision of observation by use of GNSS and SAR interferometry as well as to reveal the mechanism of volcanic activities by analysis of the abovementioned observation data.

(4) Storm Surge and Coastal Erosion Measures

(i) Promoting storm surge and high wave measures

To protect human lives and assets from disasters caused by frequently occurring storm surges and high waves, we promote structural measures, such as development of coastal levees, and non-structural measures, such as the designation of coastal areas for which water levels pertaining to storm surges are publicly disclosed and areas vulnerable to inundation, in accordance with the Flood Control Act. In FY2017, areas vulnerable to inundation due to storm surge were designated in Tokyo Metropolis (Tokyo Bay) and Fukuoka Prefecture (Genkai Sea).

Also, since distribution and industrial functions are concentrated in ports, in order to protect these areas from damage caused by storm surges, we will forward the storm surge countermeasures in which port administrators and relevant persons in companies that operate in ports cooperate.

(ii) Promoting coastal erosion measures

Since a variety of factors contribute to coastal erosion across the nation, the administrators of rivers, coasts, ports, and fishing ports are coordinating to implement erosion measures such as sand bypasses [Note 1](#) and sand recycling [Note 2](#).

(iii) Providing disaster prevention information regarding storm surges

To enhance disaster prevention activities at municipalities, the Japan Meteorological Agency provides each municipality with storm surge warnings and advisories for individual municipalities.

Also, to assist victims and aid restoration efforts in regions that ground subsidence occurred following the Great East Japan Earthquake, an “Hourly Tide Level Calendar” consolidating astronomical tide level (forecast values for tide level) is published along with other information regarding storm surges.

(5) Tsunami Measures

(i) Promoting tsunami measures

In preparation for the large scale tsunami disasters created by earthquakes, such as Nankai Trough Mega Earthquake, region building for tsunami disaster prevention through multiple defenses that combine structural and non-structural measures against the biggest tsunami is being promoted through support extended to local governments for matters such as establishing tsunami inundation projections, designating warning areas, and drafting evacuation plans.

In the tsunami measures for coasts, we carry out structural measures such as constructing and earthquake-proofing seawalls with a tenacious structure that fulfill the function of reducing wall damage, consolidating floodgates and land locks, and enabling their automatic/remote operation. We also promote non-structural measures such as supporting the production of tsunami hazard maps and establishing safe and reliable operation systems for floodgates and land locks. With respect to floodgates and land locks, we have mandated the formulation of operating rules and through the Management System Guidelines for Floodgates and Land Locks in Tsunami and Storm Surge Measures, which we revised in April 2016, and we attempt to instill operation and retreat rules in onsite operators.

For tsunami measures for ports and harbors, in order to maintain the harbor functions when a large-scale tsunami occurs, development of breakwater with a tenacious structure, creation of plans for elimination of obstacles in sea routes (reservation of sea routes in case of emergency), and other disaster prevention and mitigation measures are promoted.

Note 1 When the transport of sand is cut off by coastal structures, this construction method takes the sediment accumulated on the upper hand side to move and supply it to the lower hand side coast to restore sands.

Note 2 This construction method takes the sand accumulated on the coast along lower hand side of the flow and restores it to the upper hand side of the coast subject to erosion to restore sands.

Also, we created the Hamaguchi Award, for individuals and/or organization that, have made significant scientific or pragmatic contributions to the enhancement of coastal resilience against tsunami, storm surge and other coastal disasters, and have conducted activities to raise awareness related to tsunami disaster prevention.

Also, specified ports (87 ports) under the Act on Port Regulations have established Councils on Tsunami Measures for Ships to further improve tsunami measures for ships at each of the ports with the cooperation of relevant organizations.

With respect to tsunami measures applicable to roads, agreements have been concluded with local governments in tsunami-prone areas. To provide embankment as temporal evaluation locations, stairs and open spaces are developed for the evacuation purpose. Efforts to reinforce disaster prevention functions have also been made by developing a system of signs providing evacuation guidance and by providing user training to local residents.

Regarding tsunami measures for airports, at airports likely to experience tsunami disasters, tsunami evacuation plans that determine evacuation methods and other matters for airport users and others to protect human life has been drafted, and tsunami evacuation training and other matters will be carried out in accordance with these plans. In addition, a plan was formulated for rapid recovery of airport functions following a tsunami disaster and initiatives to establish a cooperative framework with relevant organizations based on the plan is being promoted.

Regarding tsunami measures of railways, policies and concrete examples for ensuring the railway passenger safety when tsunami occurs were compiled based on the basic idea of evacuation from the largest class tsunami caused by the Nankai Trough Mega Earthquake etc. (speedy evacuation is the most effective and important measure, etc.), and the efforts of railway operators are prompted.

Additionally, the raising of river levees and liquefaction countermeasures are being advanced in areas at significant risk of flooding from a tsunami in order to prepare for the imminent arrival of a massive earthquake or tsunami.

(ii) Providing disaster prevention information regarding tsunamis

To prevent and mitigate disasters caused by tsunamis, the Japan Meteorological Agency (JMA) monitors seismic activities across the nation around the clock in order to make prompt and appropriate issuance for tsunami warnings/advisories and information. Based on the lessons learned from the tsunami disaster caused by the 2011 Great East Japan Earthquake, JMA started new tsunami warning system operation in March 2013, in which, for example, the word of “huge” for Major Tsunami Warnings was introduced as an expression of estimated tsunami height in the case of large earthquakes with magnitude 8 or more to emphasize that it is an emergency situation.

As of the end of March 2018, JMA monitors tsunamis with 216 Ocean-bottom tsunami meters, 18 GPS wave gauges, and 173 coastal tsunami gauges for issuance of tsunami information and update of tsunami warnings/advisories.

To facilitate tsunami measures for vessels, the Japan Coast Guard creates and publishes 143 tsunami information maps, as of the end of March 2018, depicting the behavior of a maximum level tsunami caused a Nankai Trough Megathrust Earthquake and the tsunami caused by a Tokyo Inland Earthquake.

(iii) Tsunami evacuation measures

Given concerns over tsunami damage occurring in the wake of Nankai Trough Mega Earthquake or any other massive earthquake that is expected to arrive sometime in the future, technical guidelines summarizing ways of properly allocating evacuation facilities based on the use of basic urban planning data were formulated and publicly disclosed in June 2013.

In ports, we are promoting to establish a tsunami evacuation plan and construct tsunami evacuation facilities by local governments or manager of port. Also, the Organization for Promoting Urban Development is assisting private enterprises develop distribution facilities that can be used for evacuation from tsunamis and other disasters. In 2016, our support was used to improve a distribution facility with an evacuation function in Yokkaichi Port—the first such instance in the country—creating expectations for a higher evacuation function of the port.

(iv) Development of parks and greenery that effectively function to reduce tsunami damage

Taking the lessons learned from the Great East Japan Earthquake, “The Technical Guidelines for Development of Urban Parks Towards Reconstruction from the Great East Japan Earthquake” was put together in March 2012 for utilization by local government in evaluating town building for reconstruction in which parks and greenery is considered to have four functions, that of multi-layered defense; evacuation path and evacuation space; assisting restoration and reconstruction;

and disaster prevention education, so the concept of planning and designing parks and greenery to realize disaster mitigation effects is presented.

(v) Tsunami measures for government facilities

Government facilities act as the central facility for disaster emergency measure activities as well as temporary evacuation space and is something that contributes to the rescue of human lives, therefore securing necessary functions when tsunamis and other disasters occur is important.

In February 2013, the combination of structural and non-structural measures for tsunami measures indicated by the “Basics of Ensuring the Function of Government Facilities in Preparation for Tsunamis, etc.” prepared by the Council for Social Infrastructure will be used in coordination with the organizations that operate and maintain government facilities to promote integrated and effective tsunami measures.

(6) Earthquake Measures

(i) Improving the earthquake resistance and safety of housing and architecture

Based on the Act on Promotion of Seismic Retrofitting of Buildings to achieve goals of making at least 95 percent of housing and architecture used by many people earthquake-resistant by 2020 and to generally resolve housing with inadequate earthquake resistance by 2025, the reporting of earthquake-resistance diagnosis results for large-scale architectural structures and others used by an unspecified number of people has been mandatory, and the creation of display requirements for the earthquake-resistance has been implemented among other measures in its aim to promote earthquake-resistance.

Regarding the earthquake proofing of housing and buildings, Social Capital Development Integrated Grant and other measures are implemented for support but from FY2013, for architectural structures requiring mandatory seismic diagnosis, intensive and emergency assistance is being implemented in addition to usual subsidies.

(ii) Promoting the earthquake resistance of housing land

In order to prevent damage caused to existing residential areas by landslides and ground liquefaction in the wake of a large earthquake, we are providing support for the conducting of change-prediction surveys and prevention measures carried out by local governments.

(iii) Implementing danger assessments for housing land in disaster-stricken areas

To prevent secondary disasters and ensure the safety of residents, frameworks are being developed in cooperation with the Disaster Stricken Housing Land Danger Assessment Liaison Council consisting of prefectures and designated cities to evaluate the degree of danger of housing land swiftly and accurately after disaster strikes.

(iv) Development to improve crowded areas

Development activity to rapidly improve crowded areas that are problematic in terms of disaster prevention and the residential environment is a pressing matter to be generally resolved by ensuring a minimum level of safety for crowded urban areas that extremely dangerous in the event of an earthquake (4,450 hectares as of the end of FY2015) by FY2020 (densely built-up areas that are highly vulnerable in the event of an earthquake as of the end of FY2017: 3,422 hectares).

To realize this, fireproofing architectural structures along trunk roads to cut off fire paths and serve as evacuation paths in combination to form a skeletal disaster prevention axis (disaster prevention axis) and the development of disaster prevention parks to serve as evacuation areas, disaster prevention block improvement projects, and comprehensive urban residential projects will be used to eliminate decrepit architecture and joint rebuilding of fireproof architecture, expansion of narrow roads to improve evacuation and firefighting efforts.

(v) Securing open space

To improve disaster prevention functions and strive for safer and more comfortable town buildings, the development of disaster prevention parks is being promoted to serve as the center of restoration and reconstruction when earthquake disasters occur, center of disaster prevention as a relay hub for supplies, and as an evacuation area to protect the lives

of evacuees from urban fires. A project for developing disaster-prevention parks and urban areas is being carried out to develop and upgrade disaster-prevention parks and urban areas in an integrated manner.

(vi) Promoting construction and improvement of government buildings as disaster prevention centers, etc.

It must be possible to secure the functions of government buildings as centers for disaster emergency response activities and to ensure the safety of people's lives. Accordingly, government buildings that do not meet the required seismic performance

are being renovated for earthquake resistance, with the goal of making at least 95% of government buildings satisfy quake-resistance standards by 2020. We are also promoting the construction and improvement of government buildings as disaster prevention centers, etc., in preparation for large-scale disasters, in cooperation with many parties concerned, including local governments.

(vii) Improving the earthquake resistance of public works facilities

For river works, earthquake resistance inspections are carried out and necessary measures are implemented so that levees, floodgates, and other river structures remain functional even under what is referred to as level 2 seismic movement.

For coastal works, earthquake resistance measures are promoted taking into account facility functions, degrees of importance of areas behind levees and other factors to prevent large-scale submergence of zero-meter areas due to damage to levees caused by earthquakes and to prevent the functions of levees and other protective facilities from being impaired before arrival of tsunamis when earthquakes such as Nankai Trough Mega Earthquake occurs.

For road works, to ensure smooth emergency and rescue activities, transportation of emergency supplies, and deployment of emergency transport essential to recovery efforts when earthquake disasters occur, we are conducting seismic strengthening of overpasses over emergency transport roads, bridges, including those supported by rocking columns, over these roads, and also removing utility poles by burying cables.

For port and harbor works, we are endeavoring to enhance the quake and tsunami resistance of port facilities and fortify industrial ports and harbors to encourage the formation of coastal disaster prevention bases that can serve as base for the transport of emergency supplies and deployment of support teams during a disaster, as we prepare for Nankai Trough Mega Earthquake, a Tokyo Inland Earthquake, or any other large-scale earthquake.

For airport works, in addition to serving as the base of emergency transport when earthquakes and other disasters occur, seismic strengthening of government facilities to ensure necessary control functions and basic facilities that are absolutely essential is being implemented for airports considered important for maintaining air transport as well as the aviation network and ensuring the continuity of hinterland economic activity.

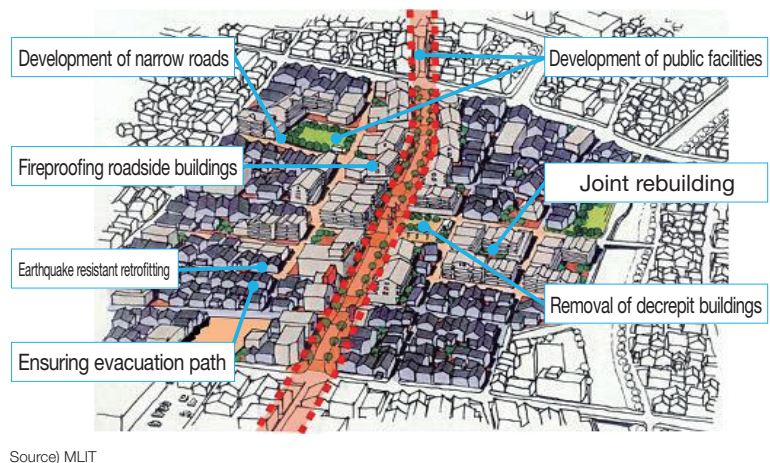
For railway works, in preparation for a Tokyo Inland Earthquake and Nankai Trough Mega Earthquake, we are promoting quakeproofing measures for major stations, elevated bridges, and other railway facilities, in order to maintain the railway network and ensure functioning as temporary shelters during earthquakes.

For sewage works, to ensure the functions required of sewers during earthquakes, disaster prevention, such as strengthening the earthquake and tsunami resistance of water pipeline infrastructure and water treatment facilities that connect disaster prevention bases with treatment plants and disaster mitigation that aims to minimize damage in anticipation of disasters striking are being combined for the promotion of integrated earthquake measures.

(viii) Countermeasures against sediment disasters to large-scale earthquakes

In preparation for large-scale earthquakes such as Nankai Trough Mega Earthquake, implementation of effective sed-

Figure II-7-2-12 Development Illustration of Densely Built-Up Areas



Source) MLIT

iment disaster countermeasures with combination of structural and non-structural measures are being promoted for the areas at risk of sediment disasters where important facilities and important transportation networks will be damaged and communities will be isolated by the landslides.

In the wake of a major earthquake, it will be important for us to collaborate with relevant organizations and entities, promptly ascertain disaster conditions, and properly carry out emergency measures. For this purpose, we are reinforcing ties to relevant organizations, carrying out practical training, and otherwise promoting the development of a crisis-management system.

(ix) Japan Meteorological Agency initiatives

To prevent and mitigate disasters caused by earthquakes, the Japan Meteorological Agency (JMA) monitors seismic activities in and around Japan, as well as crustal deformation in the Areas under Intensified Measures against Earthquake Disaster (Tokai Region), around the clock to provide Earthquake Early Warnings and other earthquake information as promptly and accurately as possible.

With respect to Earthquake Early Warnings, in March 2018, JMA began using techniques to estimate seismic intensity correctly even for a large earthquake in which strong tremors cover an extremely wide area.

With regard to long-period ground motion, information on observation of long-period ground motion has been issued on a trial basis on JMA's website since March 2013. In addition, JMA is carrying out studies, including demonstration experiments, aimed at putting forecast information to practical use.

Column

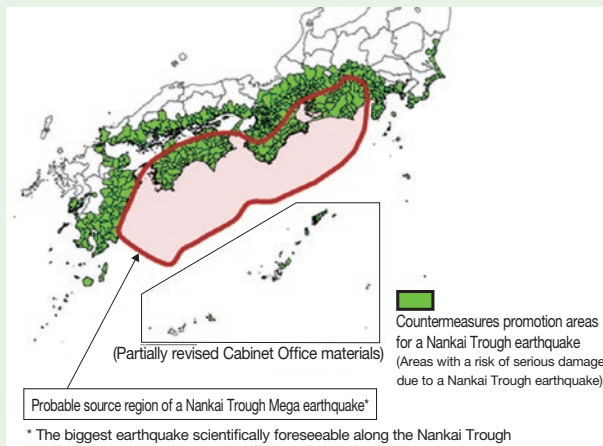
Releasing Information related to a Nankai Trough Earthquake

A Nankai Trough earthquake is a massive earthquake with a hypocenter on the plate boundary along the Nankai Trough running from Suruga Bay to the sea off the Kii Peninsula / Shikoku. Nankai Trough earthquakes occur roughly every 100 to 150 years while showing diversity in the spread of the rupture zone. It has been over 70 years since the 1944 Tonankai Earthquake and the 1946 Nankai Earthquake, and so the occurrence of the next massive earthquake in the Nankai Trough is growing imminent.

The study results of the Working Group for Studying Disaster Response Measures Based on Seismic Observation/Assessment Along the Nankai Trough (hereinafter "WG") were reported in a meeting of the Central Disaster Prevention Council's Disaster Management Implementation Committee held on September 26, 2017. The WG found that: (1) although it is difficult to predict an occurrence with a degree of certainty, it can be estimated that the potential for earthquake occurrence is higher than normal; (2) it is important to make an effort to release timely and accurate information so that analyses and assessment results of observations of phenomena that could lead to a Nankai Trough earthquake can be utilized in disaster response measures; and (3) the national and local governments need to establish provisional disaster prevention systems in advance.

In response to this study, the Japan Meteorological Agency decided to release “information related to a Nankai Trough earthquake” when abnormal phenomena are observed along the Nankai Trough and when it assesses that the potential for an earthquake occurrence is relatively higher than normal. It put this policy into effect on November 1, 2017. When releasing this information, an “Assessment Review Meeting related to an Earthquake along the Nankai Trough” will be convened to review the potential of earthquake occurrence somewhere in the Nankai Trough region.

About the Nankai Trough



Source) Japan Meteorological Agency

Kinds of information related to a Nankai Trough earthquake and their release conditions

Information	Release conditions
Information related to a Nankai Trough earthquake (extraordinary)	Released when abnormal phenomena* have been observed along the Nankai Trough or when there is a relatively heightened potential for earthquake occurrence
Information related to a Nankai Trough earthquake (regular)	Release of study results assessed at regular meetings of the Assessment Review Meeting related to an Earthquake along the Nankai Trough

* Phenomena that will trigger an investigation by the Japan Meteorological Agency, such as occurrence of a magnitude 7 or higher earthquake along the Nankai Trough or observation of significant change in strain meters installed in the Tokai region

Source) Japan Meteorological Agency

(x) Japan Coast Guard initiatives

To elucidate the physical mechanism of huge earthquakes, observations of seafloor crustal movements are conducted under Japan's Pacific waters, such as along the Nankai Trough, where massive ocean trench earthquakes are forecast to occur in the future. The Japan Coast Guard is also striving to understand the coupling at plate boundaries in the presumed source region of such earthquakes. It also uses GNSS observations to monitor crustal movements in coastal areas and the Izu Islands.

(xi) Geospatial Information Authority of Japan initiatives

a. Observing crustal movements and strengthening monitoring frameworks

Across the nation and earthquake disaster prevention measure regions, the monitoring of crustal movements is boosted by continuous GNSS observations at about 1,300 GNSS-based control stations (GEONET) and leveling. Also, analysis of data from the Advanced Land Observing Satellite “DAICHI-2” and monitoring of ground surface deformation using interferometric SAR are taking place.

b. Development of basic disaster prevention information

We are developing and updating location information of active faults as well as basic disaster prevention information related to the natural conditions of the land. This work is being conducted in the regions with the main active faults and in the regions where population and social infrastructure are concentrated.

c. Research on natural disasters resulting from earthquakes

From the results of geodetic observations, such as GNSS, SAR interferometry and geodetic leveling, the mechanism of earthquake occurrence is being elucidated and research is being conducted to improve observations and analysis. We are conducting research and development work and evaluations as concerns the rapid provision of information during disasters through analytical processes that combine basic geospatial information corresponding to Japanese territory and earthquake intensity. Additionally, for exchanging information on surveys, observations and research outcomes regarding earthquake prediction between relevant government organizations and universities, as well as to conduct academic delib-

erations based on this, the Coordinating Committee for Earthquake Prediction is operated. Moreover and for research on crustal movements, the Coastal Movements Data Center is being operated in order to gather, archive, and provide tidal records observed by relevant government organizations.

(xii) Measures for stranded commuters

If a major earthquake were to strike a major metropolitan area, it is expected that urban functions would become paralyzed and that there would be more stranded commuters than when the Great East Japan Earthquake happened. Thus, in order to ensure the safety of people in areas where there is a concentration of people and urban functions, plans for promoting urban reconstruction and ensuring safety was established in 2012. In areas subject to Urban Renaissance Emergency Development Areas (fifty-three areas nationwide as of the end of March 2018), efforts are being undertaken to improve urban disaster preparedness through public-private partnerships by way of the production of plans for promoting urban reconstruction and ensuring safety, the conclusion of agreements concerning facilities for promoting urban reconstruction and ensuring safety, and the easing of various regulatory constraints. Comprehensive support for the production of plans for promoting urban reconstruction and ensuring safety and for both structural and non-structural elements based on such plans is being provided through projects for ensuring and promoting urban safety for which areas around key stations are also regarded as areas subject to aid. In addition, in order to secure beforehand the capacity to handle stranded commuters as an urban function, we are supporting the development of disaster prevention bases through a program for urgent promotion of reinforcement of disaster bases, with areas around major stations as those subject to a subsidy.

(xiii) Ensuring business-continuity functions in the event of a disaster

A shortage of energy in areas that serve as hubs for disaster responses, and that are also where urban functions are concentrated and energy is consumed at high density, would hinder business continuity and disaster responses, producing a big socioeconomic impact on this country.

That is why there is a need to overcome vulnerability to disasters, which is a weakness of our cities, and so we are promoting the development of area-wide energy networks to ensure business continuity during disasters.

(xiv) Safety and security measures for the underground malls

Underground malls serve as important public spaces within the city, but there are concerns that evacuees will be disordered when a large-scale earthquake occurs along with the fact that facilities are aging, therefore, a guideline was created on safe evacuation measures for underground malls to promote disaster prevention measures for the safe evacuation of users and others.

(7) Snow Damage Measures

(i) Securing winter road transportation (snow and cold weather works)

In accordance with the Act on Special Measures concerning Maintenance of Road Traffic in Specified Snow Coverage and Cold Districts, to support safe and comfortable living, strengthen exchanges and cooperation between regions, the Five Year Plan to Secure Road Transport in Special Snow and Low Temperature Regions was established in November 2013. The Cabinet made this decision, along with promoting projects for removing snow, preventing snow, snow and frost damage on roads (snow and winter works). In addition, the Hokuriku Snow Damage Measures Technology Center was established in July 2012 and is promoting research and development, human resources development, assistance to local governments, as well as providing information and raising public awareness related to snow damage measures across the country. We are reinforcing clearing snow systems, such as by establishing clearing snow priority zones, removing snow rapidly by imposing road closures, and promoting collaborations among road administrators and with relevant organizations. In the event that vehicles become stuck in traffic, the Basic Act on Disaster Control Measures (amended on November 2014) will be applied and measures to move the vehicles that block the road will be promptly taken to quickly restore the flow of traffic.

(ii) Avalanche disaster measures in heavy snowfall regions

In Japan, 21,000 areas are prone to snow avalanche and the development of avalanche prevention facilities is being

promoted to protect human lives from avalanche disasters in settlements.

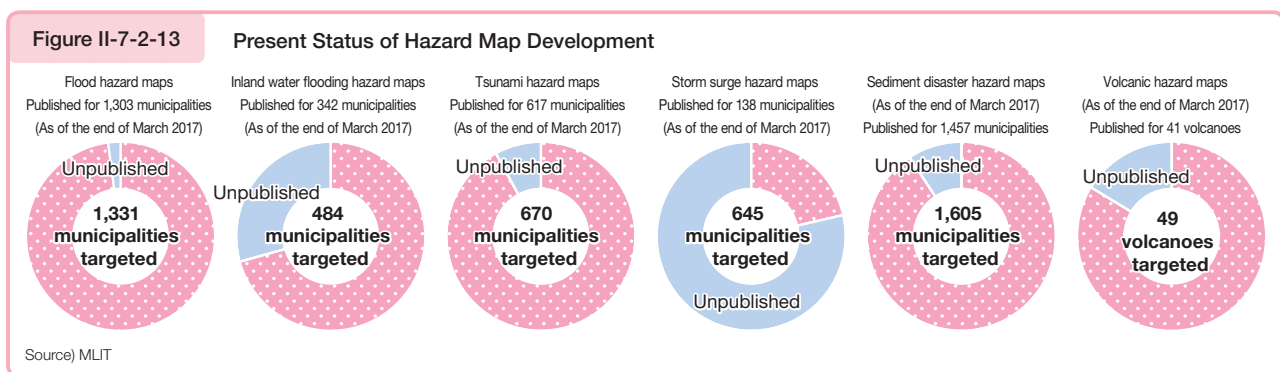
(8) Sophistication of Disaster Prevention Information

(i) Aggregation of disaster prevention information

The “MLIT Disaster Prevention Information Center”^{Note 1} enables citizens to easily obtain and utilize disaster prevention information by aggregating and providing information available such as rainfall as well as provide a comprehensive array of information on disaster responses and disaster prevention from a single source.

(ii) Development of hazard maps

In order to enable residents to take appropriate evacuation actions when a disaster strikes, we are promoting the production of hazard maps by municipalities and their dissemination and use by residents, as well as opening an Internet portal site that allows users to browse hazard maps developed by municipalities across the country^{Note 2}.



(iii) Improvement of disaster prevention weather information

In order to prevent and mitigate weather disasters, the Japan Meteorological Agency issues precautionary information in stages such as Emergency Warnings, Warnings, Advisories, and Bulletins related to weather conditions. The Agency also provides Real-time Landslide Risk Map and Real-time Flood Risk Map, which can be used to forecast and actually check on a map where risks are heightened in real time. Landslide Alert Information and flood forecasts for designated rivers are jointly issued by the MLIT, prefectural governments and the Agency.

In response to recommendations received in July 2015 from the Meteorological Subcommittee of the Council of Transport Policy, in May 2017 the Agency started providing Probability of warnings and, in July 2017, it started providing Real-time Risk Map for heavy rain and flood warnings.

(9) Strengthening the Crisis Management System

Initial response systems have been established to respond to natural disasters, including forecasting natural phenomena that could lead to a disaster, rapid collecting of information, conducting inspections and emergency rehabilitation of facilities during disasters, rescue operations at sea, and supporting affected local governments. In order to increase disaster response capabilities, further expedite and enhance disaster responses, such as strengthening the system for collecting and sharing information during the initial response to a disaster by Integrated Disaster Information Mapping System (DiMAPS).

(i) Disaster response by TEC-FORCE (Technical Emergency Control Force)

In order to respond to the occurrence or likelihood of large-scale natural disasters, the TEC-FORCE was established in FY2008 and is available for deployment to smoothly and rapidly implement technical support in carrying out various emergency disaster measures such as assessing the extent of the disaster, preventing expansion of damage, and rapid recovery of affected areas. In FY2017, TEC-FORCE dispatched approximately 1,300 members, who rendered around

Note 1 “MLIT Disaster Prevention Information Center” web site: <http://www.mlit.go.jp/saigai/bosaijoho/>

Note 2 “MLIT Hazard Map Portal Site”: <http://disaportal.gsi.go.jp/>

5,000 man-days of service to 72 municipalities and 26 prefectures that sustained damage as a result of numerous natural disasters, including the Northern Kyushu Heavy Rain in July, torrential with the seasonal rain front from July 22, and typhoons Talim, Lan, and Severe Tropical Storm Saola.

(ii) Initial response in the Northern Kyushu heavy rain in July 2017

From July 5, MLIT dispatched liaisons to the affected local governments in Fukuoka and Oita prefectures to ascertain the status of damage at the site and assistance needs and coordinate the dispatch of TEC-FORCE and other personnel. TEC-FORCE started arriving on-site on July 5 and from the following day TEC-FORCE from Regional Development Bureaus around the country started operations (providing a total of 3,648 man-days of service to 11 municipalities in 2 prefectures up through August 16). TEC-FORCE surveyed the status of damage caused to around 1,800 facilities under the jurisdiction of local governments in Fukuoka and Oita, gave local governments plans/proposals on recovery construction methods, gave technical advice on approach routes to search and rescue organizations, and helped to move up announcement of plans to designate the event as a major disaster. TEC-FORCE also contributed to the prevention of secondary disasters by assisting emergency inspections of around 570 of 1,300 sites at risk of suffering sediment disasters and helped clear the way for emergency vehicles by eliminating obstacles from National Route 211 and Prefectural Route 52, which are managed by the prefectures.

(iii) Strengthening business continuity systems

In order to implement disaster prevention services immediately in the case of Tokyo Inland Earthquake, the Ministry of Land, Infrastructure, Transport and Tourism Business Continuity Plan (Third Edition) was compiled on April 1, 2014. Furthermore, the operational continuity framework is being strengthened through such measures as annual emergency staff assembly drills based on the scenario of a Tokyo Inland Earthquake. Also, in August 2017, we established a TEC-FORCE Action Plan for a Tokyo Inland Earthquake and strengthened the wide-area support structure for a Tokyo Inland Earthquake.

(iv) Deploying information and telecommunication systems and machinery in preparation for disasters

To secure information communication systems in the case of a disaster, the MLIT headquarters, Regional Development Bureau, and related organizations are connected with a highly reliable information communication network consisting of microwave networks and optical fibers, in addition to satellite communication channels to strengthen the system for gathering information from the disaster site, are used to create a high mobility system. Also, in order to respond disasters rapidly, the development of helicopters, satellite communication vehicles, pump vehicles, lighting vehicles, and other disaster response machinery are being developed at Regional Development Bureaus across the nation, so that in the event of a large-scale disaster, the framework will be able to execute rapid development. During the disasters that occurred in FY2017, this disaster response machinery was dispatched to afflicted areas and helped with recovery operations.

(v) Implementing practical and wide-area disaster prevention drills

In order to increase capabilities to cope with flood disasters in cooperation with relevant organization such as flood fighting teams, Regional Development Bureaus implement practical drills in Flood Fighting Drill, including conducting flood fighting operations according to the situation, information transmission, and emergency rehabilitation while considering the timeline in a large-scale flood disaster. We also conducted operational drills of the emergency disaster measures headquarters based on the scenario of a Tokyo Inland Earthquake and conducted road obstacle elimination drills at Regional Development Bureaus based on the scenarios of a Tokyo Inland Earthquake and Nankai Trough Mega Earthquake, in an effort to strengthen the ability to respond to a large-scale earthquake. Furthermore, in comprehensive drills for large-scale tsunami disaster, we conducted evacuation drills and emergency drainage drills by TEC-FORCE based on the scenario of a tsunami caused by Nankai Trough Mega Earthquake in an effort to strengthen the ability to respond to a tsunami. In light of the fact that Japan's Tsunami Preparedness Day (November 5) is also World Tsunami Awareness Day, we obtained the participation of international students and foreign government officials in these drills, as well as observation by consulates, in order to disseminate Japan's disaster prevention knowledge and techniques to the world.

(vi) Disaster responses by the Japan Coast Guard

The Japan Coast Guard operates patrol vessels and aircraft around the clock to allow for rapid responses and rescue operations in the event of a disaster. During the Kumamoto Earthquake in FY2016, the Japan Coast Guard conducted coastal damage assessment surveys immediately after the earthquake struck. It also conducted emergency transport for injured people and hospitalized patients, among others, and provided resident assistance such as supplying water and food. In FY2017, during the Northern Kyushu Heavy Rain in July, it conducted coastal damage assessment surveys using patrol vessels and aircraft and rescued 40 people who were isolated.

(10) Management of Existing Stock with ICT (Information and Communications Technology)

An optical fiber network is being used to enable the management of public facilities and the sophistication of crisis management by taking advantage of ICT (Information and Communications Technology). Specifically, measures are being promoted for safe road use, such as sophisticated management of optical fibers for continuous monitoring of the road slope and providing disaster information through the Internet. Also, in addition to remote control of floodgates and the remote monitoring of river flow conditions and volcanic regions, sewage treatment plants and pump stations are connected with optical fibers for remote monitoring and control as well to make management more sophisticated.

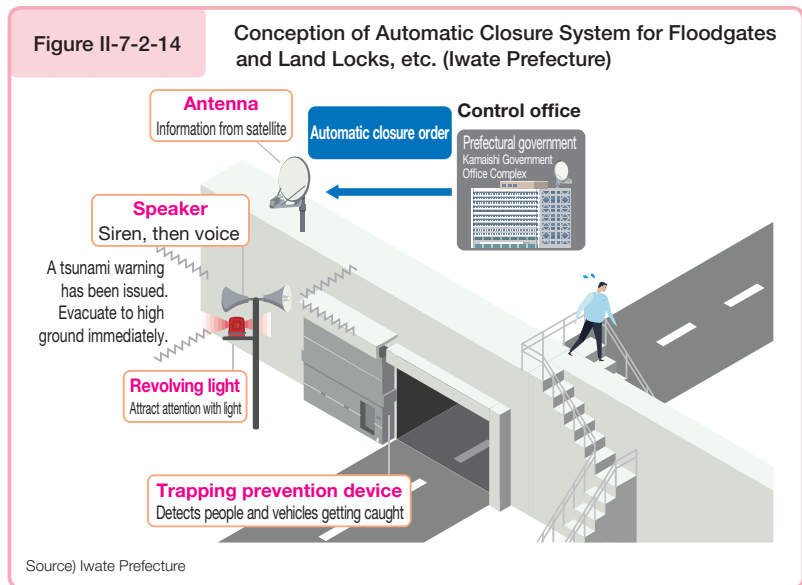
In addition, in order to safely, quickly, and reliably close floodgates and land locks using satellite communications in response to a disaster caused by a tsunami, we provide support through subsidies for disaster preparedness and safety for enabling automation and remote control of floodgates and land locks that need to remain in place.

(11) Disaster Recovery of Public Works Facilities

Damage caused to public civil-engineering facilities under the jurisdiction of the MLIT (including rivers, Sabo structures, roads, coastal areas, sewage systems, parks, and ports) in 2017 is reported to have totaled approximately 423.7 billion yen (at 13,855 sites) due to the frequent occurrence of disasters nationwide, including heavy rain with the seasonal rain front, especially the Northern Kyushu Heavy Rain, and torrential rain brought by Severe Tropical Storm Nanmadol in July, Typhoon Noru in August, Typhoon Talim and torrential rain in September, and Typhoon Lan and Severe Tropical Storm Saola in October.

In response to the damage caused by these natural disasters, technical advice, including recovery policies and construction methods, as well as other forms of support for affected local governments were provided, such as dispatching TEC-FORCE to local areas immediately after each area was hit by a disaster to eliminate obstacles from roads and conduct damage surveys, etc., and dispatching Senior Deputy Directors for Disaster Assessment from MLIT, in order to support the formulation of disaster recovery and rehabilitation plans.

Previously, in order to help local governments dealing with especially heavy damage recover quickly, we would consult with the relevant organizations for each disaster individually about improving the efficiency of various disaster assessments (such as raising the maximum amount for paper-based assessments, raising the limit on money immediately available for disaster recovery, and simplification of design documentation) and about implementing those measures in order to accelerate disaster recovery. In addition, in order to prepare for quicker recovery and reconstruction of afflicted regions following the large-scale disasters that are anticipated to occur in the future, we predetermined how to streamline disaster assessments and, in 2017, we put into effect a policy that will start the streamlining immediately after the government



decides that it anticipates designating an event as a major disaster.

Furthermore, in response to the Northern Kyushu Heavy Rain, in areas buried by large-scale landslides over a wide area, we decided to treat public works facilities as a “total loss” (completely destroyed) without excavating them, thereby enabling affected local governments to receive disaster assessments quickly and begin full-scale disaster recovery work as soon as possible. Regarding serious disasters with considerable burying by a landslide, we expanded the handling of what is called the “prescribed disaster” scheme so that it can be used for improvement recovery construction projects such as the widening of rivers and decided to ease the paperwork, such as the production of assessment design specifications, and financial burden on affected local governments. In addition, for rivers in northern Kyushu that received serious damage, we established the Northern Kyushu Project of emergency countermeasures to urgently carry out structural and non-structural measures in an integrated manner. Through the project, rehabilitation construction will be carried out to urgently and intensively enhance flood control functions over the next five years or so while coordinating river projects with Sabo projects. At the same time, support will be provided for the installation of risk management-type water level gauges (water level gauges specialized for floods) and the examination of town planning using the past record of flood and topographical information.

Additionally, emergency funds for disaster countermeasures were allocated to 44 areas that were damaged by natural disasters, including torrential rain associated with the seasonal rain front and Typhoon Talim, and other such weather events, in order to carry out disaster prevention measures to ensure the safety and security of residents.

With respect to roads damaged in the 2016 Kumamoto Earthquake, restoration of National Route 57 is advancing with the north side restoration route and, through national government agency in accordance with the Road Act and the Act on Large-scale Disaster Restoration, restoration work is continuing on Aso Ohashi Bridge on National Route 325, Kumamoto-Takamori Prefectural Road, and Tochinoki-Tateno Village Road.

In addition, regarding damaged expressways, with the restoration in April 2017 of the approximately 17 km between Mashiki-Kumamoto Airport Interchange and Matsubase Interchange on the Kyushu Expressway, which had all-day lane closures imposed, transit has been restored to all lanes.

(12) Promoting non-structural Measures Including Information and Public Relations for Safety and Comfort

To ensure safety and comfort, non-structural measures were promoted in addition to structural measures for natural disasters and the status of progress was subject to annual inspections in accordance with the “MLIT General Framework of Non-structural Measures Promotion for Safety and Comfort”, however, the Great East Japan Earthquake brought to light the need for congruent and integrated evaluations of structural and non-structural aspects and currently deliberations are in progress following the re-evaluation of the Social Capital Improvement Priority Plan/MLIT Disaster Prevention Operation Plan.

3 Secure Transportation Systems Resistant to Disasters

(1) Ensuring Redundancy and Substitutability

Rails, ports, airports, and other facilities are being made disaster resistant and an emergency transport framework for rescue, restoration activities, business continuity is being established to ensure redundancy and substitutability efforts are being made to secure the safety of users.

The road network is necessary to overcome weakness in terms of disasters, such as a community’s susceptibility to becoming isolated by a disaster, and we will carry out improvements systematically.

(2) Road Disaster Prevention Measures

To support the emergency lifesaving and restoration assistance activities in the event of large-scale disasters, development of missing links for securing substitutability, disaster measures (measures for slopes, embankments, etc.), earthquake disaster measures (seismic reinforcement, etc.), and snow/cold region measures (development of anti-snow facilities) are being promoted. Additionally, supplementing traffic facilities with disaster prevention functions (turning Michi-no-Eki, service and parking areas into disaster prevention bases, as well as developing emergency lines of communication and fire escapes) were promoted. Disaster alliances with private sector businesses to implement swift road openings are conclud-

ed, and a council for road administrators to create a framework that keeps roads open was established. In addition, based on the Disaster Countermeasure Basic Act amended in November 2014, development of the system and equipment that allow road administrators to smoothly move vehicles for swift removal of road obstacles is being promoted.

Also, in addition to motorcycle squads, cameras, and UAV (unmanned aerial vehicles), big data such as ETC 2.0 probe information and private probe information are used effectively to grasp early damage situations, thus enhancing initial responses.

Additionally, in order to support rapid emergency lifesaving activities and transportation of emergency relief goods during disasters, the Act to Partially Amend the Road Act, etc., was enacted on March 30, 2018. The Act requires the National Government to hold wider responsibilities for reopening damaged Logistically-Important Roads and their alternative routes and performing disaster recovery activities on behalf of the original road administrators in the event of disaster.

Meanwhile, for regions that sustained devastating damage from the tsunami caused by the Great East Japan Earthquake, road development is being carried out as part of urban area development prioritized in the recovery plan and the development of access roads to expressway interchanges is being promoted. Additionally, as one measure to reduce tsunami damage, sea level indicator sheets are being added to road signposts to promote the provision of sea level information to road users.

(3) Accelerating Removal of Utility Poles

We are committed to removing utility poles to prevent them from falling down and blocking the traffic of emergency vehicles in the event of earthquake. Also, we have implemented measures to prohibit the installment of new utility poles on emergency transport roads and special measures for the property tax.

Furthermore, in accordance with the Act on Promotion of Utility Pole Removal, we moved forward with the formulation of a plan for accelerating removal of utility poles, in order to promote measures related to the removal of utility poles comprehensively, systematically, and quickly.

(4) Disaster Prevention Measures for Various Transportation Modes

For railways, in an effort to ensure safe and stable railway transport that is resilient to disasters, subsidies are provided to partially cover the costs of disaster prevention projects carried out by passenger rail companies, including rockfall and avalanche measures as well as countermeasures conducted by the Japan Railway Construction, Transport and Technology Agency (Incorporated Administrative Agency) against deformation that has occurred in pilot and service tunnels of the Seikan Tunnel, which has been open for 30 years.

For ports, in light of the lessons of the Kumamoto Earthquake, a system was established in June 2017 for the national government to administer port facilities based on a request from the port authority during an extraordinary disaster. Efforts are being made to strengthen disaster preparedness by conducting disaster prevention drills based on this system and ports' BCPs in cooperation with parties concerned.

For airports, we are promoting the formulation of evacuation and rapid recovery plans in the event of an earthquake or tsunami striking an airport, taking into consideration disaster prevention-related plans for the area in which an airport is located as well as coordination with other airports.

(5) Building a Logistics System Resistant to Disaster

The Great East Japan Earthquake and Kumamoto Earthquake highlighted the importance of utilizing the expertise and facilities of private sector logistics companies from the perspective of ensuring the smooth transport of relief supplies. That is why we are pushing initiatives aimed at the establishment of a logistics system that is resistant to disasters through the coordination of central government, local government, and logistics companies, including promoting the use of private logistics facilities as bases for the distribution of relief supplies (1,458 facilities listed as of March 31, 2018) and encouraging the signing of cooperation agreements between distributor associations and local governments. Going forward, we will continue promoting the establishment of cooperative frameworks for coordination between the public and private sectors across the nation and will conduct operation drills to achieve smooth distribution of relief supplies.

Column

Initiatives Related to Railway Restoration in Response to More Frequent and Serious Disasters

Natural disasters occurring one after another across the country in recent years have caused immense damage to railways.

As of April 2018, service is suspended on nine lines of four railway operators.

When quick restoration has been difficult with just the operators' own resources, the MLIT has promoted swift restoration by subsidizing restoration expenses based on the Act on Improvement of Railroads and Rail Tracks. Also, while we have provided individual support in the past according to the scope of damage and business conditions, such as with Sanriku Railway, which suffered damaged during the Great East Japan Earthquake, we established a new support system under a supplementary budget in FY2017, in order to provide strong support in the future for the restoration of railways that sustain tremendous damage, like in the Great East Japan Earthquake and Kumamoto Earthquake.

Under the new system, when a railway operator in a tough operating situation is hit by a remarkably abnormal and severe disaster, the national and local governments will split the cost burden half and half (current system: national government $\frac{1}{4}$, local governments $\frac{1}{4}$, railway operator $\frac{1}{2}$) for lines that meet certain conditions such as the scale of the disaster and changes being made in the business structure to ensure sustainable business operation after restoration. The system is applicable to future disasters as well, since there is a need to quickly secure funds for disaster recovery.

Also, in light of the fact that damage to railway facilities caused by natural disasters is occurring frequently and more seriously, we have increased the budget for disaster recovery from 68 million yen to 910 million yen from the FY2018 budget, with a view toward stable and agile disaster recovery projects.

Groundbreaking ceremony for disaster recovery work on the Minami Aso Railway



Damage on the Minami Aso Railway (between Tateno Station and Choyo Station)



Column

Practice Transporting Disaster Relief Supplies to Shelters in Cooperation with Saitama City: Establishing Smooth Transportation of Relief Supplies, Including Over the 'Last Mile'

During the Kumamoto Earthquake of April 2016, facilities managed by distribution companies were used as transportation hubs for relief supplies, reminding us of the utility of using private sector distribution facilities and the importance of cooperation from private businesses during a disaster.

At the same time, there is the challenge of the 'last mile', where supplies do not reach shelters even though they have made it to the municipal supply points that come before the shelters.

In light of the Kumamoto Earthquake, Saitama City is working actively on partnering with distribution companies, including signing a cooperation agreement to use a distribution facility belonging to Sagawa Express Co., Ltd. as the city's hub for transportation of supplies.

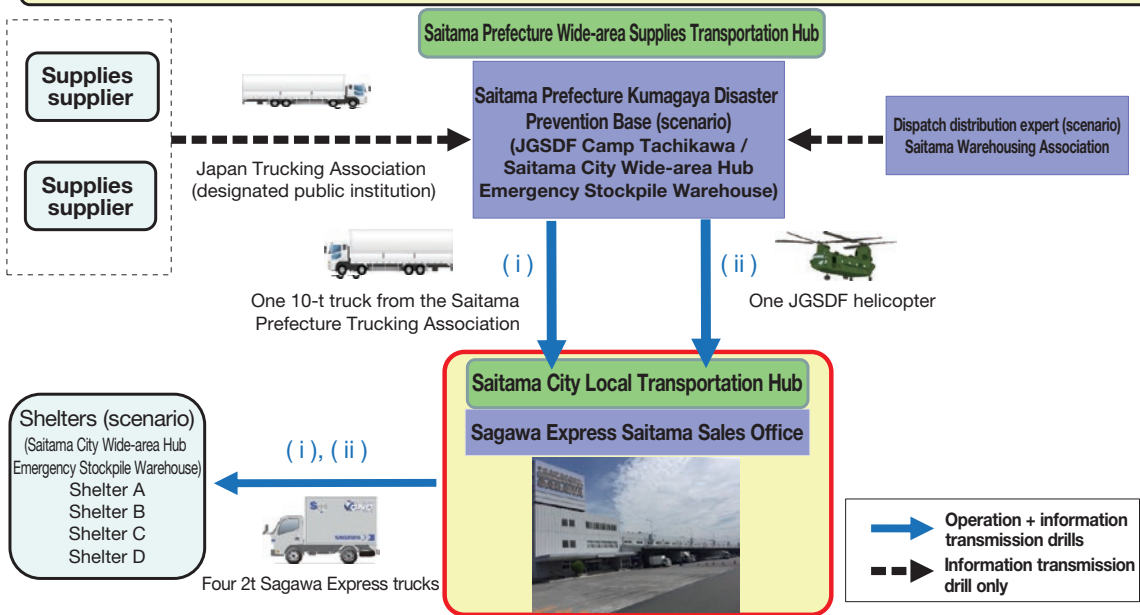
Then, it was decided to strengthen the collaboration among parties concerned and increase their readiness by conducting drills, with cooperation from Saitama City and distribution companies, aimed at ensuring a smooth system for transporting supplies to shelters.

During the drills, point-to-point truck transportation from Saitama Prefecture's wide-area supplies transportation hub to shelters was conducted with cooperation from the Saitama Trucking Association and Sagawa Express. Additionally, assuming a scenario in which the road traffic network is not working in Saitama City, transportation was also conducted via helicopter from a wide-area supplies transportation hub to the local transportation hub in the Saitama City with the support of the Japan Ground Self-Defense Force (JGSDF).

At Sagawa Express' large delivery center, which is the local transportation hub in the Saitama City, relief supplies brought in by large truck and helicopter were sorted and loaded onto trucks going to shelters.

○ Overview of relief supplies transportation drill

- Date: Thu., Jan. 11, 2018 *Some information transmission drills conducted on Wed., Jan. 10
- Relief supplies transportation drills and information transmission drills conducted in the following two patterns:
 - (i) Point-to-point transportation by truck from the wide-area supplies transportation hub to shelters
 - (ii) Assuming roads in Saitama City are damaged, air transportation by JGSDF helicopter from the wide-area supplies transportation hub to the local transportation hub



Source) MLIT

During this drill, cooperation among the parties concerned was strengthened in addition to confirming that relief supplies could be transported smoothly with the cooperation of Sagawa Express, which has extensive distribution knowhow, and by using its facility as Saitama City's supplies hub. Saitama City has positioned the company's facility as the "Relief Supplies Transportation Hub During a Disaster" in its regional disaster prevention plan.

In order to achieve a smooth and reliable relief supplies transportation system by leveraging the knowledge of transportation companies and through cooperation among the national and local governments and private businesses, we will strive to establish a distribution system that is resilient to disasters, so as to spread such initiatives throughout the country in the future.



Source) MLIT

Section 3 Ensuring the Safety of Architecture

(1) Securing Trust for the Production and Supply System for Housing and Buildings

After the amended Building Standards Law went into effect in 2007, the building confirmation process became backlogged, leading to a large decrease in the number of building confirmations; therefore, in light of this, the operation of building confirmation procedures was improved on two occasions in 2010 and 2011 to speed up the building confirmation review and simplify the application documentation among other improvements.

The Minister of Land, Infrastructure, Transport and Tourism inquired the Panel on Infrastructure Development about the ideal for future standards policies in August 2012, and review was proceeded on the items that were requested most for review by priority at the Building Standards Sub commission established at the Building Subcommittee of the same Panel in September of the same year. Of this, regarding the scheme for promoting the seismic resistance of housing and buildings, the first findings were compiled in February 2013 and based on this the revised Law for Partial Amendments to the Act for Promotion of Renovation for Earthquake-Resistant Structures of Buildings was enacted in November 2013.

Also, regarding the ideal standards regarding wood structures and ideal efficient and practically implementable confirmation and inspection regulations the second report was compiled in February 2013. Accordingly, the Act to Partially Amend the Building Standards Act came into force in June 2015.

As measures pertaining to Kenchikushi (architects and building engineers), initiatives to make operations to design and construction administration appropriately in accordance with the Act to Partially Amend the Kenchikushi Law, which came into force in June of the same year, have been undertaken.

Additionally, when defects are discovered in new houses the defect warranty will be reliably fulfilled so that consumers can purchase housing with peace of mind and in accordance with the Act on Assurance of Performance of Specified Housing Defect Warranty (Housing Defect Warranty Performance Act), requiring construction companies and real estate transaction agents to secure funds (house defect warranty security deposit or a valid housing defect warranty liability insurance contract), the insurance underwriting system of housing defect warranty liability insurance entities will continue to be improved and initiatives to raise awareness among consumers and other measures to publicize the system are being carried out.

In FY2017, at the Research Committee for Newly Developing a Housing Defect Warranty Performance System, backed by key personnel (a fresh opportunity to engage in ongoing studies for future reviews of this system), issues to date have

been subject to follow-up action and opinions have been exchanged for future reviews.

(2) Ensuring the Safety of Elevators and Amusement Facilities

While surveys to elucidate the causes of accidents involving elevators, escalators, and amusement facilities and the training of staff members at local governments and regional development bureaus in terms of safety and accident measures continue to be carried out, initiatives for ensuring safety have been advanced by making active use of guidelines for the appropriate maintenance and management of elevators and escalators and spreading awareness of the need to install Unintended Car Movement Protection devices in existing elevators.

Section 4 Strengthening Safety Measures in the Transport Sector

Ensuring safety is a central and fundamental issue in the transport sector and once an accident occurs, not only can it cause significant damage, but also has an enormous impact on society so various measures are being undertaken to prevent accidents from occurring.

1 Building and Improving the Safety Management System in the Transportation Business

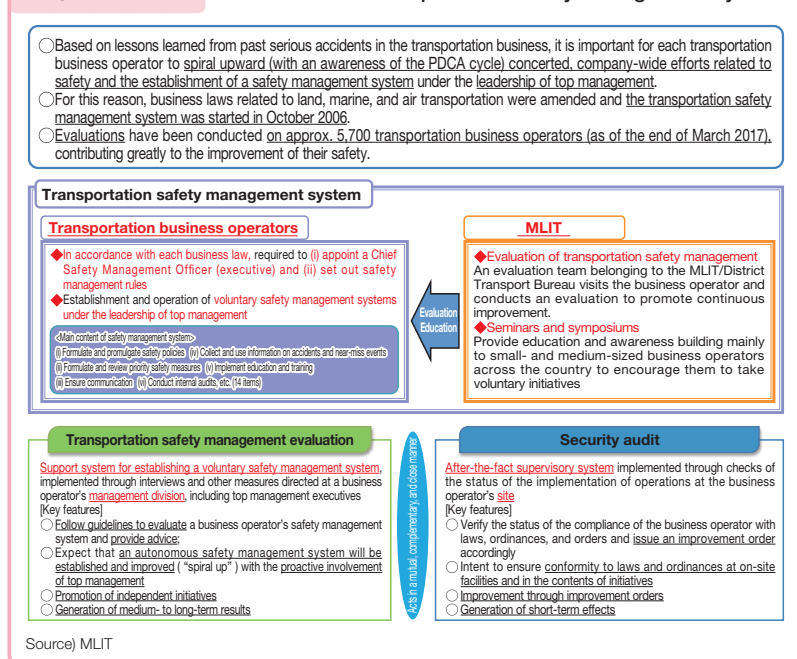
The Transportation Safety Management System was introduced in October 2006 based on the lessons of JR Fukuchiyama line derailment accident and other accidents. The system requires transportation business operators to a Chief Safety Management Officer and to establish safety management rules. It encourages the establishment of a safety management system encompassing the whole company under the leadership of top management and is used by MLIT to conduct transportation safety management evaluations (verification of the status of a transportation operator's initiatives and provision of needed advice).

In FY2017, 1,094 parties (63 railway parties, 818 automobile parties, 196 shipping parties, and 17 airline parties) were subject to a transport safety management evaluation.

In FY2017, a transportation safety management seminar hosted for transportation operators by the national government in order to deepen understanding of this system was attended by 3,183 persons. In FY2017, 13,493 persons attended seminars as part of an accredited seminar program established in July 2013 for the purpose of further disseminating and shedding light on this system for small to medium-sized business operators (a program through which transportation safety management seminars organized by private-sector organizations are accredited by the MLIT).

October 2016 marked 10 years since the Transport Safety Management System began. While certain results have appeared, there are still a number of issues, including the need to deploy further initiatives in the automobile transportation sector, the need to respond to operators that are still on the way to implementing initiatives and to encourage the deepening of initiatives, and the need to strengthen the national government's system for conducting effective evaluations. Accordingly, the Transport Council deliberated these issues and we obtained its report in July 2017. In light of the report,

Figure II-7-4-1 Outline of the Transportation Safety Management System



we will strive to strengthen and expand the Transportation Safety Management System by carrying out initiatives such as the following:

- Verify the safety management system of all chartered bus operators by FY2021;
- Deepen top management’s awareness for dealing with issues such as aging personnel due to a shortage of labor—which is a contemporary problem—aging transportation facilities, natural disasters, terrorism, and infectious diseases, and encourage organization-wide initiatives;
- Establish a Chief Safety Management Officer Council (safety managers forum) with the aim of creating a place for “horizontal collaboration” to deepen interaction among transportation operators’ chief safety management officers and safety management personnel; and
- Create a Minister of Land, Infrastructure and Transportation Award to support establishment/entrenchment of a safety culture in transportation operators and initiatives toward continuous revision/improvement.

Figure II-7-4-2

How the Transportation Safety Management System Should be in the Future(Transport Council Report (July 2017))

Deliberation contents	
<ul style="list-style-type: none"> ◆ Need to deploy further initiatives in the automobile transportation sector ◆ Need to respond to operators that are still on the way to implementing initiatives and to encourage the deepening of initiatives ◆ Need to strengthen the national government’s system for conducting effective evaluations 	
Report contents	
I Measures in the automobile transportation sector	
1. Priority measures to improve the safety of chartered bus operators	2. Measures to encourage initiatives in the automobile transportation sector
<ul style="list-style-type: none"> (i) Verify the safety management system of all chartered bus operators over the next five years (ii) Make transportation safety management evaluation a requirement for business license renewal in cases where a chartered bus operator has received administrative penalties 	<ul style="list-style-type: none"> (i) Expand scope of application for truck operators and taxi operators (fleet of 300+ vehicles → fleet of 200+ vehicles) (ii) Give various incentives to operators who are mandated to make efforts
II Measures common to all sectors	
3. Measures to encourage the deepening of initiatives by transportation operators	4. Strengthen the national government’s system
<ul style="list-style-type: none"> (i) Encourage top management’s awareness and organization-wide initiatives for dealing with a changing business environment and social environment (aging personnel and new risks such as terrorism and infectious diseases, etc.) (ii) Establish a Chief Safety Management Officer Council (iii) Create a Minister of Land, Infrastructure and Transportation Award (iv) Promote measure to facilitate initiatives by small to medium-sized business operators 	<ul style="list-style-type: none"> Strengthen the training of national government personnel who conduct evaluations
	5. Utilize ICT in the transportation safety management sector
	Examine the utilization of ICT, including big data analysis and technical progress in IoT and AI

(Source) MLIT

2 Railway Transportation Safety Measures

Driving accident numbers for railway traffic show a declining trend over the long term^{Note} due to factors such as the promotion of driving assistance facilities including automatic train stop systems (ATS) and rail crossing measures, but since many people may be killed or injured if a train collides or derails, the promotion of further safety measures must continue.

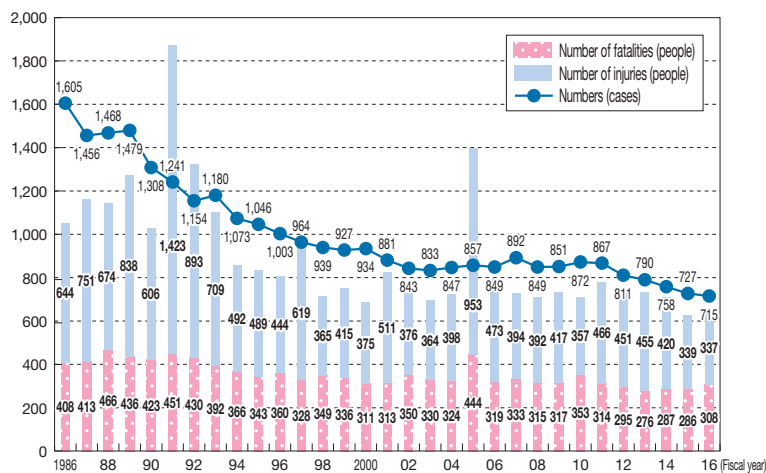
(1) Improving Railway Safety

In the light of past accidents, measures, like creation of necessary standards, will be implemented, and direction will be given to railway operators to ensure implementation, as well as, confirm the status of implementation for safety audits, and give feedback on audit results for further implementation of measures to improve the safety of railways.

JR Hokkaido has been instructed to implement the Measures to be taken by JR Hokkaido as business improvement order and supervision order, in January 2014, and carryout supervision and guidance through periodic reports, permanent

Figure II-7-4-3

Transition in Number of Casualties and Number of Driving Accidents in Railways



(Source) MLIT

Note The number of casualties increased in the years which driving accident caused severe human damage, such as 2005 in which JR-West Fukuchiyama line derailment accident occurred.

audit systems (for five years) to reliably execute the same.

In accordance with the results of an investigation pertaining to reviews of the approach taken for safety audits conducted in FY2014, railway operators are subject to modulated, more effective safety audits, including planned safety audits and provisional safety audits conducted whenever similar types of problems occur.

(2) Promotion of Railway Crossing Measures

Unopened grade crossings^{Note} primarily in urban areas are a factor behind crossing accidents and chronic traffic congestion and measures to promptly address this problem are needed. For this reason, the road administrators and railway operators work together to prevent railroad crossing accidents, by developing crossing facilities, such as flyovers, structure improvement, and pedestrian bridges, and through the maintenance of railroad crossing safety equipment, such as railway crossing barriers, based on the Improving the Railway Crossings Act and the 10th traffic basic traffic safety plan.

In FY2017, in accordance with the Act on the Promotion of Railway Crossings, 237 new locations were designated as crossings to be improved, which with the 587 crossings designated in FY2016 brought the total up to 824 crossings. Regional Railroad Crossing Improvement Councils were gradually held regarding the designated crossings, and road administrators and railway operators made efforts to advance crossing measures based on the local circumstances.

In the future, in addition to countermeasures, such as the construction of crossing facilities including flyovers and structural improvements, as well as the construction of railroad crossing safety equipment, crossing countermeasures will be further promoted based on studies by the Regional Railroad Crossing Improvement Council, which cooperates with community stakeholders. This will include a general mobilization of measures in both structural and non-structural terms, including immediate measures involving the use of colored pavement and measures affecting areas surrounding crossings, such as the development of parking spaces.

(3) Promoting the Development of Platform Doors

To improve the safety of the visually impaired and other rail station users, the installation of platform doors to prevent falling from the platform is being promoted (installed at 686 stations as of the end of FY2016). In accordance with the Basic Policy on Promoting the Facilitation of Mobility (March 2011), Basic Plan on Transport Policy (February 2015), and Priority Plan for Social Infrastructure Development (September 2015), we have been implementing structural measures, such as by promoting the development of platform doors and tactile paving with boundary lines and the development of technologies for new types of platform doors to address the problem that arises when train doors do not line up properly with the platform, as well as non-structural measures, such as encouraging users to reach out to and help guide visually-impaired riders to where they are supposed to go.

An investigative commission for improving the safety of station platforms met on August 26, 2016, and studied comprehensive safety measures related to the prevention of falls, in terms of structural and non-structural measures. It released an interim summary in December 2016. It was decided that, as a structural measure, platform doors are to be installed by 2020 as a general rule at stations serving 100,000 people or more, and where construction conditions are met, such as fixed locations for train doors and adequate space on the platform. Where the development conditions are not met, we have studied ways to meet them, such as installing new types of platform doors and making fixed door locations by updating train cars. Where new types of platform doors are to be installed, we have decided to construct them or start construction within about five years. Regarding stations that serve fewer than 100,000 people, we have decided to carry out priority development at the same level as stations serving 100,000 people or more, if such development is deemed necessary after taking the station's condition into consideration. Through such initiatives, we will work to achieve the development goals of approximately 800 stations by FY2020, set out in the Basic Plan on Transport Policy, as far in advance as possible.

Also, in the interim summary, it was decided to construct tactile paving with boundary lines by FY2018 at stations that serve 10,000 people or more. In addition, the main non-structural measures indicated in the summary include station employees offering to guide visually impaired riders at stations without platform doors, enhancing the service provided by station employees, including calling out clearly to visually impaired riders, encouraging other riders to reach out to and help guide visually impaired riders, promoting understanding of the "barrier-free heart" mindset, and cooperating with the training of guide dogs in stations, among other measures.

Note Railway crossings that are closed for more than 40 minutes/hour, during the hours when the train frequency is high.

Furthermore, at the seventh meeting of the investigative commission, held in July 2017, the status of railway operators' initiatives to improve platform safety were summarized and shared in an effort to encourage further initiatives by relevant parties, including railway operators, through horizontal spread of best practices.

(4) Studying Measures Related to Railway Transportation Trouble

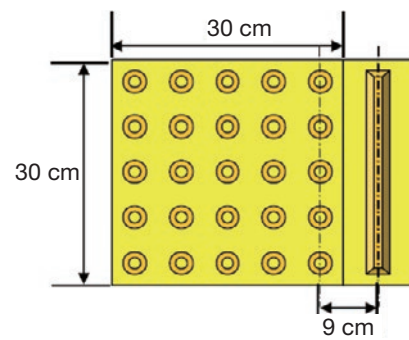
We established an investigative commission to examine measures related to railway transportation trouble. The commission, which held its first meeting in February 2018, is to review how railway car inspections ought to be. It will examine measures to prevent the recurrence of transportation disturbances and mitigate their effects, in light of railway transportation trouble that has occurred in recent years, such as a crack in Shinkansen bogie, a transportation disturbances caused by overhead wire damage, and a standstill for a long time due to snow damage. It will also examine and study the structural causes that are thought to be behind the trouble, such as the declining birthrate and aging personnel. The commission aims to compile the necessary measures by the summer of 2018.

Figure II-7-4-4 Platform doors



Source) MLIT

Figure II-7-4-5 Tactile Paving with Boundary Lines



- 25 tactile bumps (5 × 5)
- Line bump (boundary line) indicating the side of the platform close to the track

Source) MLIT

3 Safety Measures for Maritime Traffic

In the sea areas surrounding Japan, around 2,200 vessels are involved in marine accidents every year. Once a marine accident occurs, not only are precious lives and property lost, but Japan's economic activities and marine environment may be adversely affected in a major way, requiring the promotion of further safety measures.

(1) Improving Ship Safety and Ensuring Ship Navigation Safety

(i) Improving ship safety

In order to ensure ship safety globally, the international regulations and standards have been developed at the International Maritime Organization (IMO), and Japan has been participating actively in discussions at IMO.

Based on proposals from Japan and other countries, the IMO started to consider international rules related to maritime autonomous surface ships that use the latest ICT technology, in order to increase maritime safety through the prevention of human error, etc.

Also, it has been pointed out that fire accidents on passenger ferries have been occurring frequently in recent years. The IMO is therefore studying fire safety measures for passenger ferries. Japan has contributed to the discussion by suggesting to the IMO measures based on cases of fires in Japan.

Port State Control (PSC)^{Note 1} has been implemented to ensure that foreign ships entering ports in Japan comply with such international regulations and standards, and to eliminate substandard ships^{Note 2}.

As an initiative focused on ship safety measures in Japan, a the guidelines including effective firefighting strategies, the features of fire-fighting equipment, and training methods to enhance preparations for ro-ro passenger ship operators to engage in firefighting was compiled and publicly released in response to a fire of a ferry occurred off the coast of Tomakomai, Hokkaido, in July 2015. We continued to provide guidance to ro-ro passenger ship operators nationwide in FY2017.

Also, in light of the fact that a revision to a relevant ordinance made the wearing of lifejackets mandatory for all passengers as a general rule from February 1, 2018, as a safety measure for small craft, we produced posters, leaflets, and an awareness-raising video in an effort to spread awareness of the rule in cooperation with relevant ministries, agencies, and organizations. Additionally, in order to use smartphones to prevent maritime accidents, we studied a system to share location information among different smartphone apps.

(ii) Ensuring ship navigation safety

In accordance with the Seaman and Small Craft Operator Act, which complies with the STCW Convention^{Note 3}, the qualifications for seafarers are defined, as are the qualifications and compliance matters for small craft operators, to ensure ship navigation safety from human factors.

Also, in order to reduce the number of small boat accidents, which account for around 80 percent of all maritime accidents, we publicized compliance matters and conducted re-education courses for violators. In accordance with the Pilotage Act, qualifications for people who can perform pilotage are defined for the safety of vessel traffic. In light of the second report by an investigative commission related to the securing and training pilots, which was established to secure a stable supply of pilots, we partially revised an ordinance in January 2018, establishing a new system of partial passing of exam requirements as part of efforts to encourage people to apply to be pilots.

Investigation and inquiry, in accordance with the Act on Marine Accident Inquiry, are conducted for a marine technician, a small craft operator, or a pilot who causes a marine accident intentionally or negligently in the course of duties and in 2017 there were 316 cases of determinations and a total of 423 marine technicians, small craft operators, or pilots were performed disciplinary actions of suspension of business operation (one to two months) or admonition to prevent the occurrence of marine accidents.

Since 2003, the Japan Coast Guard has organized the direction and specific measures for vessel traffic safety measures to work on over a period of roughly five years into a Traffic Vision. In April 2018, it formulated its Fourth Traffic Vision and is carrying out various measures to ensure maritime safety over a wider area.

Since human factors such as inadequate vigilance and inappropriate maneuvering account for approximately 80% of ship accidents, in order to prevent accidents caused by such carelessness, the Japan Coast Guard, in cooperation with relevant organizations and private associations carries out accident prevention measures according to the type of vessel and operation season, in light of the results of its daily analysis of maritime accidents that have occurred.

Note 1 Supervising of foreign vessels by port state

Note 2 Vessels not conforming to standards of international convention

Note 3 The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978. This international convention stipulates the training and certification of mariners for the purpose of improving the safety of human lives and assets at sea, and also promotes the protection of the marine environment.

Also, the Coast Guard provides information, such as “Maritime Information and Communication System (MICS)^{Note},” to the broader public in order to prevent marine accidents due to insufficient information.

In order to quickly and smoothly get vessels to safe sea areas when a tsunami or other emergency disaster occurs and, during non-emergency periods, in order to ease congestion and ensure the safe and efficient operations of vessels, the Coast Guard coordinated the Tokyo Wan Vessel Traffic Service Center with port traffic control offices in the ports of Chiba, Yokohama, Kawasaki, and Tokyo and established a new Vessel Traffic Service Center in Yokohama to carry out these operations in an integrated fashion. The new center began operations in January 2018.

With respect to nautical charts, we are endeavoring to upgrade electronic navigational charts, which have gained in importance thanks to the dissemination of the Electronic Chart Display and Information System (ECDIS). Additionally, we have published English-only nautical charts for foreign seafarers as part of measures to prevent marine accidents. In FY2017, with the enforcement of a law to partially amend such laws as the Maritime Traffic Safety Act in relation to centralization of maritime traffic control in Tokyo Bay, the amendments are reflected in the relevant charts of Tokyo Bay.

Regarding the navigational warnings and notices to mariners, visual information that constitutes valid information displayed on a map is provided over the Internet.



Note A service that provides information such as local weather and hydrographic conditions, including wind direction, wind speed, and wave heights, as observed at lighthouses and other stations nationwide, as well as the status of offshore construction, and live images from cameras giving a picture of sea conditions via the Internet and through distribution via email of emergency information released by the Japan Coast Guard

In addition, to improve the safety and navigation efficiency of ships in narrow waterways, tidal current information for Kurushima Strait is provided on the Internet through entire region simulation.

For Aids to Navigation, development is performed effectively and efficiently in accordance with the vessel traffic environment as well as needs and in FY2017, improvements and renovation was carried out in 257 locations.

The Marine Accident Analysis Center established under the National Maritime Research Institute (National Research and Development Corporation) conducts highly specialized analysis of accidents as well as rapid analysis and transmission of information when major marine accidents occur, and contributes to consider measures to prevent its recurrence.

Ensuring the safety of ship navigation in the Straits of Malacca and Singapore, highly important maritime transportation routes through which eighty percent of crude oil imported to Japan passes, is important. Cooperation for the financing of the Aids to Navigation Fund^{Note 1} is being provided under the cooperative mechanism^{Note 2} with the involvement of littoral states and users. In addition, Japan is providing technical cooperation through the dispatch of experts, by maritime stakeholders, in order to conduct hydrographic surveys on the straits, a move that was approved as a Japan-ASEAN Integration Fund (JAIF) project, by Japan and three littoral states (Indonesia, Malaysia, and Singapore). Japan will continue this cooperation for the safety of navigation and the protection of the environment in the straits through public-private partnerships, together with our good relationships with the littoral states.

(2) Promotion of Safety Measures for the Passengers

About 43% of cases reported about the dead or missing passengers are due to fall accidents into sea. In order to survive after the fall, first thing to do is to float, and then promptly request a rescue. In addition, the passenger mortality due to falls into the sea from small boats (fishing boats or pleasure boats), is eight times higher in the passengers who do not wear a life jacket than those who do. Life jackets therefore contribute greatly to saving passengers from falls into the sea. That is why the Japanese Coast Guard takes various opportunities to spread and raise awareness about ensuring self-rescue means based on three principles: wear a life jacket at all times, ensure appropriate contact means such as a portable telephone packed in a waterproof package, and effective use of the 1-1-8 emergency telephone hotline to the Japan Coast Guard.

(3) Strengthening the Rescue System

In order to engage in prompt and precise rescue activities, the Japan Coast Guard operates the 1-1-8 emergency telephone hotline and endeavors to rapidly ascertain information on the occurrence of accidents, such as by receiving information on marine accidents at any time, day or night, through the Global Maritime Distress and Safety System (GMDSS). Also, along with improving the rescue technology and capabilities of those such as special rescue team, mobile rescue technicians, and divers, enhancements and fortifications of the medical control framework to ensure, from a medical perspective, the quality of emergency life-saving treatment that emergency response personnel perform as well as advancing the functionality of patrol vessels and aircraft is being carried out as part of efforts to enhance and fortify the rescue and emergency system. Also, the enhancement and fortification of coordination between ministries, agencies, local governments, and private rescue organizations is also being carried out.

Note 1 A fund established to cover costs incurred to replace or repair lighthouses and other facilities used for aiding navigation installed in the Straits of Malacca and Singapore.

Note 2 A mechanism that substantiates, for the first time in international history, the cooperation of littoral states and states using these straits in accordance with Article 43 of the United Nations Convention on the Law of the Sea. This mechanism comprises three elements: the Cooperation Forum, the Project Coordination Committee, and the Navigation Aids Facilities Fund.

4 Air Traffic Safety Measures

(1) Strengthening Aviation Safety Measures

(i) State Safety Program (SSP)

Since April 2014, the Civil Aviation Bureau has been implementing the State Safety Program (SSP), which sets forth targets for civil aviation safety and measures to be taken for their attainment, in accordance with Annex 19 of the Convention on International Civil Aviation. In FY2015, the Civil Aviation Bureau, formulated a “Medium-term orientation for the administration of aviation safety,” which outlines the orientation of safety targets for the next five years. In FY2016, a direction for further safety measures related to small aircraft was added in light of the frequent occurrence of accidents involving private small aircraft in recent years.

The Voluntary Information Contributory to Enhancement of the Safety (VOICES) program has been operated since July 2014 in order to collect more information relating to aviation safety that is not subject to mandatory reporting and harness such information for the improvement of safety.

While dissemination activities have been yielding results and the number of reports issued in FY2017 increased by about 20 percent over the preceding year, attempts will be made to further use the system through continued work to highlight the importance of safety information. Efforts will also be made to improve safety by making use of obtained recommendations.

(ii) Air transport safety measures

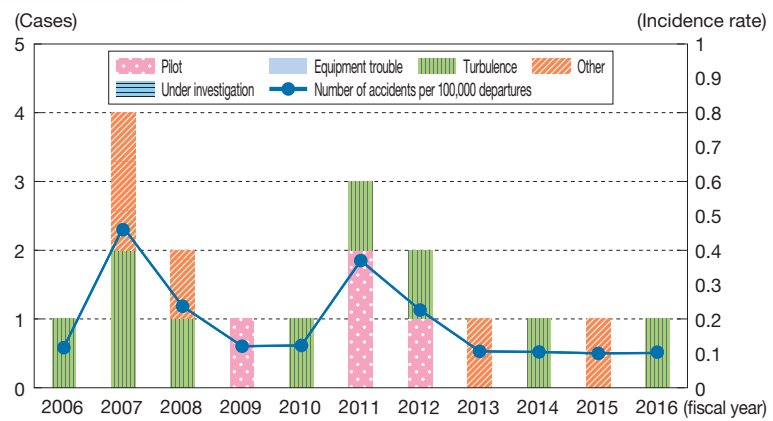
While passenger deaths aboard specific Japanese air carriers^{Note} have not occurred since 1986, efforts are being made to reinforce the safety management system adopted by airlines and preventive safety measures are being promoted to appropriately deal with safety-related issues. As well, preliminary reviews upon the launch or expansion of a domestic airline and strict (including unannounced) and systematic on-site audits are properly conducted. Also, in accordance with the increased entrance of foreign airlines following the promotion of the open sky policy, monitoring of foreign airlines entering Japan were strengthened with site inspections and other measures.

In September 2017, there was a case of an object falling from an aircraft. In order to promote measures to prevent falling objects and to quickly investigate and respond to the case after the fact, in November 2017 we set up a commission, composed of experts and working-level personnel, to promote comprehensive countermeasures related to the prevention of falling objects. In March 2018, the commission compiled a set of proposals for falling object prevention standards for airlines to follow. Since November 2017, in cases where parts are missing from aircraft taking off or landing at airports with lots of international routes, we have been demanding a report from all airlines, etc., including foreign airlines.

(iii) Certification of domestic jetliners

With the development of Japan’s first domestic jetliner, the MLIT, as the national government of design and manufacturing, established and expanded a certification organization to implement certification of compliance with safety and environmental standards more appropriately and smoothly and is carrying out reviews with close coordination with the aviation authorities of the United States and Europe. At present, four test aircraft have been transported to the United

Figure II-7-4-7 Number and Frequency of Accidents on Domestic Airlines



(Source) MLIT

Note Domestic air carriers that operate air transport businesses that use aircraft with 100 or more passenger seats or with a maximum takeoff weight of more than 50,000 kilograms.

States, where test flights and on-ground tests have been implemented. MLIT has stationed personnel in the United States to monitor and supervise the development activities, including test flights. We will continue appropriate and smooth safety reviews, anticipating delivery of the first aircraft, scheduled for mid-2020.

(iv) Safety measures applicable to unmanned aircraft

In December 2015, an amendment to the Aeronautical Act was issued to enforce basic rules for unmanned aircraft, such as flying airspace and flying methods. In FY2017, 14,065 permits/approval were granted as of the end of December. Also, in July 2016, a public-private council composed of relevant government ministries and agencies, manufacturers, and user organizations put together the Direction for System Development to Ensure Further Safety of Small Unmanned Aircraft. Based on these recommendations, we established a commission to study how to ensure the mutual safety and harmony of aircraft and unmanned aircraft in March 2017. Based on the commission's discussions, we compiled an interim report about matters such as measures to avoid collisions between aircraft and unmanned aircraft and between one unmanned aircraft and other. Furthermore, in September 2017, a commission to study the flying of unmanned aircraft outside the field of vision and above third parties was established in MLIT and the Ministry of Economy, Trade and Industry. In March 2018, it compiled requirements for flying unmanned aircraft outside the field of vision.

(v) Safety measures for small aircraft

We have conventionally implemented various measures regarding small aircraft, including establishment of a system of periodic skills reviews for pilots. Nevertheless, there have been numerous accidents in recent years, including one in which a plane crashed into a house in Chofu City, Tokyo in July 2015. In response, MLIT's Civil Aviation Bureau held safety courses at major airports nationwide, developed new courses for small aircraft mechanics, and took additional measures such as encouraging enrollment in aviation insurance for private aircraft. Additionally, the accident investigation report on the Chofu crash was released in July 2017, and recommendations were issued to MLIT. In response, we produced and distributed safety awareness leaflets based on the content of the recommendations and implemented other initiatives such as checking the understanding of pilots through periodic skills reviews. Going forward, we will continue to further promote comprehensive safety measures for small aircraft while taking into account the opinions of experts and relevant organizations through the Small Aircraft Safety Improvement Committee, which has been meeting regularly since December 2016. For sky leisure enthusiasts who enjoy pursuits such as ultralights, paragliding, skydiving, gliders, and hot air balloons, we carry out sky leisure safety measures, such as enhancing safety training and providing information on aviation safety through such organizations as the Japan Aeronautic Association and relevant sports associations.

(2) Developing Air Traffic Systems for Aviation Safety

In order to ensure safe operation and on-time performance of aircraft, and to support the smooth implementation of traffic control functions, we are continuing to develop a new air traffic control data system that merges the existing systems.

In FY2017, we introduced a trajectory airport traffic data processing system at Kagoshima Airport and Miyazaki Airport.

5 Finding the Causes of Aircraft, Railway, and Marine Accidents/Incidents, and Preventing Recurrence

During FY2017, accidents subject to investigations by the Japan Transport Safety Board consisted of 31 aircraft accidents and serious incidents, 14 railway accidents and serious incidents, and 873 marine accidents and incidents, and those investigations looked into finding causes and preventing recurrence.

Investigation reports for 31 aircraft accidents and serious incidents whose investigations were finished in FY2017 were released. These included the release in July 2017 of the results of an investigation into an accident in July 2015 in which a small aircraft crashed into a house in Chofu City, killing two passengers and one resident and injuring three passengers and two residents.

Likewise, investigation reports for 28 railway accidents and serious incidents were released. These included the release in November 2017 of the results of an investigation into an accident in April 2016 in which a Kyushu Shinkansen train derailed with the Kumamoto Earthquake.

Investigation reports for 966 marine accidents and incidents were also released. These included the release in November 2017 of the results of an investigation into an accident in December 2016 in which the fishing vessel Daifuku Maru capsized and sank off the north coast of Mihonoseki Lighthouse in Matsue City, Shimane Prefecture, resulting in the deaths of four crewmembers, with another five crewmembers missing.

The Japan Transport Safety Board has released the Japan-Marine Accident Risk and Safety Information System (J-MARISIS) that, by displaying digital maps on the Internet, can be used to search for marine waters where multiple marine accidents and incidents have occurred, and the results of those investigations. Additionally, it has released a global edition of J-MARISIS, to which information for 11 countries has been added to contribute to safe international ship navigation, as well as a mobile version of J-MARISIS that can be used on a smartphone or a tablet.

6 Support for Victims and Families of Public Transport Accidents

In order to support the victims and their families in public transport accidents, the Public Transportation Disaster Victims Assistance Office was established in April 2012. The Assistance Office relays requests from accident victims to public transportation business operators concerned and introduces appropriate organizations to accident victims depending on the content of the requests.

In FY2017, when a public transport accident occurred, the Assistance Office made the consultation service well known to victims, as well as responded to consultation from victims. When no public transport accidents needed to be dealt with, the Assistance Office was involved in numerous other activities, such as by providing education and training to staff members who provide support, building networks with relevant outside organizations, holding support forums for the victims of public transport accidents, and urging public transport operators to formulate plans for the provision of support to victims.

In response to the ski bus accident in Karuizawa that occurred in January 2016, MLIT held meetings to explain measures for preventing a recurrence and to listen to the opinions of victims and their families. We also continue to hold meetings to exchange opinions with an association for the bereaved.

Figure II-7-4-8 J-MARISIS (mobile version)

Top page <http://jtsb.mlit.go.jp/hazardmap/mobile/index.html>



Example of display of accident information

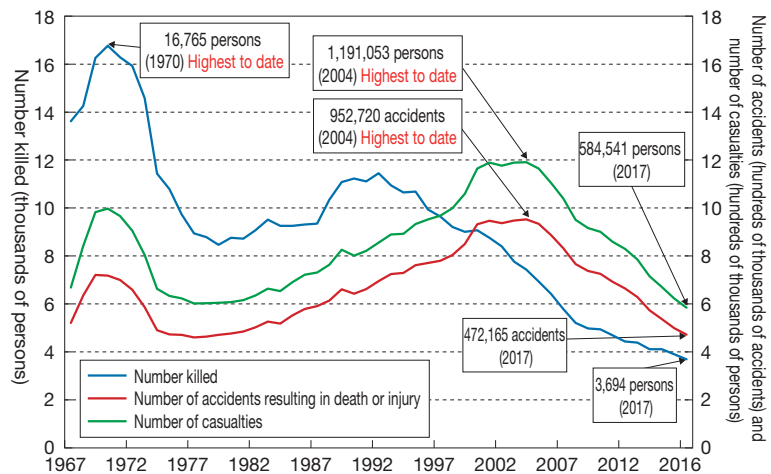
(Source) MLIT

7 Safety Measures for Road Traffic

In 1970, the number of traffic accident fatalities peaked at 16,000. This figure declined to less than a quarter of this level, or 3,694 fatalities (a decrease of 210 from the preceding year) in 2017, the lowest level since statistics started to be kept in 1948. However, elderly drivers caused many traffic accidents, and approximately half of them occurred while walking or riding a bicycle. With half of these incidents taking place within 500 meters of each victim's home, the situation remains grim. For this reason, efforts will be made to further reduce traffic accidents and various measures will be implemented in coordination with the National Police Agency and others.

Figure II-7-4-9

Changes in the Number of Traffic Accidents and Number of Casualties



* Figures for 1971 and earlier do not include Okinawa.

* Number of accidents resulting in death or injury and number of casualties: Based on materials provided by the National Police Agency

* Vehicle-km: Based on Economic Research, Traffic Survey and Census Data Collection [2016 Edition] (2010 and 2011 based on notes in the data)

* Number of automobiles: Based on Economic Research, Traffic Survey and Census Data Collection [FY2016 Edition]

* Population: "Population Estimates (October 1 of each year)," Ministry of Internal Affairs and Communications

* Death toll per 100,000 persons calculated based on the previous year's population (National Police Agency's calculation method)

Source) Prepared by the MLIT using materials provided by the National Police Agency

(1) Road Safety Measures

(i) Promoting road safety measures using big data for arterial roads and residential streets

By promoting the functional differentiation of roads, we are working to divert automobile traffic to expressways which are safer than other types of roads. Through measures applicable to accident-prone "black spots" and "zero-traffic accident plans" (tactics for the priority elimination of accidents at black spots) carried out in collaboration with prefectural public safety commissions, we are effectively and efficiently promoting accident measures in order to further improve the safety of arterial roads, which account for approximately sixty percent of traffic accident fatalities.

With respect to residential streets, where the number of fatal accidents is not on a stable downward trend compared to arterial roads, big data such as ETC 2.0 will be used to identify in advance key points such as places where people speed and brake suddenly, in order to secure safe walking spaces by restricting the through-traffic and forcing a reduction in vehicular speeds. Comprehensive measures to inhibit traffic accidents are being advanced in collaboration with prefectural public safety commissions, through such measures as decreasing the width of vehicular roads and widening roadside strips in combination with zonal speed limits, engaging in sidewalk development projects, and carrying out effective measures such as the installation of speed bumps and curb extensions.

The number of fatal traffic accidents involving bicycles and pedestrians has decreased by no more than 10% over the past 10 years, so we are promoting a configuration that separates pedestrians from bicyclists, who as a basic rule should travel on roadways.

(ii) Promoting Safety Measures for School Commute Routes

For school-commuting roads, in the wake of a series of accidents in April, 2012 involving groups of children commuting to schools, a "school route emergency joint inspection program" was implemented and included coordination among schools, boards of education, police, and other stakeholders. Intensive support was directed toward the measures based on the results above.

In addition, Japan has instituted a "school-commuting roads safety program" in each municipality to ensure the sustained safety of school-commuting roads, and has implemented regular joint inspections and improved and enhanced other measures as well.

(iii) Initiatives to improve the safety, reliability, and user friendliness of expressways

We will systematically carry out initiatives to improve the safety, reliability, and user friendliness of expressways, from the user's perspective, by using new technologies, with a view toward effective and efficient utilization of the expressway network. Specifically, in order to efficiently resolve such issues as driving performance and safety in provisional two-lane sections, we will use data to identify problematic areas and will move forward turning those sections into four lanes and creating additional lanes. Also, in order to ensure the safety of two-way traffic in provisional two-lane sections to be improved immediately, we are studying wire rope set up along approximately 100 km of 12 routes across Japan managed by expressway companies to see the effect on preventing head-on collisions and whether or not there are issues with driving performance and maintenance, etc. In addition, in response to the problem of cars driving in the wrong way on expressways, which is highly likely to lead to a major accident, we are implementing physical and visual measures at locations such as interchanges and junctions based on the Roadmap to Future Measures against Wrong-way Driving on Expressways. Also, with new technology for dealing with wrong-way driving, solicited from private companies and selected by expressway companies, going into practical use from FY2018, we are aiming to achieve zero wrong-way accidents on expressways by 2020.

These specific measures related to safety and security will be compiled into a medium-term improvement policy as the tentatively named Safety and Security Plan and will be promoted systematically and steadily.

Additionally, leveraging the current low-interest rate situation, we will use fiscal investment and loan programs to ensure the safety and security of expressways by accelerating the reinforcement of bridges against earthquakes.

(2) Systematic Road Facilities Management to Provide Safe and Secure Road Services

Nationwide, there are approximately 730,000 road bridges and approximately 10,000 road tunnels. But bridges and tunnels, which were intensively developed during Japan's period of high economic growth, face rapid aging in the future.

To achieve appropriate management of roads in light of this situation, the Road Act was amended in 2013, technical standards were established for the maintenance and management of roads, and the obligations of road administrators were clarified, such as visual inspections in close proximity of bridges and tunnels once every five years.

Having received recommendations on the full-scale implementation of measures to deal with the aging roads, as summarized by the Infrastructure Development Council's Road Subcommittee on April 14, 2013, we are working on building a framework for carrying out required actions as part of maintenance cycles. In particular, we are providing various kinds of support for local governments with many facilities to be managed. This support includes sharing technical information related to maintenance through the use of road maintenance councils that have been set up in all prefectures, the placement of lump sum ordering for inspection operations at the local level, the implementation of direct assessments and repairs by national government personnel on behalf of local governments, and support through subsidy systems for large-scale repair and upgrading jobs. Also, as a new financial support offered from FY2017, we expanded the eligible projects for the subsidy systems for large-scale repair and upgrading jobs to include consolidation and removal.

Additionally, in order to deal with the aging expressways, we are systematically carrying out large-scale upgrades and repair projects newly outlined in operational implementation plans according to amendments to the Road Act enacted in June 2014. Also, in October 2016, we issued a ministerial ordinance to set out the methods of maintenance and repair of bridges over railways in advance through discussions with railway operators, so as to encourage the systematic maintenance and repair of bridges over railways, and are working to prevent injury to third parties and ensure the safety of railways.

Additionally, in order to prevent impediment to road structures and traffic as a result of damage to property that occupies a road, an act to partially amend the Road Act was enacted on March 30, 2018, stipulating that persons with property that occupies a road have a duty to maintain that property and providing authority to order violators of that duty to take measures.

(3) Measures in Response to the Ski Bus Accident in Karuizawa

In light of the ski bus accident in Karuizawa that occurred in January 2016, we are implementing the "Thorough Measures to Achieve Safe and Secure Chartered Bus Operations," which consist of 85 items compiled in June 2016, in order to prevent such a tragic accident from ever occurring again.

(4) Steady Implementation of the “Expressway and Chartered Bus Safety and Security Recovery Plan”

In response to the Kan-Etsu-Do Expressway tour bus accident that occurred in April 2012, the “Expressway and Chartered Bus Safety and Security Recovery Plan” was formulated in April 2013 to shift and unify expressway tour buses into the new share-ride expressway bus and already established standards for driver replacement shifts and for the remaining measures, these have been definitely implemented in the two years between 2013 and 2014. The MLIT continues to ensure the effectiveness of each measure of this plan such as implementation of street audit and understanding of bus operators that must be continuously monitored, and promotes measures to improve the safety and regain trust of bus operations.

(5) Promoting Safety Measures According to a Safety Plan for Commercial Vehicles

In June 2017, we formulated the 2020 Comprehensive Safety Plan for Commercial Vehicles as a new plan to replace the 2009 Comprehensive Safety Plan for Commercial Vehicles that was established in 2009. The plan sets out new accident reduction targets of 235 or fewer deaths caused by commercial vehicle accidents and 23,100 or fewer accidents by 2020. We are advancing various measures toward achievement of those targets.

(i) Accident-prevention measures based on accident patterns by industrial sector and key factors

In order to promote transportation safety, we are evaluating accident-prevention initiatives based on characteristic accident patterns for each industrial sector—trucks, buses, and taxis—and are conducting follow-ups, including revisions of initiatives where necessary, so as to reduce accidents even further.

(ii) Establishing a framework for safety through the management of transportation safety

In order to promote initiatives for establishing and improving safety management systems in the automobile transportation sector through the transportation safety management program, the scope of application of the program for truck operators and taxi operators was expanded from operators with a fleet of 300 or more vehicles to operators with a fleet of 200 or more vehicles (a ministerial ordinance partially revising the relevant regulations went into effect on April 1, 2018). We have also decided to check the safety management systems of all chartered bus operators by FY2021. In 2017, evaluations of transportation safety management, where by the national government verifies the status of implementation of initiatives related to these systems, were conducted on 818 automobile transportation operators.

(iii) Ensuring compliance on the part of motor carrier businesses

In order to thoroughly ensure that motor carrier businesses comply with relevant laws and ordinances and practice appropriate operations management, business operators who flagrantly violate the law and those who have caused a major accident will be subject to thorough audits, while business operators who are suspected of violations will be subject to high-priority audits.

Also, in November 2016, we began operating a comprehensive safety information system for commercial vehicles with functions to identify and analyze business operators deemed to be at high risk of causing an accident.

Furthermore, in accordance with thorough measures for chartered buses compiled in response to the ski bus accident that occurred in Karuizawa, in December 2016 we introduced a system to correct legal violations promptly and have implemented measures to tighten administrative penalties to force business operators who are repeat violators to withdraw from the market. Since August 2017, we have also been conducting undercover investigations in which private sector investigators board actually operating chartered buses as a general user and investigate compliance with the law, such as the securing of rest time.

(iv) Eliminating drunk driving

In order to eliminate driving by business drivers while under the influence of alcohol, stimulants or dangerous drugs, thorough checks are conducted using alcohol analyzers during roll calls and guidance is being provided to business operators and operating managers whenever the opportunity arises through the use of workshops, nationwide transportation safety campaigns, general transportation safety checks conducted during the year-end and New Year’s period, and other such initiatives in order to thoroughly ensure that drivers are guided and supervised on a daily basis regarding correct knowledge of drugs and the prohibition on their use.

(v) Promoting safety measures based on the use of IT and new technologies

We are providing support for the deployment of equipment that will contribute to the advancement of operation management such as digital operation recorder and for advanced initiatives such as preventing overwork driving, from the point of view to support the efforts made to prevent the traffic accidents caused by the automotive transportation operators. Also, to prevent accidents caused by health or driving while incapacitated by fatigue, we are accumulating such information as driving characteristics and physical condition management as big data, and have started using it to study accident prevention operation models, such as the possibility of establishing routes suited to the physical condition of the driver.

(vi) Measures based on the recommendations of the Committee Investigating Accidents Involving Commercial Vehicles

The Committee Investigating Accidents Involving Commercial Vehicles conducts more advanced, complex investigative analyses of accident factors for major accidents involving commercial vehicles that have a large impact on society. As of March 2018, it has publicly released 25 reports on cases concerning incidents subject to special important investigations, such as the accident in which a chartered bus fell off the road in Karuizawa Town, Kitasaku County, Nagano Prefecture on January 15, 2016.

Figure II-7-4-10 Accident Investigation Report

Overview of an investigation report for an accident involving a commercial vehicle

–Fall of a large chartered bus–
(National Route 18 (Usui Bypass) in Karuizawa Town, Kitasaku County, Nagano Prefecture)

Overview of accident

- At around 1:52 on January 15, 2016, a chartered bus carrying 39 passengers fell about 4 meters off a cliff on National Route 18 Usui Bypass in Karuizawa Town, Kitasaku County, Nagano Prefecture.
- A total of 15 people (13 chartered bus passengers, the driver, and the relief driver) were killed, 22 passengers were severely injured, and four passengers received minor injuries in the accident.
- The accident occurred approximately 1 km down a sudden succession of downhill stretches after the long uphill section of the Usui Bypass comes to an end at Iriyama Pass. The chartered bus strayed into the oncoming lanes while going around a left-hand curve on a single-lane downgrade, smashing through a guardrail on the right-hand side of the road and falling approximately 4 meter while rolling over.

Aerial photograph of accident scene



(Provided by Nagano Police)

Recurrence prevention measures

(Chartered bus operators)

- ☆ When selecting drivers, **make sure that they have enough ability**, after providing guidance and supervision according to the operational conditions
- ☆ Make sure that drivers have health checkups and aptitude tests, as mandated by law, and **provide labor management according to each driver's condition of health and appropriate guidance and supervision according to driving characteristics**
- ☆ **Educate drivers on methods of safe driving according to the vehicle structure and route**, and sufficiently check and evaluate drivers' driving skills through escort training
- ☆ Operation managers are to **always perform roll calls** with drivers, give them written operation instructions that clearly state such matters as the route and departure/arrival times, and make sure to **provide instructions needed for safe operation**.
- ☆ Drivers are to make sure to encourage passengers to wear a seatbelt, even when sleeping at night.

(MLIT)

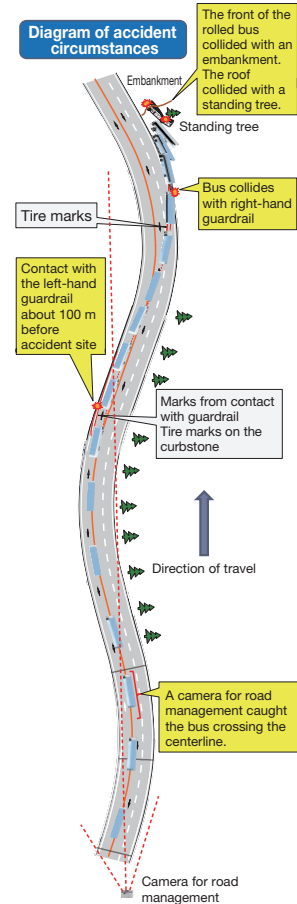
- ☆ **Enhance and strengthen the audit system**, and verify that business operators have made **appropriate corrections** regarding legal violations identified in audits
- ☆ Introduce **a business license renewal system** for chartered buses and make sure operators maintain a safety management system
- ☆ Establish a system of onsite guidance, using private-sector institutions, to complement audits, and check the status of safety management at all chartered bus operators at a frequency of about once a year-

Source) MLIT

Causes

- ☆ It is presumed that the accident occurred because the chartered bus could not make the curve as a result of traveling, **at approximately 95 km/h**, through a sharp downgrade left-hand curve **in excess of the regulatory speed**.
- ☆ The road to the accident site is a series of downhill curves after crossing Iriyama Pass. It is thought that the driver of the chartered bus **continued to drive while focusing on steering without braking sufficiently** where engine braking, etc., should have been used to drive at a safe speed. It is thought that the direct cause of the accident was the loss of control of the vehicle as the vehicle's speed increased as a result of driving in such a way that would not be expected from a normal driver.
- ☆ The driver had just been hired 16 days before the accident, and the business operator had not made the driver have a health checkup or aptitude test. Moreover, the driver had a blank period of at least five years when he did not drive large buses, and it is conceivable that he did not have sufficient experience or skill to drive a large bus on a mountain road. It is thought that the fact that the business operator allowed such a driver to **drive the bus without providing adequate guidance and education and without checking his driving skills** was a factor that led to the accident.
- ☆ The operation manager **produced and used inadequate operation instructions without investigating the route. A roll call was not conducted before starting work**, and selection of the route and rest stops was **left up to the driver**.
- ☆ The business operator entered the business at a time when demand for tour buses had grown greatly with the increase in inbound tourism. It is thought that a circumstance leading to the accident was the fact that the operator **managed the business with little regard to safety**, with the securing and training of drivers having not kept up with the rapid expansion in the scale of operations.

Diagram of accident circumstances



(vii) Promoting measures to prevent accidents caused by rapid physical changes affecting drivers

The Council for Discussing Measures to Deal with Health-Attributable Accidents Involving Commercial Vehicles was established in September 2015 to promote screenings as a more effective tool contributing to the early detection of sleep-disorder breathing, cerebrovascular diseases, heart disease, and other key diseases, as recommended in the Manual on Health Management for Drivers of Commercial Vehicles, which was revised in April 2014. Also, in order to encourage operators to have their drivers have brain checkups, etc., we established guidelines on cerebrovascular disease countermeasures for automobile transportation operators in February 2018.

(viii) Safety measures for the land transportation of international maritime containers

In order to enhance the safety of the land transportation of international maritime containers, Guidelines for the Safe Land Transportation of International Maritime Containers were compiled on June 2013. We are working to disseminate these guidelines and ensure the effectiveness of them in collaboration with the stakeholders through stakeholders meetings and training sessions by related industries in rural areas.

(6) Comprehensive Safety Measures for Automobiles

(i) Considering vehicle safety measures for the future

In light of a report in June 2016 by the Automobile Task Force of the Road Transport Subcommittee under the Transport Policy Council, we are working to promote safety measures for children and seniors, safety measures for pedestrians and bicyclists, countermeasures against serious accidents involving large cars, and vehicle safety measures focused on handling new technologies such as automatic driving. Also, as a measure to prevent accidents involving elderly drivers, we carried out a study, in the UN, with the aim of establishing international standards regarding advanced emergency braking systems based on an interim report compiled in a Vice Ministers' Council among relevant ministries and agencies in March 2017. Before the standards were established, we worked at promoting public awareness and encouraging the adoption of "Safety Support Cars (Support Car S)", such as by establishing a national government-run performance certification system.

(ii) Expanding, enhancing, and strengthening safety standards

Through the adoption in Japan of international standards established in the UNECE World Forum for Harmonization of Vehicle Regulations (WP.29) to improve the safety of automobiles, we expanded and strengthened security standards, such as expanding the seats for which it is mandatory to have an unfastened seatbelt warning system. We also examined measures to ensure the safety of carts that drive on public roads, such as improving visibility by other traffic and installing seatbelts.

(iii) Promoting the development, commercialization, and popularization of advanced safety vehicles (ASV)

We promoted the full-scale spread of commercially viable ASV technology, such as advanced emergency braking systems, through cooperation among government, industry and academia. Also, under the sixth-term ASV promotion plan, which began in FY2016, we worked at studying technical requirements for successor models of handling systems in cases of driver abnormality, such as pulling over on the shoulder of the road.

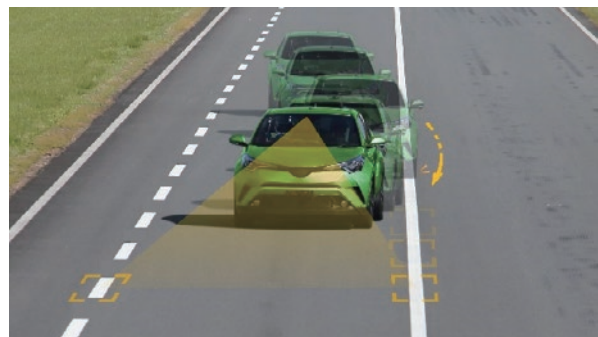
(iv) Providing safety information through automobile assessment

In order to promote the development of safer automobiles, and enable consumers to choose safe automobiles and child restraint systems, the results of the assessment of automobile safety were published. Assessment of lane departure prevention systems began in FY2017.

(v) Efforts toward realization of automatic driving

Established under the purview of the UNECE World Forum for Harmonization of Vehicle Regulations (WP.29), the Automatically Commanded Steering Function Informal Working Group, co-chaired by Japan, has spearheaded the formulation of international standards on automatic driving, such as by proposing standards for automatic steering that could allow for automatic driving on expressways. Among the different types of self-steering, international standards on self-parking systems and lane keeping assist systems were established in March 2017 and, as a result, introduced in Japan. Also, in Japan, we have begun studying the safety requirements that vehicles with advanced automatic driving systems should have as well as measures to ensure safety.

Figure II-7-4-11 Lane departure prevention system



Source) MLIT

(vi) The vehicle type designation system

In response to inappropriate handling, by several automakers, on completion inspection for the type designated vehicles, we established a task force in November 2017 and examined whether there were any points that ought to be revised regarding the reliable implementation of completion inspection by automakers, prevention of fraud, and the form of on-the-spot inspection by MLIT.

(vii) Swift and steady implementation of automobile recalls and informing users and others

In order to carry out vehicle recalls promptly and reliably, information is collected from vehicle manufacturers and users. In addition, checks are conducted and guidance is provided when audits are performed with respect to recall operations carried out by vehicle manufacturers. Technical verifications are conducted by the National Traffic Safety and Environment Laboratory of the National Agency for Automobile and Land Transport Technology on vehicles that are questionable in terms of conformity with safety or environmental regulations. To encourage recall repairs, we stepped up the dissemination of information to users through websites and social media. In order to reinforce the collection of information on defects, dissemination activities in connection with the hotline concerning information on automobile defects (www.mlit.go.jp/RJ/) are being proactively undertaken.

In addition, the information collected by the MLIT including malfunctions, accidents, and fires are made public and information is provided to users regarding matters that require the attention of users or details necessary for the appropriate usage or maintenance and management or to take appropriate measures when malfunctions occur. In particular, we used press releases and other means to call on users to “be wary of non-type approved child restraint systems that threaten the safety of children.”

Also, in FY2017 the number of recall notifications was 377 and the number of recalled vehicles was 7,700,000.

(viii) Sophistication of vehicle inspections

In order to prevent illegal secondary modifications^{Note} and the early detection of vehicular malfunctions, information technology is being utilized to make vehicle inspections more sophisticated.

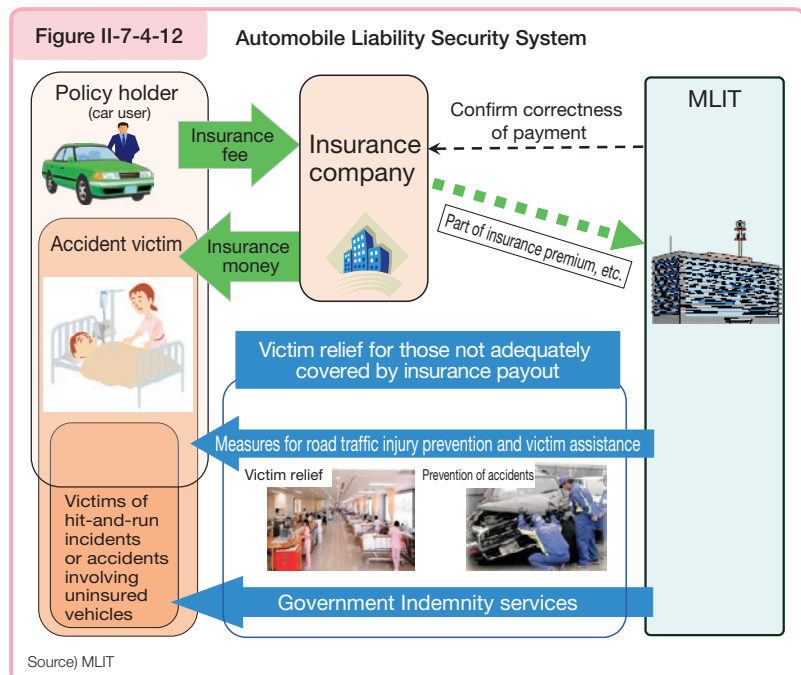
(7) Victim Support

(i) Protecting victims with the automobile liability security system

The automobile liability security system, implements various victim relief measures such as insurance payments of Compulsory Automobile Liability Insurance, governmental indemnity services (relief for victims of hit-and-run and uninsured car accidents), and payments for nursing care fees and administration of nursing care centers for those with severe residual disabilities based on the principle of the mutual support of the car society and is fulfilling a big role in protecting victims of traffic accidents.

(ii) Promoting traffic accident consultation activities

In order to promote the activities of traffic accident consultation offices set up by local governments, we are supporting consultation activities in communities, such as by increasing the handling capa-



Note Conduct whereby, after a vehicle undergoes a new inspection with components removed, the given components are re-attached to the vehicle and used accordingly.

bilities of counselors through training and the publication of practical manuals, and by holding meetings for liaison and coordination and the sharing of information, as well as by publicizing the availability of consultation activities through websites. In this way, we are helping to improve the welfare of traffic accident victims.

(8) Safety Measures for Mechanized Car Parking

In May 2017, JIS standards were established for standards related to the safety of mechanical parking equipment in order to improve quality based on international mechanical safety thinking and to create standards that are applicable to many kinds of mechanical parking equipment.

Also, in December 2017, the City Facilities Working Group of the Town Planning Fundamental Issues Subcommittee in the Infrastructure Development Council compiled a report on the specific direction for measures aimed at ensuring the safety of mechanical parking equipment in the future.

Section 5

Crisis Management and Security Measures

1

Promoting Crime and Terrorism Counter-measures

(1) Coordinating with Other Countries for Crisis Management and Security Measures

(i) International initiatives for security

In addition to participating in meetings and projects in the field of transport security at international conferences and organizations such as Group of Seven (G7), International Maritime Organization (IMO), International Civil Aviation Organization (ICAO), and Asia-Pacific Economic Cooperation (APEC), this knowledge is applied to domestic security measures while promoting initiatives for international cooperation and harmony. In the maritime affairs sector, Japan, together with the United States and other countries, proposed draft guidelines on maritime cyber security. Guidelines developed based on that proposal were approved at an IMO meeting held in June 2017.

The “International Working Group on Land Transport Security (IWGLTS)” established in 2006 currently has a participation of over 16 nations and is expected to further evolve as a framework for bilateral dialogue with the United States of America and European Union on land transport security and it will be utilized to improve domestic security and international contributions.

(ii) Anti-piracy measures

According to the International Maritime Bureau (IMB), there were 180 instances of piracy and armed robbery in 2017. Broken down by region, the sea area around Somalia accounted for 9 instances, Africa (the Gulf of Guinea) accounted for 45 instances, and the sea area around Southeast Asia accounted for 76 instances.

While the number of heinous cases of piracy increased rapidly in the sea area around Somalia beginning in 2008, such cases have declined to low levels in recent years thanks to anti-piracy efforts by the navies of different countries, the implementation of self-defense measures based on best-management practices (BMP)^{Note} on the part of merchant ships, and the initiatives of the international community, such as in terms of the presence of armed security on board merchant ships. Nevertheless, in 2017 there was an instance of hijacking—the first in four years in 2013—and circumstances in terms of the navigation of merchant ships remain unpredictable.

Under this situation, a Japan Maritime Self-Defense Force destroyer is conducting escorts of merchant ships in the Gulf of Aden as well as surveillance patrols by the P-3C patrol aircraft based on the Law on Punishment of and Measures Against Acts of Piracy. The MLIT provides a contact point for escort requests from shipping companies and others and selects vessels to be escorted. The MLIT also steadily applies the Act on Special Measures Concerning the Guarding of Japanese Ships in Pirate-infested Waters (in force since November 30, 2013), which allows security guards employed by commercial security companies to guard Japanese-flagged vessels with which certain requirements are satisfied and

Note Stipulations of self-defense measures (such as measures to avoid piracy and the development of escape compartments onboard a ship) to prevent or minimize the harm caused by Somali piracy as produced by the International Chamber of Shipping and other international shipping organizations.

ensures the complete navigational safety of Japanese-flagged vessels.

In order to deal with pirates off the coast of Somalia and in the Gulf of Aden, the Japan Coast Guard dispatches eight of its officers to Japan Maritime Self Defense Force destroyers to conduct judicial police activities in cases of piracy incidents. These Coast Guard officers are engaged in vigilance against piracy and the collection of information together with Maritime Self-Defense Force officials. The Japan Coast Guard also dispatches airplanes to littoral states in those areas to conduct pirate escort and extradition drills with the coast guard agencies of the relevant countries.

In the seas of Southeast Asia, the Japan Coast Guard dispatches patrol ships and airplanes to conduct cooperative anti-piracy drills and to exchange opinions and information with the coast guard agencies of countries where port calls are made. These are part of its efforts to promote links and cooperative relationships.

In addition, we are working actively to help increase law-enforcement capabilities, including conducting trainings for members of coast guard agencies of littoral states in these regions. We also contribute to international coordination and cooperation through international bodies, such as by dispatching personnel to the Information Sharing Center (ISC), which was established according to the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP).

Figure II-7-5-1

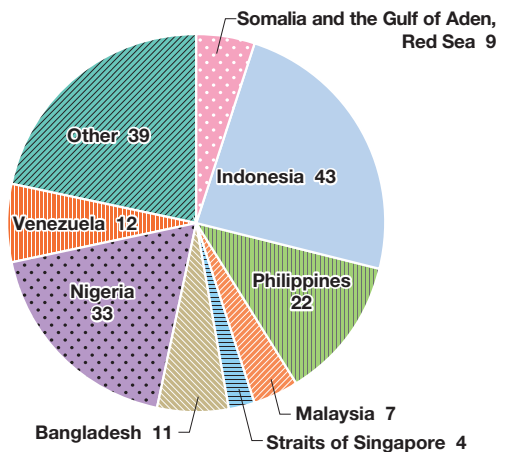
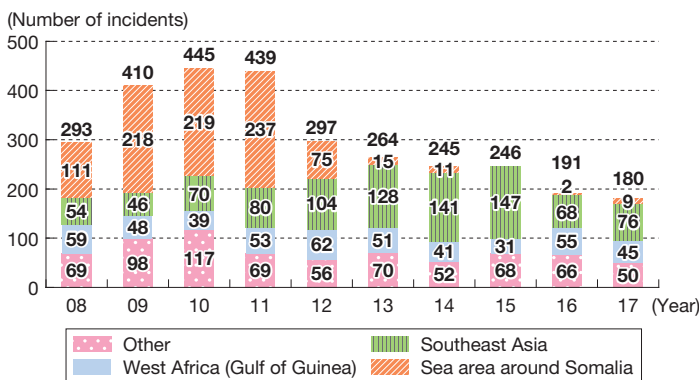
State of the Occurrence of Piracy and Armed Robbery Against Japanese-related Ships as Reported to the MLIT (2017)



Source) MLIT

Figure II-7-5-2

“Changes in the Number of Incidents Involving Piracy and Armed Robbery Worldwide (According to the IMB Report)” and “Number of Incidents Involving Piracy and Armed Robbery by Sea Area in 2017 (According to an IMB Report)”



(Notes) 1 In the years between 2003 and 2009 and in 2014, the number of incidents of piracy in the waters around Somalia involved incidents occurring in Somalia, the Gulf of Aden, and the Red Sea; in the years between 2010 and 2013, the number of incidents of piracy in the waters around Somalia involved incidents occurring in Somalia, the Gulf of Aden, and the Red Sea, as well as incidents occurring in the Arabian Sea, Indian Ocean, and Oman.
 2 The number of incidents for West Africa consists of incidents occurring in Angola, Benin, Cameroon, Congo, Gabon, Ghana, Guinea, Guinea-Bissau, Cote d'Ivoire, Liberia, Nigeria, Republic of Congo, Senegal, Sierra Leone, and Togo.

Source) MLIT

(iii) Security measures for ports

Through the sharing of information with other countries and other international efforts related to port security, such as meetings with Japan-ASEAN port security experts, we are improving port security throughout the region.

(2) Comprehensive and Strengthened Counter-Terrorism Measures for Public Transport

The threat of global terrorism continues to be a serious one, and so it is important to carry out anti-terrorism measures for public transportation and key infrastructure. Preparing for the Tokyo Olympics and Paralympics in 2020, MLIT established the Antiterrorism Working Group, chaired by a Senior Vice-Minister of Land, Infrastructure, Transport and Tourism, to promote security measures. Under that working group, we established the Soft Target Antiterrorism Team and are proceeding with a cross-ministerial study. Going forward, we will strengthen both structural and non-structural anti-terrorism measures within our fields of jurisdiction and continue to carry out initiatives in coordination with relevant ministries and agencies.

(i) Promoting counter-terrorism measures for railways

In addition to increasing security cameras within stations and strengthening patrols, “crisis management levels” are set and operated as well as “displaying security and user participation” as the axis of promoting counter-terrorism measures.^{Note}

Figure II-7-5-3

Implementing “Displaying Security and User Participation” as the Axis of Railway Counter-Terrorism Measures



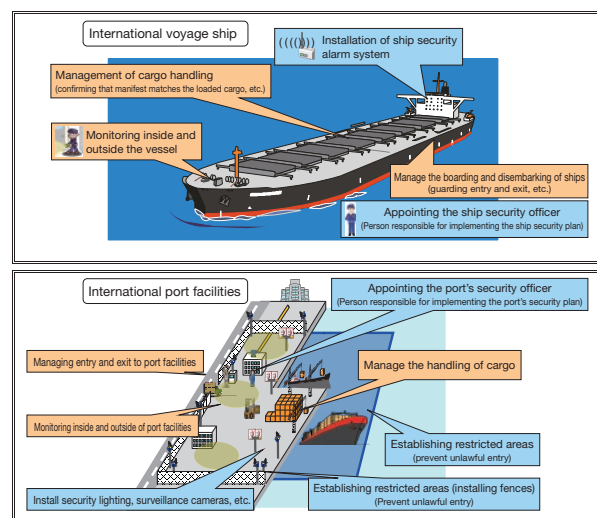
(Source) MLIT

(ii) Promoting counter-terrorism measures for ships and ports

MLIT has been engaged in ensuring security, through approval of the Ship Security Plan of the Japanese ships engaged in international voyage and ship verification of them, approval of the Port Security Plan of the international port facilities in Japan, and control of all the ships entering into the ports, such control includes verification of them and Port State Control (PSC), in accordance with “Act on Assurance of Security of International Ships and Port Facilities.” In addition, we will continue to implement joint inspections of security systems with the police, Japan Coast Guard and others in an effort to further strengthen security measures.

Figure II-7-5-4

Security Measures for International Voyage Ships and International Port Facilities



(Source) MLIT

Note Displaying Security: Measures to proactively prevent terrorism by making security highly visible to people.
 User Participation: Measures to promote each individual railway user to be aware of preventing terrorism and take appropriate actions to strengthen the network for monitoring terrorist activities.

(iii) Promoting counter-terrorism measures for aviation

In order to do every possible thing to prevent terrorist attacks toward aircraft in our country, the aviation security framework is being strengthened in accordance with the international standards defined by the Convention on International Civil Aviation. In such situation, corresponding to the cases of terrorism and the unlawful intrusion inside and outside our country, in addition to strengthening the fences for intrusion preventive measures against vehicles and people, prompt measures are being taken such as installing sensors on every airport, which are able to cope with intrusion. Furthermore, as part of efforts to strengthen aviation security measures, in FY2017, new body scanners were installed at eight airports, including Naha and Kagoshima, and high-performance automatic explosives detectors were newly installed in some major airports, including Tokyo International Airport. Also, information exchanges with major countries are carried out through active participation in international conferences and other opportunities to share Japan's experience with the latest security measures.

(iv) Promoting counter-terrorism measures for automobiles

Relevant businesses are instructed to carry out inspections inside vehicles, strengthen patrol of the inside and perimeters of business offices and garages, and dispatching security officers to major bus stops during seasons with increased travelers.

(v) Promoting counter-terrorism measures for major facilities

For various river facilities special attention is paid for suspicious objects during river inspections and sight patrols; the lockout of entries and exits of dam management offices and dam body inspection corridors is also being strengthened. For various road facilities, special attention is paid to suspicious objects when patrolling expressways and directly managed roads and the trash boxes of rest facilities is also being aggregated. For national parks, security patrols are strengthened and caution is called for with various bulletins. At construction sites signboards are installed along with other measures calling for greater caution.

(3) Balancing Security and Efficiency of Logistics

For international logistics, initiatives to balance security and efficiency are spreading to each country, even in our country, the dissemination of AEO system^{Note 1} for logistics companies is being promoted. At present, the cargo for which the export declaration is done by AEO exporter, and AEO bonded transporter transports the cargo up to the bonded area, export declaration for the cargo is entrusted to AEO customs broker, also receiving the export permission before the cargo is stored in bonded area.

For the security system of air cargo with the purpose of protecting air cargo from the shipper to loading on aircraft, the KS/RA system^{Note 2} based on international standards established by the ICAO is adopted. Then, based on the request of the United States for further security strengthening, the system was revised while maintaining the smooth performance of the logistics, applied from October 2012 for the United States for international passenger flights equipped with cargo, the same system was also expanded for application of all international passenger flights equipped with cargo from April 2014.

Also, in the container terminals of major ports, an access control system is being implemented to accurately confirm the identity and association of truck drivers and full-scale system operation started from January 2015.

(4) Information Security Measures

The sophistication of cyber attacks on government institutions and businesses has been growing in recent years. Amid the increasing importance of initiatives for information security measures, measures will need to be further fortified as we head toward the Tokyo Olympic and Paralympic Games in 2020.

For this reason, MLIT is taking information security measures, including at incorporated administrative agencies and critical infrastructure operators under its jurisdiction (aviation, railway, and logistics). These measures include carrying

Note 1 A system for the customs to certify international trade related business operators with well developed system of security management of cargos and compliance with laws and to grant the benefit of simplifying customs clearance.

Note 2 A system that confirms the safety of all air cargo before loading the aircraft for designated shippers (Known Shipper), designated air cargo shipping businesses or designated air shipping agents (Regulated Agent), or air carriers.

out initiatives to enhance and strengthen preparedness for dealing with cyber attacks. For especially important infrastructure, we plan to begin provisional operation from FY2018 of the tentatively named Transportation-ISAC, which is a system for business operators to share information and conduct analyses and countermeasures in coordination with each other.

2 Establishing a Response System for Accident Disasters

When accident disasters such as accidents involving multiple fatalities occur on rail, air, etc. or ships are involved in oil spill accidents, a disaster response headquarters is established within the MLIT to develop a system to collect and aggregate precise information quickly and be able to implement disaster emergency measures with relevant government agencies.

For accident disasters at sea, coordination with relevant organizations is being furthered such as ensuring a dispatch system for patrol vessels and aircraft and readying disaster mitigation equipment and rescue equipment, in addition to implementing joint training. Also, environmental protection information on coastal waters needed to contain oil, etc., is being compiled and provided.

3 Ensuring Public Safety at Sea

(1) Promoting Counter-Terrorism Measures

As measures to prevent terrorism, nuclear power plants, petroleum complexes, and other important facilities in coastal areas are subject to surveillance and detection functions carried out by patrol vessels and aircrafts. Passenger terminals, ferries, and other soft targets where large numbers of people can be found are also subject to surveillance and detection functions on a priority basis.

Counter-terrorism measures are also being carried out by public-private partnerships formed through close ties with relevant organizations and local governments. Such measures include the provision of thorough guidance to business operators on the matter of self-security, encouragement of counterterrorism drills, raising passengers' awareness of the risks of terrorism and calling on them to quickly report suspicious matters, the implementation of joint trainings on antiterrorism measures, and the holding of conferences on maritime and coastal antiterrorism measures. Also, we are now discussing how to strengthen antiterrorism measures in anticipation of the Tokyo Olympic and Paralympic Games in 2020.

(2) Promoting Measures Against Suspicious Vessels and Spy Ships

It is well known that suspicious vessels and spy ships are probably engaged in serious crime in our country's territorial waters and to shed light on their objectives and activities, suspicious boats needs to be stopped for boarding inspection and if crime is discovered, it needs to carry out a proper criminal investigation. For this reason, in response to suspicious vessels and spy ships, the Japan Coast Guard which is a police organization deals with them as the primary agency in cooperation with relevant government agencies.

The Japan Coast Guard conducts various training as well as closely works with relevant agencies, etc. to exchange information, and thereby strives to detect suspicious vessels and spy ships early as well as to maintain and improve capabilities to cope with them.

(3) Promoting Measures Against Maritime Crimes

Examples of recent trends that we are seeing in terms of maritime crimes include cases in which domestic poaching is carried out by poachers and buyers working in tandem and cases in which funding is provided by crime syndicates. Maritime environmental offences, such as cases in which waste products are illegally dumped into the ocean to avoid having to pay for treatment costs, continue to be perpetrated. Furthermore, in crimes in which foreign fishing vessels operate illegally, some vessels operate unlawfully under cover of darkness to evade control. International criminal organizations are also getting involved in the smuggling and the illegal migration. Regarding various maritime crimes, there is still a need for vigilance and Japan Coast Guard is strengthening surveillance and law enforcement, gathering and analyzing crime information, and strengthening boarding inspections by effectively utilizing patrol vessels and aircraft as well as sharing

information with relevant domestic and foreign organizations as part of the efforts to pursue effective measures and take strict yet appropriate measures against maritime crimes.

Column

First Detection of a Gold smuggling case-into Japan through transshipment

In May 2017, the Japan Coast Guard, in conjunction with relevant authorities, detected an incident of smuggling gold bullion into the country through delivery at sea (handing over cargo at sea).

In this incident, Chinese nationals who had come to Japan and Japanese nationals used a small boat to receive around 206 kg of gold from a vessel of unknown nationality on the East China Sea and tried to smuggle it into a fishing port in Karatsu City, Saga Prefecture. This was this first incident in Japan of smuggling gold into the country through transshipment and also the largest-ever amount seized in a single incident.

Also, in October 2017, an incident was detected in which Chinese crewmembers and Hong Kong passengers used a cruise ship to smuggle about 27 kg of gold into a port in Naha City, Okinawa Prefecture.

The gold seized in 2017 through the detection of these incidents amounted to a record-breaking 233 kg.

In addition, the Japan Coast Guard has also cracked down on the smuggling of drugs including methamphetamine via the sea and has detected incidents of transshipment-using small boats and smuggling of drugs hidden in sea cargo containers.

Situation during detection



Source) MLIT

Gold seized (approx. 206 kg)



Source) MLIT

Column

Dealing Strictly with North Korean Fishing Boats Increasing Rapidly in Japanese Waters Called Yamatotai: Ensuring the Safety of Japanese Fishing Boats

An area in the middle of the Japan Sea called Yamatotai is a good fishing ground for squid and crab. The area is named Yamatotai for the fact that the Yamato, a survey vessel in the then-navy's Hydrographic Department conducted a detailed survey of the area in 1926.

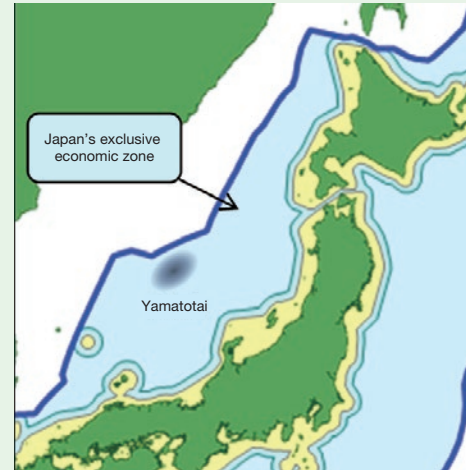
The average depth of the Japan Sea is about 1,700 meters, but the water is shallow (236 meters at the shallowest) in Yamatotai, which is the site of an oceanic ridge that developed when the Japan Sea spread apart in the past. Ocean currents hitting Yamatotai, which can be described as a mountain range in the sea, cause an upwelling of nutrient-rich deep-sea water. This results in growth of plankton, which are food for fish, turning Yamatotai into one of Japan's leading fishing grounds.

In recent years, North Korean fishing boats operating illegally in Japan's exclusive economic zone have been increasing rapidly near Yamatotai, creating a situation that threatens the safety of Japanese fishing boats.

In addition to patrol by aircraft, the Japan Coast Guard has been dispatching multiple patrol vessel, including large patrol boats, to the area since early July 2017, in order to ensure the safety of Japanese fishing boats and respond the illegal operations by North Korean fishing boats. These patrol vessel have made over 1,900 North Korean fishing boats leave Japan's exclusive economic zone near Yamatotai by giving warning to leave using steam whistles and loud sounds as well as water cannon at over 300 of those boats.

The Japan Coast Guard will continue to respond strictly, in close cooperation with authorities concerned, such as the Fisheries Agency.

Rough map of Yamatotai



Source) MLIT

Patrol vessel using water cannon at North Korean fishing boats



Source) MLIT

North Korean fishing boat leaving after being warned



Source) MLIT

4 National Security and Protecting Citizens' Lives and Assets

(1) Responding to North Korea Issues

In view of the international situation surrounding Japan, including North Korea's announcement in October 2006 that it had conducted a nuclear test, Japan prohibits certain ships connected with North Korea from entering its ports, in accordance with the Act on Special Measures Concerning the Prohibition of Entry of Specified Ships into Ports. In January 2016, North Korea conducted a nuclear test and in February it launched a ballistic missile referred to as a "satellite." In light of these developments, the government decided in a Cabinet meeting on February 19 to bar from entering Japanese ports any third-country ships verified through procedures set forth under Japanese law as having made a port call in North Korea, in addition to ships registered in North Korea, beginning on that day. Also, in a Cabinet meeting on April 1, it was decided to include those ships among the ships subject to sanctions based on a decision of the United Nations Security Council. Furthermore, in light of such facts as North Korea's nuclear test conducted in September, at a Cabinet meeting on December 9, it was decided to also include from that day forward ships registered in Japan that were verified through procedures set forth under Japanese law as having made a port call in North Korea. To ensure the implementation of these measures, the Japan Coast Guard is conducting the confirmation of information regarding the arrivals of North Korea-flagged ships. Also, to ensure the effectiveness of the measures banning exports to North Korea, such as United Nations Security Council Resolution 1874, in accordance with the Special Measures Law Regarding Cargo Inspections, etc., of Japan in Accordance with United Nations Security Council Resolution 1874, etc., close coordination with relevant administrative agencies is promoted to ensure the effectiveness of measures stipulated by the law.

Based on the repeated occurrences of North Korean transgressions, the MLIT has fortified immediate response systems in close coordination with relevant ministries and agencies, and a system for monitoring and keeping track of North Korea remains in effect. Even in cases of nuclear testing and ballistic missile launches, we collect information and provide necessary information to ensure the safety and security of the nation. In particular, in such cases as the possibility of a North Korean ballistic missile coming near Japan, we transmit information directly, or through business operators, to aircraft and ships near Japan, warning them to be alert. Moreover, the Japan Coast Guard is making system improvements with the aim of automating the transmission of information to ships near Japan.

(2) Responding to Armed Attacks and Other Situations Under the Civil Protection Plan

In accordance with the Act concerning the Measures for Protection of the People in Armed Attack Situations and Basic Guidelines for Protection of the People that stipulates measures regarding the evacuation, rescue and minimization of losses due to armed attacks, etc., the MLIT, the Geospatial Information Authority of Japan, the Japan Meteorological Agency, and Japan Coast Guard stipulate Plan for the Protection of the People. The MLIT has stipulated that support for engaging in communications and coordinating with designated public institutions as public carriers in connection with the transporting of refugees in response to local government requests shall be provided. The Japan Coast Guard has stipulated that the implementation of measures for alarms and evacuations shall be communicated and that required measures, such as those to be taken to help guide refugees, shall be implemented.

5 Infectious Disease Measures

We are coping with the infectious diseases, by close cooperation with the relevant ministries and agencies, including the Ministry of Health, Labor and Welfare and the Cabinet Secretariat for the measures.

For countermeasures against pandemic influenza and new infectious diseases, "the Act on Special Measures for Pandemic Influenza and New Infectious Diseases Preparedness and Response (hereinafter Act on Special Measures)" was established in May 2012 and put into effect in April 2013. The Act on Special Measures is designed to limit the spread of infections as much as possible, protect the life and health of national citizens, and minimize impact on citizen's lives and the national economy by: 1) businesses in general must work to cooperate with prevention and countermeasures and consider impacts due to epidemics and work to implement appropriate measures in conducting business, 2) Registered business operations eligible for prior vaccination must continue to carry out business activities that contribute to the stability of citizen's lives and economy even during outbreaks, and 3) designated public institutions are required by regulation to

implement measures against breakouts of new type influenzas, etc., and designated public institutions that serve as transport operations must establish individual business plans in the event of new type influenzas, etc., emergency situations and carry out necessary measures to appropriately implement the transport of passengers or cargo.

In June 2013, the National Action Plan for Pandemic Influenza and New Infectious Diseases of JAPAN based on the Act on Special Measures was approved by the Cabinet and it includes countermeasures against pandemic influenza and new infectious diseases such as the basic policy, the implementation system, surveillance and intelligence gathering, prevention and stopping of outbreaks, medical treatment, and ensuring the stability of citizen's lives and the national economy for the various outbreak stages of pandemic influenza and new infectious diseases.

In accordance with this, MLIT amended the MLIT Action Plan on Pandemic Influenza and New Infectious Diseases in June 2013 and for the implementation of the newly incorporated various measures in the Act on Special Measures: 1) the role of designated (local) public institutions which are transport business operators, and 2) responses when a declaration of an emergency situation regarding Pandemic Influenza were defined. Additionally, during overseas outbreak phase, cooperate with preventative measures to delay domestic epidemics as much as possible and when quarantine airports and harbor are aggregated, call for cooperation between airport and port administrators, and after the early phase of domestic outbreak, make transport requests for emergency supplies such as medical and food supplies in case of urgent need.

Since 2013, we have conducted an annual information transmission drill based on the scenario of an outbreak of a new strain of pandemic influenza. Additionally, in 2016, we conducted an operations drill at the MLIT Headquarters for Promoting Measures Against New Strains of Pandemic Influenza and Other New Infectious Diseases to verify the responses that would be necessary during the spread of a new strain of pandemic influenza within Japan.

Chapter 8

Creating and Preserving a Beautiful and Healthy Environment

Section 1

Promoting Global Warming Countermeasures

1 Implementing Global Warming Countermeasures

At the 21st session of the Conference of the Parties to the Framework Convention on Climate Change (COP21) held in 2015, the Paris Agreement was adopted as a new international framework for reducing greenhouse gas emissions beginning in 2020, with participation by all countries. The agreement went into effect in November 2016, and Japan is a signatory nation.

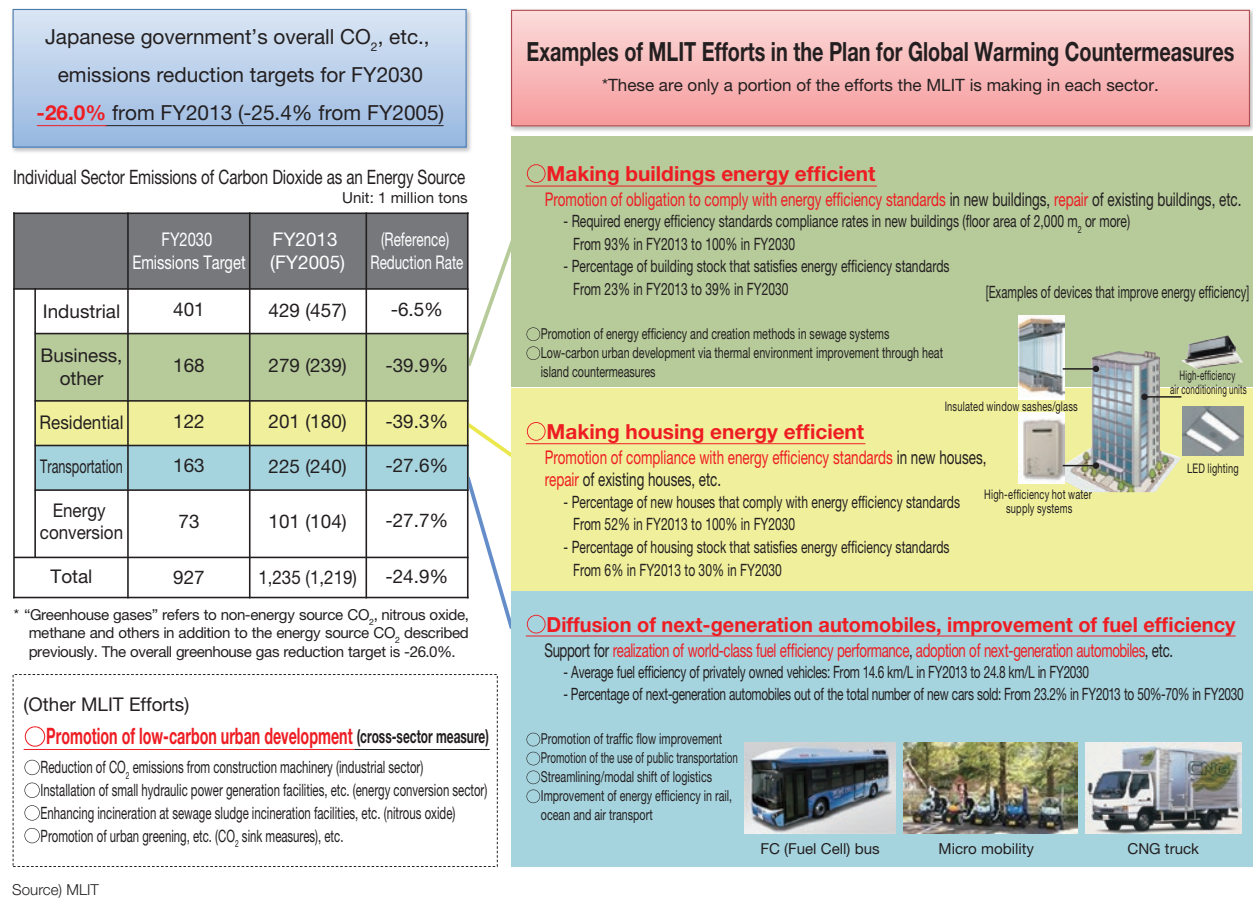
Based on the Paris Agreement, Japan adopted the Plan for Global Warming Countermeasures by a Cabinet decision in May 2016, and has committed to efforts toward the achievement of the mid-term objective to achieve a 26.0% decrease in the FY2013 level of greenhouse gases by FY2030, and as a long-term objective aims to reduce emissions 80% by 2050.

The MLIT has committed to a wide array of policy development initiatives for achieving the mid-term objective based on this plan, including making housing and buildings more energy efficient, measures for individual vehicles, and the promotion of low-carbon urban development. In addition, we partially amended our Environmental Action Plan in March 2017, and set out long-term roles for the MLIT in mitigation policies and other environmental policies.

In March 2018, the Bill to Partially Amend the Act Concerning the Rational Use of Energy, which includes provisions for certifying energy-saving efforts through the collaboration of multiple transportation operators and allowing corporations to allocate energy-saving credits amongst one another and report regularly, was submitted to the National Diet.

In addition, we are working toward the promotion of adaptation measures based on the Climate Change Adaptation Plan devised in 2015 to counter the effects of climate change.

Figure II-8-1-1 Examples of MLIT Efforts in the Plan for Global Warming Countermeasures



2 Promoting Global Warming Countermeasures (Mitigation Measures)

(1) Promoting Low-carbon City Development

In urban areas with a considerable concentration of human residents and buildings, low-carbon urban development plans produced by municipalities according to "The Low-Carbon City Act," which came into force from the standpoint of the desire to advance "low-carbon urban development" in accordance with the consolidation of urban functions, the promotion of the use of public transit in connection with this consolidation, and the promotion of green conservation and greening initiatives, came to be formulated by twenty-four cities by the end of fiscal year 2017. "Low-carbon urban development" will continue to be promoted for initiatives under these plans through statutory special measures, taxation systems, fiscal measures, and other means.

(2) Promoting the Development, Distribution and Optimal Utilization of Environment-friendly Vehicles

(i) Improving mileage of vehicles

Based on the Law Concerning the Rational Use of Energy (Energy Saving Act), we are formulating fuel efficiency standards and the like, and are striving to improve the fuel efficiency performance of automobiles. In December 2017, the Automobile Fuel Efficiency Standards Subcommittee (a subordinate committee operating under the Council of Transport Policy) and others began discussions regarding the formulation of next-generation fuel efficiency standards for heavy vehicles.

(ii) Framework for promoting improvements in fuel efficiency

To make it easier for consumers to identify and select vehicles that offer exceptional performance in terms of fuel ef-

iciency, we have obligated automobile manufacturers and others to publish fuel efficiency information in their catalogs, and a program for evaluating and publicizing performance in terms of the fuel efficiency of automobiles is being run.

To ensure that fuel efficiency information published in catalogs more closely applies to actual driving conditions, in July 2017, the Automobile Fuel Efficiency Standards Subcommittee and others organized methods of publishing fuel economy information based on different driving situations—including driving in cities, in suburbs and on expressways—and amended relevant laws and regulations.

Stickers are affixed to vehicles to enable fuel performance in terms of fuel efficiency to be outwardly discerned by consumers.

(iii) Promoting the dissemination of environment-friendly vehicles

We are implementing tax breaks through tax reductions for eco-cars and the green tax system to promote the spread of automobiles that offer superior environmental performance.

We are promoting urban development based on the use of environmental vehicles by providing subsidies for the acquisition of fuel-cell vehicles, electric vehicles, and micro-mobility vehicles from the standpoint of promoting global warming countermeasures. In addition, subsidies are being granted to truck and bus business operators for the acquisition of CNG automobiles^{Note 1}, hybrid vehicles, and advanced environmental diesel trucks.

(iv) Development, application, and creating a usage environment for next generation heavy vehicles

Since FY2015, we have been pursuing scientific research to promote the development and commercialization of technologies related to high-efficiency next-generation diesel engines and next-generation large-sized vehicles known as large-sized liquefied natural gas automobiles, from the standpoint of reducing carbon footprints and emissions.

(v) Promoting and disseminating ecological driving

MLIT has promoted holding symposiums and events all over the country in cooperation with the relevant ministries and agencies of the government and the District Transport Bureaus. We also worked on promoting and spreading ecological driving based on the “10 Reasons for Driving Ecologically.” Furthermore, in order to promote and disseminate ecological driving by the Automobile Carrier businesses, MLIT supports the introduction of the Ecological-driving Management System (EMS)^{Note 2}.

(3) Promotion of Traffic Flow Improvement

Various traffic flow measures are being tried, since improving the driving speed by smoothing the traffic flow will improve the actual as mileage rate and decrease the carbon dioxide emissions from automobiles. Specifically, we are developing ring roads and other arterial road networks that are effective in reducing through-traffic in the urban center by providing them with alternate routes, working on grade separation of intersections and promoting serial railroad grade-separation projects to eliminate unopened grade crossings. In order to realize smooth, safe transportation services, we are also promoting initiatives for the smart use of roads in which the functions of the entire road network are used optimally, such as improving the maintenance of and making small-scale improvements to existing roads. In addition, we are improving the road environment to encourage the use of bicycles, and introducing LED road lights in order to reduce carbon footprint of road facilities.

(4) Promoting the Use of Public Transportation

The shift from private vehicles to public transportation, which is more energy efficient and emits less CO₂, is a necessary facet of global warming countermeasures. Thus, we are helping to make public transportation more convenient by introducing an LRT/BRT system, promoting transitions to universally accessible stations, and promoting the introduction of public transit IC cards and other computerization initiatives. In addition, we have made efforts to provoke the diffusion of ecological commuting at the individual business level through a program to certify Eco-Commuting Excellence Office-

Note 1 Compressed Natural Gas Vehicles (Natural Gas Automobiles)

Note 2 Plan for the implementation of planned and continuous ecological driving of motor vehicles with the integration of evaluation and guidance

es. Furthermore, information analysis and validation results of past activities for the Environmentally Sustainable Transport (EST) Model Project are being provided.

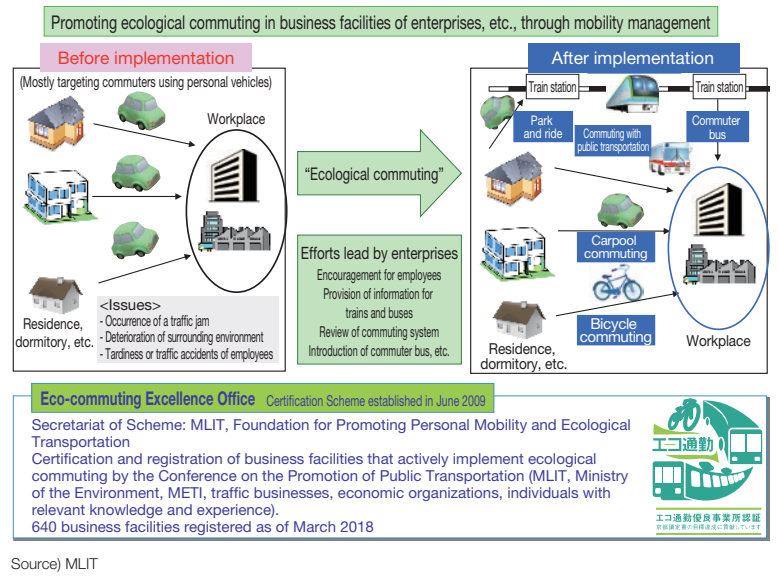
(5) Optimizing Logistics

Exceeding 50% of the total domestic transportation modes in Japan, trucks account for the majority of the share ratio (ton kilometer basis in transportation). The CO₂ emissions base unit^{Note 1} of trucks is greater than that of mass transportation such as railroads and domestic shipping, and trucks account for 90% of the CO₂ emissions in logistics. In order to reduce CO₂ emissions while sustaining domestic logistics, we must strive to utilize energy efficient transportation modes such as railroads and domestic shipping in addition to improving energy efficiency and transportation efficiency of trucks. With a view to establishing an efficient system of logistics with a lower environmental impact, we are providing support for initiatives concerning efforts to promote the dissemination of freshness-preserving containers that leverage new technology and large CNG trucks and other environmental vehicles, and smaller carbon footprints generated by logistical sites, ports and harbors. We are also promoting the dissemination of equipment containing natural coolants for use in warehouses for frozen and refrigerated goods. In addition, we are providing support for promoting joint transportation and modal shifts and for introducing new container freight cars capable of high speeds and advanced transportation performance, as well as working to revitalize coastal shipping and ferries through such efforts as promoting the construction of energy-saving ships. We are also working to disseminate the Eco Rail Mark (188 products (213 items) and 85 cooperating enterprises certified as of the end of September 2017), and the Eco Ship Mark (127 consignors and 143 logistics businesses enterprises certified as of the end of March 2018). In ports and harbors that are a hub for maritime and overland transportation, we are endeavoring to reduce overland transportation distances for cargo by promoting the development of international maritime container terminals, international logistics terminals, and domestic logistics sites compatible with combined multimodal transportation. In ports and harbors, we are also engaged in efforts to support the introduction of energy-saving systems, promote modal shifts and transportation streamlining based on the use of marine transportation for reverse logistics, facilitate the introduction and promote the use of recyclable energy, develop green tracts to contribute to CO₂ absorption, and create seaweed beds and other such ecosystems. In addition, we will continue discussions regarding blue carbon^{Note 2} in conjunction with relevant ministries and agencies and others.

In addition, in cooperation with the relevant ministries and related organizations, we hold the Green Logistics Partnership Conference to give awards to the excellent operations through the collaboration of logistics operators and shipping companies and to raise public awareness.

Figure II-8-1-2

Promotion of "Ecological Commuting" through Mobility Management



Note 1 The amount of CO₂ emitted by shipping 1ton of cargo for a distance of 1km.

Note 2 Carbon absorbed and fixed by sea algae, etc., in the ocean

Figure II-8-1-3

Promotion of Activities through the Green Logistics Partnership Conference



Green Logistics Partnership Conference (Manager: Takehiko Sugiyama, Promoter of Green Logistics Partnership Conference Express Highway Research Foundation of Japan)

- This conference was launched as a conference for promoting awareness of the importance of green logistics and stimulating interactions among cargo owners, logistics companies, and other concerned parties in order to advance CO₂ reductions in the logistics sector. Since FY2015, this conference has been promoting not just initiatives to reduce amounts of CO₂ emissions but also initiatives to reduce other burdens on the environment, improve the productivity of logistics, and otherwise contribute to the establishment of sustainable systems of logistics.
- Organized by: Ministry of Land, Infrastructure, Transport and Tourism; Ministry of Economy, Trade and Industry; Japan Federation of Freight Industries, Japan Institute of Logistics Systems Supported by: Japan Federation of Economic Organizations
- Established: April 2005
- Membership: 3,411 members (as of March 23, 2018) --- Logistics Companies, Cargo Owners, each of the industry associations, think tanks, research institutes, etc.
- Introduction and commendation of excellent businesses as well as holding discussions regarding Green Logistics aimed towards the expansion of voluntary efforts in the private sector aimed at reducing CO₂ emissions.

Summary of the awarded enterprises

[Purpose] To encourage enterprises to autonomously engage in initiatives and promote the dissemination and growth of the concept of green logistics by recognizing meritorious achievements in connection with initiatives carried out to successfully reduce burdens on the environment in the logistics sector, improve the productivity of logistics, or otherwise establish a sustainable system of logistics.

[Types of Awards] Ministers Award, Director-Generals Award, and a Special Award have been created.

Ministers Award --- Award from Minister of Land, Infrastructure, Transport and Tourism; Award from Ministry of Economy, Trade and Industry
 Director-Generals Award --- Award from Ministry of Logistics Deputy from the Ministry of Land, Infrastructure, Transport and Tourism Secretariat;
 Award from Ministry of Commerce and Distribution Safety Deputy from the Ministry of Economy, Trade and Industry Secretariat
 Special Award --- Award on the level of the Ministers Award and the Director-General Awards for particularly superior initiatives (created in 2013)

Examples of Cases Awarded by the MLIT (FY2017)

◆ Award from the Minister of the MLIT

Initiative Name: Expanding Cooperation Work in the Logistics Sector for Asahi Breweries and Kirin Brewery Company: Opening of the Kanazawa Distribution Center and Shared Use of Container Railway

Companies: Nippon Express Co., Ltd., Asahi Breweries, Ltd., Kirin Brewery Company, Ltd., Japan Freight Railway Company



Example recipient of the Award from the Minister of the MLIT: Shared use of container railway

◆ Award from the MLIT Minister's Secretariat Deputy Vice-Minister of Logistics

Initiative Name: Efforts toward Modal Shifts for Frozen Food Products

Companies: Logistics Network, Inc., Nichirei Foods Inc., Ocean Trans Co., Ltd., Nippon Express Co., Ltd.

◆ Special Award from the Green Logistics Partnership Conference

Initiative Name: Efforts toward Modal Shifts for Frozen Food Products

Companies/Organizations: Hitachiota Industrial Development Co., Ltd.; Michi-no-eki Hitachiota Association of Farmer's Market Shippers of Agricultural Products, etc.; Marusho New Foods Co., Ltd.; Ibaraki Kotsu Co., Ltd.; Nakano-ku, Hitachiota City



Award from the Minister of the MLIT

(Source) MLIT

(6) Promoting Low Carbonization of Railways, Ships, and Aviation

(i) Initiatives contributing to further enhance environmental performance in the railway sector

While rail has a smaller environmental impact than other modes of transportation, we are promoting the adoption of railroad-related facilities tied to the Ministry of the Environment and systems that help railway carriages generate a smaller carbon footprint and save energy and promoting the development of technologies to help improve environmental performance in order to further reduce the impact that rail has on the environment.

(ii) Initiatives for energy conservation and low carbonization in shipping

We are promoting a shift to energy-saving, low-carbon ships in the area of coastal shipping by advancing the construction of vessels that contribute to energy conservation and supporting the demonstration of innovative energy-saving technologies. In pursuit of advancing the development of an international framework and disseminating and promoting the development of technologies on an integrated basis in the area of international shipping, we have been supporting the private-sector development of technologies for the purpose of further reducing CO₂ emissions from vessels since FY2013 and spearheading international negotiations in IMO with proposing reduction targets and measures for realizing them to devise and adopt the Initial IMO Strategy on reduction of GHG emissions from ships.

(iii) Initiatives to reduce CO₂ emissions in aviation

We are advancing the implementation of area navigation (RNAV), which enables shortening flight time and distance and the User Preferred Route (UPR) method, which allows the flight to have the most efficient altitude desired by the pilot, as well as enhancing aerial traffic systems by implementing the Continuous Descent Operation (CDO) which sustains minimal engine output by continuously descending without leveling out at any point during descent. We also promote the use of ground power units (GPU) for airplanes and ecological cars such as Ground Service Equipment (GSE) vehicles as a part of Eco Airport (eco friendly airport) activities. In addition, we are spearheading discussions on the creation of

global frameworks for reducing CO₂ emissions in aviation by participating in discussions regarding detailed rules for the implementation of the emissions trading system for the international aviation sector agreed upon at the ICAO Assembly held in October 2016, and in the Asia and Pacific Initiative to Reduce Emissions (ASPIRE), in which air traffic control authorities and airlines cooperate to attain efficiency in air transport. Furthermore, efforts to promote the use of alternative aviation fuels are being conducted in collaboration with the various stakeholders.

(7) Enhancing Energy-saving Capabilities in Housing and Buildings

The rise in the amount of energy consumed by the civilian sector is more prominent than in other sectors, which makes improving energy-saving capabilities in housing and buildings an urgent task.

In response to the fact that the basic energy plan will progressively mandate that new dwellings and buildings comply with energy-saving standards by 2020, the Act on the Improvement of Energy Consumption Performance of Buildings (Building Energy Efficiency Act), which sets forth regulatory measures such as measures for mandating compliance with energy-saving standards on the part of buildings above a certain size other than dwellings, and guidance measures such as measures with respect to a program for certifying buildings demonstrating excellent energy-saving performance and a program for indicating energy-saving performance, was promulgated in July 2015. The guidance measures went into effect in April 2016 and the regulatory measures went into effect in April 2017.

In order to communicate energy-saving performance to consumers in an easy-to-understand manner, efforts are underway to upgrade and disseminate a housing-performance indication system, CASBEE, the Building Energy-efficiency Labeling System (BELS), and other such programs.

Aside from this, the MLIT is supporting various efforts, such as the introduction of cutting edge CO₂ emissions reducing technology and energy-saving renovation, as well as efforts by small and medium-sized contractors to work together to build ZEH (net zero energy housing) and certified low carbon buildings, while also lowering the interest rate by using the Japan Housing Finance Agency's securitization support business framework. In addition, it is working for the development and dissemination of things like the design and construction technology of energy-saving houses and buildings through holding workshops for design and construction professionals and providing support for the technological development of the leading private firms.

Furthermore, in order to stimulate energy-saving measures in pre-existing establishments, we are formulating supportive taxation measures for renovation work towards energy conservation in already existing residences and buildings.

(8) Promotion of Energy-saving Methods in Sewage

The reduction of carbon monoxide is being advanced by the implementation of energy-saving measures such as high efficiency equipment for sewage treatment, and with new energy measures such as the processing of raw sewage into solid fuel, and the high temperature incineration of raw sewage.

(9) Promotion of Environmental Measures for Construction Machinery

MLIT is implementing a system that gives type approval for construction machinery, such as hydraulic shovels and bulldozers, that meet the fuel consumption standards for major construction machinery.

(10) Implementation of CO₂ Sink Measures through Urban Greening

Urban greening is considered re-vegetation activities, which is subject to the greenhouse gas sink reports according to the Kyoto Protocol. Based on the basic plans for greening as formulated by the municipalities, we are promoting maintenance of city parks and the greening of communal facilities, such as roads and ports and private land.

MLIT is also working on public awareness regarding the meaning and effect of CO₂ sink measures by making cities more low carbon and green by mitigating the heat island phenomenon through improvement in the thermal environment by things like improving ground covering.

3 Promotion of the Use of Renewable Energy

According to the “Energy Master Plan” which was approved by the Cabinet in April 2014 and based on the fact that the introduction of re-usable energy is being expedited as much as possible, MLIT is promoting use of the re-usable energy potential in offshore wind-power generation facilities in ports, harbors, and other extensive infrastructure spaces like airport facilities, as well as rivers and streams, and the stable yet abundant sewage biomass.

(1) Promotion of the Use of Marine Renewable Energy

Surrounded by the ocean on all sides, Japan is blessed with abundant sources of marine renewable energy, chief among them offshore wind power. The occupation application system was used for the second time in Japan to hold an open application for offshore wind power generation companies for Kashima Port, and the winning operator was selected in July 2017. In addition, we worked together with the METI to establish an Exploratory Committee for Offshore Wind Power Generation Facilities in Ports and Harbors to hold discussions toward streamlining the process of reviewing offshore wind power generation facilities and easing the burden on business operators based on the Electricity Business Act and the Port and Harbor Act. In light of these discussions, we revised technical standards for offshore wind power generation facilities based on the Ports and Harbor Act, and devised Uniform Commentary on Technical Standards for Offshore Wind Power Generation Facilities, and Guidelines for Reviews Regarding Construction of Offshore Wind Power Generation Facilities in Ports and Harbors in March 2018.

For marine energy such as wave and tidal power, the MLIT developed safety guidelines for floating power generation facilities, and used them to conduct the world’s first tests on floating tidal power generation facilities. We have worked together with relevant ministries and agencies in this way in an effort to promote the realization of new marine renewable energy.

(2) Promoting Small Hydroelectric Generation

As initiatives toward an introduction promotion of renewable energy, the implementation of small hydroelectric generation by using rivers is being pushed forward. Specifically, MLIT is working on the thorough use of unused energy by the promotion of subsidiary power generating based on a registration system, providing project formation support by field contact points, and support for the introduction of small-scale hydropower facilities at sediment control dams, as well as the proactive introduction of power generation facilities for dam management at dams directly controlled by MLIT.

(3) Promotion of the Use of Sewage Biomass

The MLIT is promoting the use of energy derived from sewage sludge and the use of sewage heat.

In May 2015, the Sewerage Act was amended, thereby allowing heat exchangers to be attached to sewage conduits by private businesses and mandating efforts to be undertaken by sewage administrators to reutilize sewage sludge as a source of energy or fertilizer. Through the use of PPP/PFI, we will promote the energy utilization of sewage sludge by the use of bio-gas and solid fuel, as well as the use of sewage heat as renewable energy heat.

(4) Promotion of Solar Power Generation Using Infrastructure Space

Based on the changes in energy supply and demand triggered by the Great Eastern Japanese Earthquake, and in addition to the effective utilization of the vast spaces of sewage treatment plants, ports and harbors, and airport facilities, steps have been taken to insure the installation and placement of solar power generation facilities by public entities in public infrastructure spaces, such as government buildings, and for private businesses that can install such facilities in roads and urban parks.

(5) Promotion of Contribution Towards the Hydrogen Society

With the need for hydrogen energy expected to expand in the future, such as fuel cells for residential use (introduced to the market in 2009) and fuel-cell cars (introduced to the market in 2014), MLIT is working on realizing a hydrogen energy fueled society by preparing a conducive environment for the manufacturing, storage/transportation and usage of hydrogen. The MLIT also intends to continue its efforts in collaboration with relevant ministries and agencies on the Basic Hydrogen Plan determined at the Cabinet Meeting on Renewable Energy and Hydrogen in December 2017.

(i) Promotion of dissemination of fuel-cell cars

The MLIT will support the fuel-cell vehicle introduction projects of private businesses and others in an effort to work toward the world's fastest diffusion of fuel-cell vehicles, and with the understanding that the diffusion of fuel-cell buses and other vehicles that are expected to create a relatively consistent demand for hydrogen is particularly important in the development of hydrogen supply infrastructure. Since FY2016, the MLIT has provided support for the full-scale introduction of the five fuel-cell buses firstly in Japan.

(ii) Initiatives for the commercialization of vessels powered by hydrogen fuel cells

In an effort to establish safe environments as part of the development of the foundation for the commercialization of hydrogen fuel cell ships, we have developed the guidelines for safety of hydrogen fuel cell-powered boats and "Guidelines for Hydrogen Bunkering."

(iii) Setting up a marine transportation system for liquefied hydrogen

Since FY2015, Kawasaki Heavy Industries and other companies have been producing hydrogen through the use of brown coal, an unutilized energy source in Australia, and implementing a project to establish a supply chain for transporting liquid hydrogen to Japan (METI Project to Demonstrate the Establishment of a Supply Chain for Hydrogen Derived from Unutilized Energy Sources (MLIT partnership project)).

Therefore, in order for the MLIT to establish a highly efficient and safe method of loading and unloading liquefied hydrogen, energy carriers associated with the Strategic Innovation Promotion Program (SIP) have been engaging in research and development since FY2014 on loading systems for liquefied hydrogen in collaboration with the Cabinet Office.

(iv) Promotion of the manufacture, use and application of hydrogen derived from sewage sludge

Sewage sludge is stable in terms of both quantity and quality, and is consolidated at sewage treatment plants. The proximity to urban areas and other characteristics of sewage treatment plants create promise for the realization of an efficient, stable hydrogen supply. Toward that end, we support the development and experimentation of hydrogen production technology at sewage treatment facilities to promote the manufacture, use and application of hydrogen derived from sewage sludge, which is a form of renewable energy.

4 Promotion of Global Warming Countermeasures (Adaptation Measures)

We are comprehensively and systematically promoting initiatives to address the various consequences of climate change based on the National Plan for Adaptation to the Impacts of Climate Change, which was adopted by a Cabinet decision in November 2015. As part of this plan, the MLIT—which oversees various sectors, namely the conservation of national land, and is tasked with creating safe, secure national land and communities—formulated the MLIT Climate Change Adaptation Plan in November 2015, and is promoting adaptation measures.

Based on the MLIT Climate Change Adaptation Plan, we are engaged in efforts to discuss and develop comprehensive adaptation measures regarding both structural and non-structural aspects in the fields of natural disasters (floods, landslides, storm surges, tidal waves, etc.) and water resources and aquatic environments, as well as efforts regarding measures based on the Outline of the Policy Framework to Reduce Urban Heat Island Effects, which contribute to the continuous monitoring of climate change and the delivery of forecast data and other information, and to adaptation measures in the fields of national and urban lifestyles.

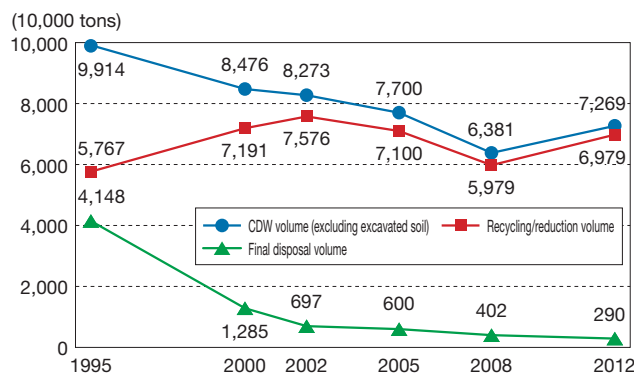
Section 2 Promoting the Creation of a Recycling Society

1 Advancing Recycling in Construction

Construction and demolition waste (CDW) excluding excavated soil accounts for approximately 20% of all industrial waste, and therefore, suppressing its generation and promoting its reuse and recycling are major tasks. In FY2012, the amount of CDW excluding excavated soil generated was reduced to 72.69 million tons, and the recycling/reduction rate was high at 96.0%. The impending era of maintaining and updating of social infrastructure will likely result in changes to the quality and quantity of construction byproducts, and therefore, we must promote further CDW recycling in the future.

Sewage sludge also accounts for 20% of all industrial waste, reaching approximately 78.07 million tons in FY2015. We are working on recycling and reduction of sewage sludge.

Figure II-8-2-1 Trends in CDW Volume, Recycling/Reduction Volume and Final Disposal Volume, and Recycling Rates by Item



Source) MLIT

Item		FY2012 Actual	FY2018 Target
Asphalt waste	Recycling rate	99.5%	99% or more
Concrete waste	Recycling rate	99.3%	99% or more
Wood waste	Recycling/reduction rate	94.4%	95% or more
Construction sludge	Recycling/reduction rate	85.0%	90% or more
Mixed wastes	Generation rate	3.9%	3.5% or less
	Recycling/reduction rate	58.2%	60% or more
Overall CDW volume	Recycling/reduction rate	96.0%	96% or more
Excavated soil	Efficient use rate of excavated soil	—	80% or more

Source) MLIT, Construction Recycling Promotion Plan 2014

(1) Advancing Recycling in Construction

Based on the “Construction Material Recycling Act (Construction Material Recycling Law),” we are working to enforce proper measures through a simultaneous patrol throughout Japan. In September 2014, the MLIT developed the Construction Recycling Promotion Plan 2014, which sets out our basic approach, targets and specific policies for promoting CDW recycling. We have been working on various policies throughout the plan period, which ends in FY 2018.

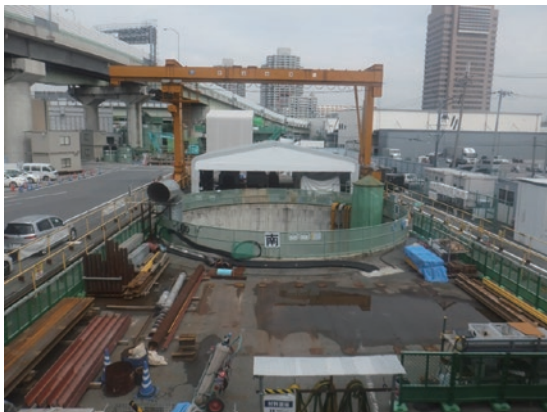
Specifically, we will work intensively on fortifying the monitoring of construction byproduct logistics, prevention before the start of construction, promoting recycling/reduction by thorough on-site sorting and carrying out to recycling facilities, promoting the use of recycled materials, and promoting the efficient use and appropriate disposal of excavated soil. For more efficient use of excavated soil in particular, we are working to bring the public and private sectors together to successfully match generators and users of excavated soil. Furthermore, in an effort to prevent misconduct from occurring or growing worse, in August 2017, we created Reference Materials for Entities Involved in Handling Excavated Soil.

Figure II-8-2-2 Efficient use case of Successful Matching for Excavated Soil

Case No.	Date for usage coordination	Construction site of excavated soil		Construction site to use excavated soil		Distance between construction sites (km)	Soil Volume (m³)
		Organization	Construction site	Organization	Construction site		
1	Aug. 2015	Corporate member of National General Contractors Association of Japan	Mitake Town, Kani District, Gifu Prefecture	MLIT	Mitake Town, Kani District, Gifu Prefecture	7	815
2	Sep. 2015	Corporate member of Japan Federation of Construction Contractors	Kurume City, Fukuoka Prefecture	MLIT	Kurume City, Fukuoka Prefecture	0	1,000
3	Oct. 2015	Corporate member of Japan Federation of Construction Contractors	Takayama City, Gifu Prefecture	MLIT	Takayama City, Gifu Prefecture	6	7,548
4	Mar. 2016	Local government	Gyoda City, Saitama Prefecture	Corporate member of National General Contractors Association of Japan	Hanyu City, Saitama Prefecture	5	17,000
5	Aug. 2016	Local government	Osaka City, Osaka Prefecture	Corporate member of Japan Federation of Construction Contractors	Osaka City, Osaka Prefecture	9	7,115
6	Aug. 2016	Local government	Kyowa Town, Iwanai District, Hokkaido Prefecture	Other private sector	Kyowa Town, Iwanai District, Hokkaido Prefecture	1	450
7	Sep. 2016	MLIT	Kitami City, Hokkaido Prefecture	Other private sector	Kitami City, Hokkaido Prefecture	0.2	8,000
8	Oct. 2016	MLIT	Joetsu City, Niigata Prefecture	Other private sector	Joetsu City, Niigata Prefecture	5	23,000
	Aug. 2017						4,600
	Aug. 2017						7,000
9	Oct. 2016	Other private sector	Engaru Town, Monbetsu District, Hokkaido Prefecture	Other private entity	Engaru Town, Monbetsu District, Hokkaido Prefecture	5	4,000
10	Jan. 2017	MLIT	Ainan Town, Minamiuwa District, Ehime Prefecture	Corporate member of National General Contractors Association of Japan	Uwajima City, Ehime Prefecture	18	660
			Uwajima City, Ehime Prefecture				19
11	Feb. 2017	MLIT	Teshio Town, Teshio District, Hokkaido Prefecture	Other private sector	Teshio Town, Teshio District, Hokkaido Prefecture	6	7,700
12	Mar. 2017	MLIT	Muroran City, Hokkaido Prefecture	Corporate member of National General Contractors Association of Japan	Muroran City, Hokkaido Prefecture	12	9,700
13	Sep. 2017	MLIT	Teshio Town, Teshio District, Hokkaido Prefecture	Other private sector	Teshio Town, Teshio District, Hokkaido Prefecture	10	25,000
				Other private sector	Horonobe Town, Teshio District, Hokkaido Prefecture	10	25,000

Construction site of excavated soil (Public Sector)

Sewer pipe construction work commissioned by a local government



[Registered Conditions]
Registered Soil Volume: 24,664 m³
Civil engineering work Period: February-July 2015*
Soil Quality Category: Type 2 Excavated Soil
 *Excavation work period. Soil was subsequently retained in a temporary storage area.

Source) MLIT

Construction site to use excavated soil (Public Sector)

For use as backfill for demolished underground spaces as part of demolition work



[Registered Conditions]
Registered Soil Volume: 14,000 m³
Civil engineering work Period: July-October 2016
Soil Quality Category: Type 3 Excavated Soil

Volume used: Roughly 7,100 m³
 Date of use: August 2016



(2) Reducing Sewage Sludge and Promoting Recycling

MLIT is promoting the recycling of sewage sludge (FY2015 recycle rate 68%) and moving forward with the use of sewage sludge made into solid fuel for energy. Furthermore, we are proceeding with the Breakthrough by Dynamic Approach in Sewage High Technology Project (B-DASH Project) for proving innovative technology and systems for the effective use of sewage based resources.

2 Constructing a Logistics System for Recyclable Resources

(1) Forming a Logistics System for Recyclable Resources by Sea

In order to form the “loop” of recyclable resources for creating a sound material-cycle society, MLIT have specified

22 ports throughout Japan as Recycle Ports (Integrated Reverse Logistic Base Port) for wide-spread flows concerning recyclable resources. At the Recycle Ports, they undertake activities such as securing coastal facilities like wharfs, aiding in establishing recyclable resources handling support facilities, promoting the public-private partnership, and improvements in operations related to handling recyclable resources. MLIT have partnered with the Ministry of the Environment to engage in efforts to promote modal shifting and lower the carbon footprint and costs of reverse logistics through improvements in transportation efficiency through the “Project to Promote Low-Carbon Type Reverse Logistics by Model Shift / Transport Efficiency.”

Figure II-8-2-3 Specified Recycle Ports

Recyclable Resources Handling Support Facility

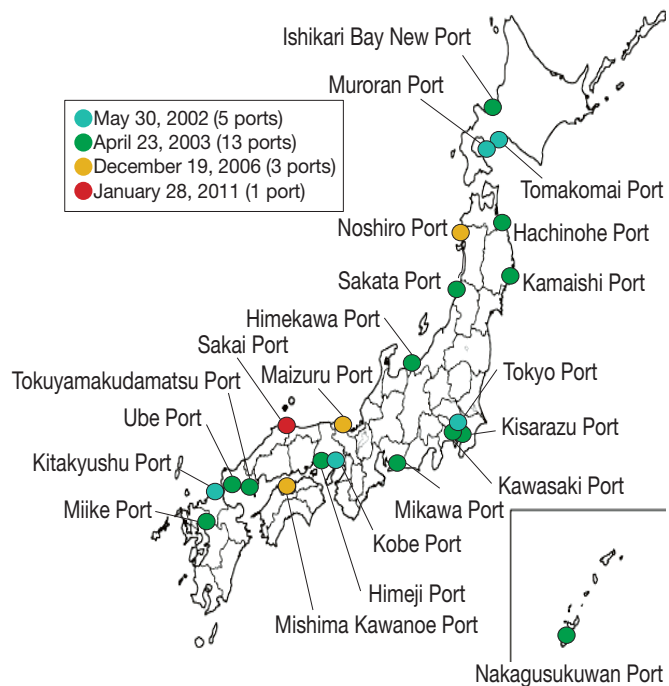


(Guard-fenced, tire-washing, and water-collecting facility)



(Storage facilities for contaminated soil, etc.)

Source) MLIT



(2) Systematic Acquisition of Bay Area Landfill Sites for Waste

Bay area landfills are being prepared in order to receive dredge soil produced by harbor improvement, or to receive waste materials that have difficulty finding final landfill sites. In the Osaka Bay area in particular, regional waste disposal sites are being developed to receive waste generated around the Osaka Bay area through the Osaka Bay Phoenix Project^{Note1}. Construction-generated soil generated in the Tokyo Metropolitan Area is transported by sea and used widely for land-reclamation purposes in ports and harbors across the country in accordance with the Super Phoenix Plan^{Note2}.

Note 1 Business to promote the orderly development of the port by properly disposing in the sea landfill the waste generated from the 6 prefectures and 168 municipalities of the Kinki region.

Note 2 A mechanism for coordinating excavated soil from the Greater Tokyo area on a national level toward effective use as a resource for port construction at ports that require landfill materials

3 Recycling Vehicles and Marine Vessels

(1) Recycling Vehicles

In accordance with the Act on Recycling, etc., of End-of-Life Vehicles (Act for Automobile Recycling), a system for confirming that end-of-life vehicles are properly recycled is being implemented. When a vehicle registration is deleted, as provided for in the Road Transport Vehicle Act, the vehicle weight tax will be subject to a refund program. We are endeavoring to promote the proper disposition of used vehicles and prevent illegal dumping. In FY2016, vehicles confirmed to have been scrapped numbered 1,355,988.

(2) Recycling Marine Vessels

The recycling of large vessels (ship recycling)^{Note 1} has generally been conducted in developing nations such as India, Bangladesh and Pakistan, where industrial accidents, environmental pollution and other problems at ship recycling facilities continue to raise concern. In order to solve these issues, Japan lead discussions with the International Maritime Organization (IMO), which resulted in the adoption of the “2009 Hong Kong International Convention for the Safe and Environmentally Sound Recycling of Ships (tentative name) (Ship Recycling Convention).” This convention mandates the inspection and retention of proof documents for marine vessels and ship recycling facilities respectively, and also bans the use of asbestos or polychlorinated biphenyl (PCB) in newly built vessels.

The Japan-India Summit Meeting held in September 2017 was part of efforts to promote the soonest possible enforcement of the Ship Recycling Convention by promoting the soonest possible conclusion of the convention by India, a major recycling country. At the meeting, the decision was made to provide ODA for India’s ship recycling facility improvement project, and both country’s prime ministers reconfirmed their intent to conclude the convention as soon as possible. To enact a domestic law required for the conclusion of the convention, on March 9, 2018, the Cabinet approved and submitted to the National Diet the Bill Concerning the Proper Implementation of Ship Recycling and Dismantling.

On other fronts, because pleasure boats are mostly made of fiber reinforced plastic (FRP), which is difficult to dispose, there has been a demand for a waste processing route for proper disposal. In response, we undertook activities in building a processing route, as well as developing recycling technologies for FRP boats. Since 2005, the Japan Marine Industry Association has led the nationwide operation of the FRP Boat Recycling System that employs a wide-area certification system based on the Waste Management Law. As a result, approximately 510 FRP vessels have been properly recycled yearly

4 Efforts in Green Procurement^{Note2}

In light of partial revisions to the basic government policies, based on the “Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities (Law on Promoting Green Purchasing),” the “Policy for promoting the procurement of ecologically friendly goods, etc.” was adopted. Based on this policy, we are actively advancing the procurement of ecology-friendly goods for building materials, construction machinery, method of construction, and objectives in public construction work.

Note 1 Vessels that have reached the end of their operational use are dismantled, and the majority of the parts are reused as steel.

Note 2 Here, “Green Procurement” refers to procuring eco-friendly goods as defined in Article 2 of the Green Purchasing Law.

5 Promoting the Use of Wooden Building Materials

Because wood is an environment-friendly building material due to reasons such as requiring less energy to process in comparison to other materials, and long-term utilization in various applications contributing to preventing global warming and forming a recycling-oriented society, we strive to encourage the utilization of wooden materials in public construction.

Based on the “Act for Promotion of Use of Wood in Public Buildings,” etc., national implementation status of wood usage promotion is published every year, and the “Plan for the promotion of the use of wood in public buildings” was formulated to work on the use of wood as building materials and for the interior of buildings.

MLIT is working to set up technical standards relating to designing and building, and to disseminate these standards.

In order to advance the construction of wooden dwellings and buildings, various initiatives are being undertaken, such as supporting the construction of long-lasting quality housing built out of local wooden materials as well as other high-quality wooden housing; supporting the construction of medium-sized and large wooden buildings incorporating pioneering design and construction technologies; supporting the construction of wooden dwellings suited to regional climates; developing local programs for the production of wooden housing; and training leaders.

Figure II-8-2-4

Example of the Construction of Wood Material Use



Source) MLIT

Section 3 National Land Development That Revives and Preserves the Natural Environment

1 Initiatives for Biodiversity Conservation

COP 10 was held in Nagoya, Aichi Prefecture of Japan in October 2010, where the Strategic Plan 2011 - 2020 (Aichi Targets) was adopted. In order to achieve these targets, MLIT has promoted various actions in nation-wide level. “The National Biodiversity Strategy 2012 - 2020” was formulated in September 2012, which aims at conservation, restoration, and creation of wildlife habitats in rivers, urban green areas, coastal areas, and harbors.

Efforts toward conservation of biodiversity have been deployed also in local municipal level. “Technical Guideline for Biodiversity Conservation in Basic Green Plan” was formulated in October 2011, which local governments refers to in formulating “Basic Green Plan” in each region in order to consider technical matters regarding biodiversity. A draft of the Urban Biodiversity Index, a metric for evaluating the state of biodiversity and policy progress in local governments, was formulated in May 2013, and a simplified version of the index that enhances its ability to illuminate and evaluate the state of efforts more simply was formulated in November 2016. In FY2017, the MLIT made efforts to raise awareness of the simplified version of the Urban Biodiversity Index to promote its use, and provided technical support to help formulate basic green plans that ensure urban biodiversity. In March 2015, MLIT, together with Ministry of the Environment and Ministry of Agriculture, Forestry and Fisheries, formulated the “Action Plan for protection from Alien Species” which aims for promoting management of Alien Species comprehensively and effectively, and then conservation and sustainable-use of in rich biodiversity in Japan.

Column

MLIT Measures Against Red Imported Fire Ants

Since a sighting of red imported fire ants was confirmed in Amagasaki City, Hyogo Prefecture in June 2017, 26 cases have been confirmed in 12 prefectures (as of January 2018).

Red imported fire ants have small (2.5-6 mm long), reddish-brown bodies, and their sting is known to cause severe pain and anaphylactic symptoms. Although it is said that red imported fire ants originated in South America, their distribution has spread to the USA, Australia, Malaysia, China, Taiwan and elsewhere in the Pacific Rim. As of now, they have not established habitats in Japan, so early detection and control are critical for preventing them from invading and doing so.

Thus, with a belief in the importance of countermeasures and national borders, the MLIT has implemented countermeasures at ports, harbors and airports and called attention to the matter in the shipping, storage, trucking and railway industries among others.

As a measure to prevent the establishment of red imported fire ants at ports and harbors, we performed emergency work to fill in gaps in the pavement of container yards, which could become habitats for the ants, at 68 ports and harbors throughout Japan that engage in regular container shipping with countries and regions where the ants are currently established. We also established a support system to enable port and harbor administrators to improve the pavement of container yards to prevent the establishment of the ants.

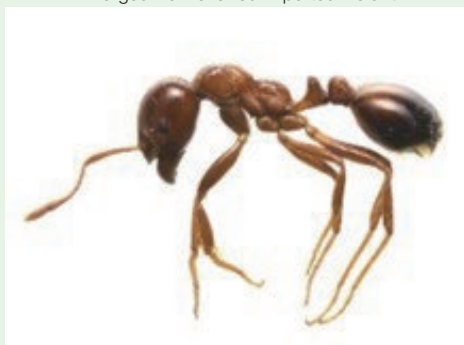
Also, in light of the fact that the ants have been found in containers as well as in container yards, we are intensifying searches for the ants when cargo is removed from containers and in empty containers.

We are also cooperating with the Ministry of the Environment in its implementation of investigations of areas within a roughly 2-km radius of the locations of confirmed red imported fire ant sightings, and investigations and extermination of the ants at the 68 ports and harbors mentioned previously.

As for countermeasures at airports, we conducted emergency inspections at airports that handle international cargo in July 2017 and from October to November 2017; however, none of the inspections resulted in sightings of the Fire ants.

The MLIT intends to continue cooperating with relevant ministries and agencies in efforts toward measures to prevent red imported fire ants from invading and establishing habitats in Japan.

Enlarged view of a red imported fire ant



Source) Ministry of the Environment

MLIT Minister Ishii observes emergency work



Source) MLIT

2 Creating Rich and Beautiful River Environments

(1) Creating and Conserving a Healthy River Environment

(i) Creating a rich river environment and stimulating revival

In river development, based on the “Basic Guideline for Rich River Development (established in October 2006),” we work for the conservation and restoration of animal habitats and diverse river scenery, while concurrently sustaining safety over flood control.

While promoting the restoration of marshland by nature restoration projects and the improvement of the upstream and downstream migration environment for fish by fixing the fish passage ways, we are also promoting the protection and restoration of the watershed ecosystem with the goal of forming an ecosystem network^{Note} by cooperating with various entities, as demonstrated in the project of rehabilitating storks to the wilds in Maruyama River (Toyooka City, Hyogo Prefecture).

Moreover, to effectively proceed with these activities, we are joining efforts with educated experts and various institutions, as well as utilizing research findings of government inspections of river areas and the Aqua Restoration Research Center, which has the largest experimental waterway in the world.

(ii) Countermeasures for non-native species in the waterways

Non-native species, which are one of the threats against biodiversity, have been expanding their habitat in the waterways all over Japan. As a countermeasure, we have circulated information such as the “Guideline for Countermeasures for Nonnative Plants in Rivers” and “Examples of Countermeasures for Non-native Fishes (December 2013)” and are implementing measures against foreign species in various locations.

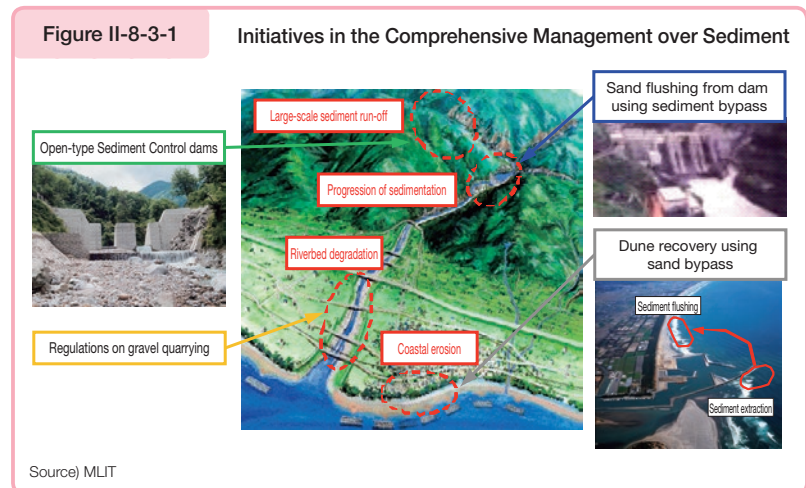
(2) Initiatives to Recover the Water Supply in Rivers

In order to preserve a healthy river environment, it is essential to sustain a rich supply of water. For this reason, we have specified the required amount of water in the basic policies for river improvement, based on the habitat of plants and animals, scenery, and water quality. In addition to working to sustain the supply, we are proceeding with activities for clean river recovery in recession areas downstream from dams of hydroelectric power plants. Meanwhile, in order to preserve the river environment downstream of dams, flowing water is being retained in flood-control reservoirs to the extent that flood-control functions are not impeded and usable discharge dams are subject to elastic management practices and elastic management testing. (Water was retained using eighteen dams in total in FY2017, fifteen of which were subject to the usable discharge of water.) Initiatives concerning medium-sized flash discharging to cause changes in river formations are also being undertaken. Furthermore, we are working to restore the water supply of rivers in urban areas, where the average amount of naturally flowing water has diminished, by pumping treated water from sewage plants.

(3) Promoting Activities in the Comprehensive Management of Sediment from Mountains to Coastal Areas

Concerned that water systems will accelerate problems such as variation in river environments caused by changes in sedimentary transport, diminishing sand supplies to the coast, and coastal erosion caused by changes in littoral drift, relevant institutions are working in cooperation to comprehensively control sediment transport from mountains to coastal areas. Specifically, in order to deal with the problem caused by the sediment transport in mountain streams, dams, waterways and the coasts, in cooperation with the relevant organizations, MLIT is working on projects for formulating comprehensive sediment management plans for effective sediment management and building sediment control dams, building open-type sediment control dams so that sediment can be effectively washed downstream, improving existing sediment control dams, creating an effective flow of sediment by sediment bypasses for dams, and recovering of sandy beaches by such methods as appropriate sand and gravel extraction of the waterways, sand bypass and littoral nourishment.

Note Using districts that have excellent natural conditions as core areas and connecting them organically to ensure the appropriate placement and connections between habitat spaces



(4) Environmental Education on Rivers

As natural environments close to communities, recently, rivers host a variety of activities such as environmental studies and natural experience activities. In addition, we are promoting projects and disseminating of information so children can safely learn and play by riversides. Because there are hidden dangers and proper knowledge is essential for safe activity, we cooperate with the NPO River Activities Council (RAC), a citizens' groups which played a central role in establishment, to promote the cultivation of river administrators.

Also, in order to widely disseminate environmental education on rivers in the schools, MLIT is providing information to textbook publishers to introduce environmental education projects.

○ Children's Riverside Rediscovery Project

With the cooperation of citizens' groups, educators, and river administrators, rivers are registered as Children's Riversides and receive various means of support from the Center for Supporting Children's Riverside Activities. 302 locations are registered as of the end of March 2017.

○ Riverside Fun School Project

Utilization is encouraged for riversides that are registered as Children's Riversides and undergo riverside improvements required for enhancing experiential activities. 287 locations are registered as of the end of March 2017.

○ National Aquatic Organism Study

Conducted with the goal to increase interest in rivers through a survey of life forms found in nearby rivers. In FY2016, 57,242 people participated. 62% of the inspection points (2 points) were judged to have "clean water."

3 Preserving and Improving Coastal Environments

Because we must preserve animal habitats, care for scenery, and sustain appropriate usage of beaches, while protecting the coast from storm surges, tsunamis, and high waves, we are proceeding with maintenance and conservation that balances between "defense," "environment," and "usage."

In addition, based on the Law for Protecting Beautiful and Rich Nature through the Promotion of Disposing Beached Coastal Waste Contributing to the Preservation of Coastal Scenery and Conservation of the Environment (Coastal Waste Disposal Promotion Act), we are working in close cooperation with relevant organizations to promote effective measures against beached waste and the like.

We are also providing support to administrative agencies for coasts under the "Project for Emergency Measures to Dispose of Large-Scale Driftwood and Other Debris Items that have Washed Ashore in Connection with Disasters" when large quantities of driftwood and other debris are washed ashore and impede the functions of coastal protection facilities.

Also, to dispose of this waste more rapidly, we made enhancements to enable the soonest possible launching of these projects, even at points in time when adopted standards have not been reached.

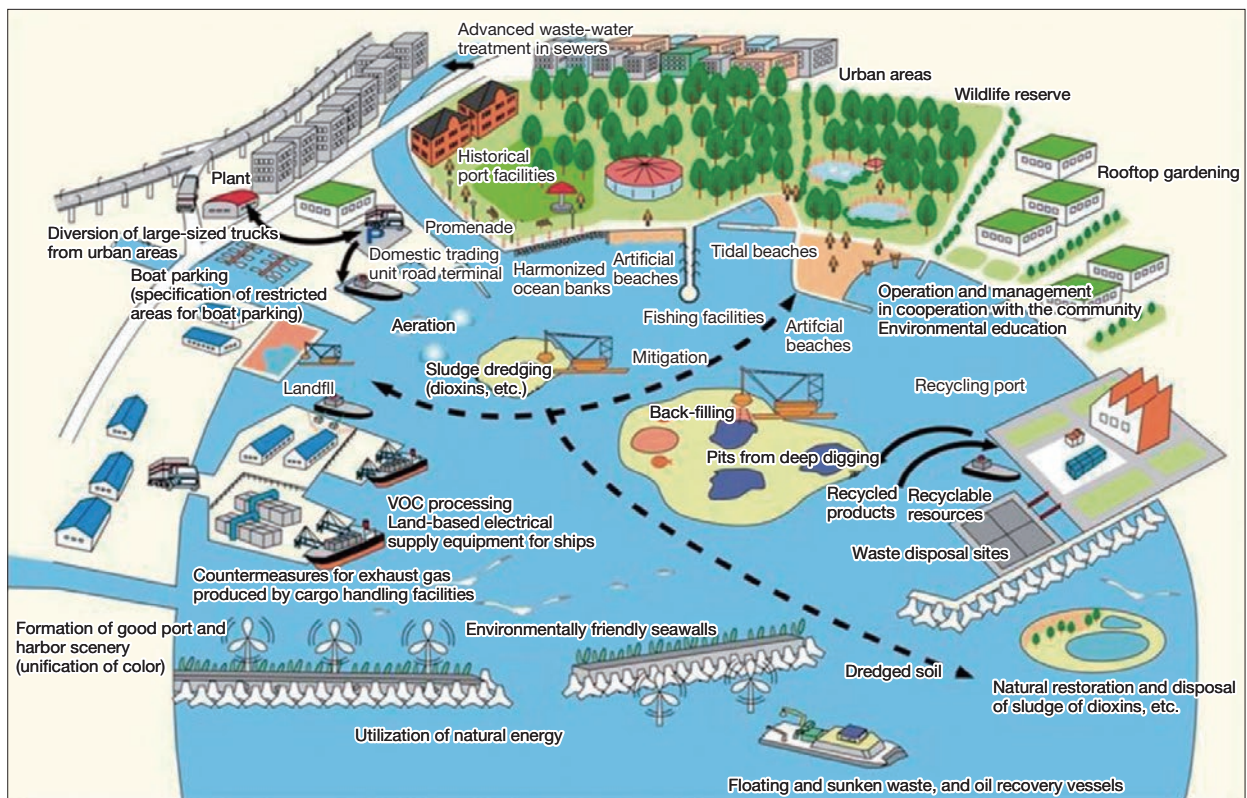
We are also providing support for the processing of neglected and stranded vessels and the removal of slime that abnormally accumulates in sea areas in order to secure the functions of coastal protection facilities, conserve the coastal environment, and facilitate the proper use of coastal areas.

4 Greening Port and Harbor Administration

(1) Basic Direction of Future Port and Harbor Environment Policies

In order for ports and harbors in Japan to uphold their position as grounds for logistics, industry and living, and sustain continual growth, they must recover as much degraded or lost nature as they can, and incorporate environmental conservation in various port functions. For this reason, we are working towards greening port administration, which involves the two parts of port and harbor development and utilization, and conservation, revival, and creation of environments in to one consolidated subject.

Figure II-8-3-2 Greening Port and Harbor Administration



資料) 国土交通省

(2) Actively Preserving, Reviving, and Creating a Healthy Sea Environment

We strive to efficiently utilize dredged sediment derived from harbor maintenance, by usage in creating tidal flats, sand capping, filling pits from deep digging, and disseminating port facilities that can coexist with organisms. At the same time, various organizations such as administrative agencies and research institutes will register environmental data and construct a sharable database on the ocean environment; gathering, accumulating and analyzing data. Together, we actively work to preserve, revive and create a rich natural environment in coastal areas.

In addition, the “Seaside Nature School,” which utilizes the areas preserved, revived or created, is being held in various locations throughout Japan as an effort to create opportunities for learning the importance of the natural environment.

(3) Initiatives in Measures for Preventing Illegal Boat Parking

As there is concern that parked boats may mar the scenery, affect the navigation of other vessels, and cause secondary damage in the event of a tsunami, regulatory measures are being implemented, such as by improving the mooring and storage capacity of small vessels and by designating no-parking zones.

Mainly aquatic area administrative agencies and others are promoting efforts toward various measures for preventing illegal boat parking, based on the a promotion plan consisting of comprehensive measures for properly managing pleasure boats and improving their usage environment, which was formulated in May 2013.

5 Greening Roads and Promoting Natural Environmental Measures

Greening roads is crucial for providing a comfortable atmosphere for those who use them, creating favorable scenery that matches the surrounding scenery, and as a countermeasure against heat island effects. To this end, we are promoting the favorable greening of roads and the appropriate management of this process in accordance with technical standards pertaining to the greening of roads. Based on recommendations provided in October 2016 by the Commission for Athlete-/Spectator-Friendly Road Development, whose membership included scholars and experts in athletic competition, we are also endeavoring to green roads and initiatives for comprehensive measures to keep road surface temperature from rising in preparation for the Tokyo Olympic and Paralympic games in 2020.

Figure II-8-3-3

Example of Greening Roads (Chiyoda-ku, Tokyo)



Source) MLIT

Section 4 Maintenance and Restoration of Sound Water Cycles

1 Aiming to Maintain a Society in which the Benefits of Water Can Be Savored for a Long Time to Come

In recent years, water resources in Japan have been exposed to substantial risks that threaten the water supply, including major accidents due to earthquakes and other large-scale disasters and the aging of water infrastructure, and serious water shortages due to climate change.

In light of these circumstances, we have promoted a transition in water resource policy, from the demand-driven promotion of water resource development to the risk management-oriented stable water supply.

Based on the May 2017 report of the National Land Development Council, we decided to drastically revise the Basic Plans for Water Resource Development for the seven major river systems which cover roughly half of the Japanese population, and have begun changing plans first for the Yoshino River System, which is in particular need of a swift transition to risk management-oriented policy due to facing the most frequent water shortages of the seven river systems.

These revisions are expected to ensure the minimum required water quantity during crises through the integrated promotion of necessary non-structural measures and structural measures involving the rigorous utilization of existing water infrastructure.

Column

Response to Water Shortage in the Arakawa River System in 2017

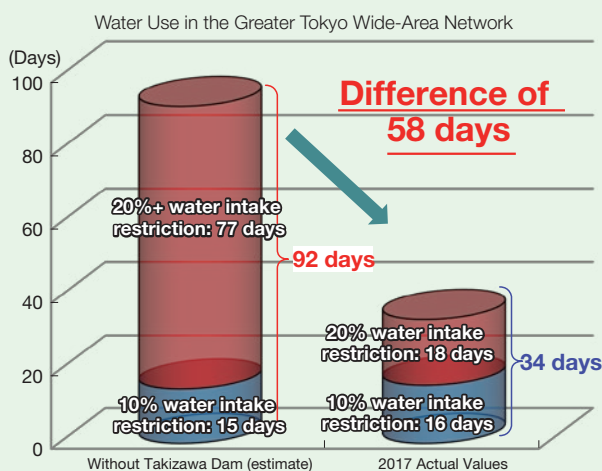
In late April and May 2017, western Japan and the Pacific side of eastern Japan experienced low precipitation and many days under high pressure systems. In addition, little rain fell on these regions because the Baiu front trended southward in June and northward in July. As a result, 14 rivers in 12 water systems nationwide—roughly 10% of rivers under national government management—experienced water shortages that triggered restrictions on water intake. The restrictions were the third most stringent in the last decade, after 2013 and 2008. The restrictions were the first in two decades for the Arakawa River in the Kanto region, which last experienced restrictions in March 1997. Restrictions for the Yoshino River in the Shikoku region lasted 95 days, the second-longest period in the last 10 years, after 2008.

The March 2011 completion of improvements to the Takizawa Dam—one of the four dams* on the Arakawa River, a major water source for Greater Tokyo—was presumed to have shortened the restriction period by 58 days. It is also estimated that, without the Urayama and Takizawa Dams, the stored water supply would have been depleted, which would have caused a water crisis involving water supply restrictions and suspensions.

The dams in the Tone and Arakawa River systems, the Musashi Channel, the Kitachiba Headrace Channel and other infrastructure form a wide-area network that underlies the agricultural water and municipal water supply (drinking water and industrial water) for the Greater Tokyo area. Roughly 70% of the municipal water taken from the Arakawa River is supplied by eight dams in the upper reaches of the Tone River, and during the water shortage of 2017, roughly 500 million m³ of water was diverted from the Musashi Channel from January to August of that year to meet demand for water in the Arakawa watershed. The amount of water diverted is equivalent to roughly 83 days of household water use by the 20 million people in Tokyo Metropolitan and Saitama Prefecture to whom water is supplied.

This water shortage is not severe enough for measures as extreme as suspending the water supply. Nonetheless, water shortages that trigger water intake restrictions still seem to occur each year throughout Japan.

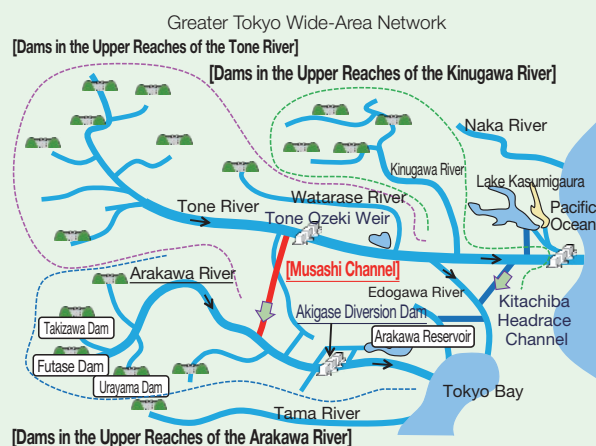
In order to create regions resistant to future climate change and water shortage crises, we must investigate water shortage countermeasures, and we intend to steadily promote wide-ranging efforts in terms of both structural measures such as steadily promoting facility improvements and fully using existing facilities, and non-structural measures such as promoting the formulation of drought response timelines (time-series action plans).



- With Takizawa Dam: 34 days starting July 5 (*excluding temporary relief period)
- Without Takizawa Dam: 92 days starting May 26

Note 1 Futase Dam, Urayama Dam, Takizawa Dam, Arakawa Reservoir

Source) MLIT

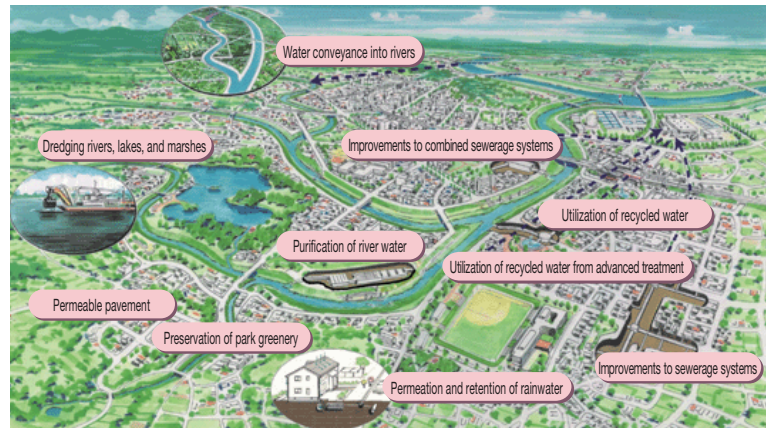


2 Initiatives in Improving the Water Environment

(1) Promoting Water Purification

The MLIT is implementing purification of contaminated water in rivers with seriously deteriorated water environments and water purification of dredged bottom mud. In addition, the local municipalities that are proactively working on the water environment improvement and related institutions, such as river administrators and sewage work administrators are working together to formulate the “Second Water Environment Improvement Urgent Action Plan (Clear Stream Renaissance II)” and implementing the plan (formulated in 32 locations).

Figure II-8-4-1 Clear Stream Renaissance II



(Source) MLIT

(2) Water Quality Survey and Water Quality Accident Response

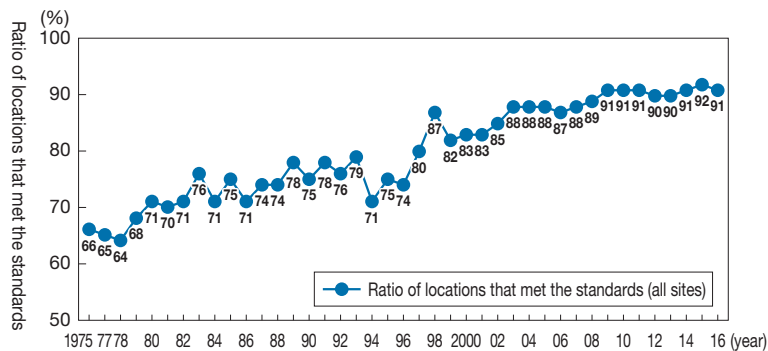
Water quality surveys are vital in conserving and maintaining a favorable water environment. In 2016, surveys were done at 1,096 locations on 109 water systems of Class A rivers.

The MLIT is creating water quality survey maps and conducting surveys of aquatic organisms in cooperation with citizens. As a result of surveys being conducted on Class A rivers in cooperation with the local residents—which were based on indices such as the amount of garbage and on odor—in 2016 approximately 24% (58 locations/295 locations) were judged to be “rivers that look clean enough for swimming.”

In 2016, there were 969 water quality accidents in Class A rivers due to spillage of oil and chemical substances, a decline of 151 from the previous year. In terms of water pollution prevention, Water Pollution Prevention Liaison Councils composed of river administrators and related institutions have been put in place for all 109 waterways, and they are working on prompt information communication for incidents of water quality accidents as well as damage prevention by building oil fences.

- For Class A Rivers (including lakes and coastal areas), the proportion of survey sites that met the environmental standards for BOD (biochemical oxygen demand) or COD (chemical oxygen demand) value was approximately 91% in 2016.
- For environmental standard items relating to the protection of human health (27 items such as arsenic), the proportion of survey sites that met the environmental standards was approximately 99%, with most sites meeting the standards.

Figure II-8-4-2 Ratio of Survey Locations on Class A Rivers (Including Lakes and Coastal Areas) where BOD (or COD) Value Met Environmental Standards



*Ratio of locations on each river and lake that met the environmental standards have been used since 1996 (Including coastal areas since 2014)
 (Source) MLIT

(3) Improving the Water Environment of Enclosed Coastal Seas

Although the pollution load from land has decreased in the enclosed coastal seas of Tokyo Bay, Ise Bay, Osaka Bay, and the Seto Inland Sea, the fishing industry continues to suffer damage from the occurrence of red and blue tides because the loss of tidal flats and seaweed forests and other problems have caused purification capacity in ocean areas to decline. In addition to this, there have been occurrences of environmental deterioration, as well as navigational obstacles to vessels, due to drifting debris and oil.

Therefore, we advance activities to revive clean, abundant oceans by (1) sediment dredging, sand capping, and back-filling pits from mining to improve the substratum, (2) creating habitats for organisms by reviving tidal flats and seaweed forests and disseminating buildings that can coexist with nature, (3) removing floating waste and oils by using sea environment maintenance ships, (4) reducing the amount of pollutants by improving sewage treatment facilities, and (5) developing a system to get diverse entities to improve the environment in collaboration with one another.

(4) Stimulating Sewage Maintenance to Improve the Water Environment

We appropriately formulate and review comprehensive basin-wide planning of sewage systems, and promote advanced treatment including incremental initiatives through such efforts as improving portions of facilities as a measure against the eutrophication of enclosed water systems. We also promote active water environment management and water systems where the goal is to revive abundant oceans through such efforts as implementing seasonal operation management of nitrogen and phosphates at sewage treatment plants.

As for the combined sewerage system, we plan to complete implementation of measures by the end of FY2023 through controlling the amount of water and the frequency at which untreated water is released in to streams during heavy rains.

3 Cultivating Water and Using It Efficiently

(1) Stable Supply of Water Resources

In order to secure stability in the utilization of water, there must be a variety of policies to meet the differing situations in communities, from the standpoints of both supply and demand. Specifically, in the case of demand, we are promoting measures to strengthen the recovery and reuse of water and increase awareness about conserving water. For supply, we are promoting measures to build and maintain facilities to supply water, including water resource development facilities such as dams, implementing countermeasures for aging facilities, and developing crisis management measures, etc. In addition to promoting sustainable conservation and use of groundwater, as well as the use of rainwater and recycled water, based on the “Special Measures for Water Source Area Act,” work is being done to develop the living environment of water source areas and industrial infrastructures, along with prevention of water pollution of the dam reservoirs.

Furthermore, there is concern that climate change will lead to more frequent, severe water shortages that last longer and give rise to more drought-related damage. For this reason, the MLIT will promote measures to prevent/mitigate the damage caused by drought, such as strategies to minimize damage at the time of critical droughts.

(2) Efficient Use of Water Resources

(i) Initiatives towards expanding the utilization of recycled water derived from sewage

Stable amounts of recycled water can be secured and is a valuable water resource in urban areas. Of all the treated sewage, approximately 1.4% undergoes treatment according to purpose, and recycled water is used in streams, sustaining water levels of rivers and the sanitation of toilets. We aim to further expand the utilization of recycled water.

(ii) Promoting the utilization of rain water

In order to efficiently utilize water resources, initiatives are being promoted to treat and use rainwater and wastewater from facilities for sanitation of toilets and sprinklers. There are approximately 3,370 facilities utilizing treated water as of the end of FY2016, and they use over 10.89 million m³ a year. The “Law for Promoting the Use of Rainwater (2014 Laws, Issue 17)” was enacted on May 1, 2014, and in March 2015 the “Basic Policy for the Promotion of Rainwater Use” and the “Goal for Establishing a Facility for the Use of One’s Own Rainwater in Cases Where the Building is Equipped by the National Government or an Independent Administrative Agency” were established in order to promote the use of

rainwater and thereby facilitate the effective use of water resources. Additionally, the government will formulate and enact comprehensive measures for the purpose of contributing to the containment of concentrated drain of rainwater to the sewers and waterways.

(3) Securing Safe and High Quality Water

In an effort to provide safe and high-quality tap water, we have worked to preserve water quality in public water areas, which serve as our source for tap water, by ensuring river flow rates required for river environments and for water use by relevant river users, by enhancing monitoring systems through coordination of river administrators, waterworks operators and other relevant organizations to prepare for unforeseeable incidents such as water quality degradation, and by implementing household wastewater measures based on the appropriate division of burdens between sewage systems, community wastewater facilities and septic tanks.

(4) Promoting Measures Concerning the Permeation of Rainwater

Due to the spread of impervious areas in recent years by urban development in basins, more rainwater flows into rivers in short periods of time instead of being absorbed into the ground. In addition to reducing flood damage from heavy rains by absorbing as much rainwater as possible into the ground, we are promoting and encouraging the installation of infiltration facilities for storage of rainwater that contribute to the establishment of sound water cycles by recharging groundwater, reviving springs and more.

(5) Advancing the Conservation and Use of Sustainable Groundwater

It takes an extremely long time to recover from damage caused to groundwater, such as in the form of groundwater pollution or saline contamination. In particular, ground subsidence is an irreversible phenomenon. For this reason, we will engage in groundwater management in accordance with local conditions in order to prevent groundwater damage, conserve the ecosystem, protect local groundwater sources, and advance the conservation and use of sustainable groundwater to be used as a water resource.

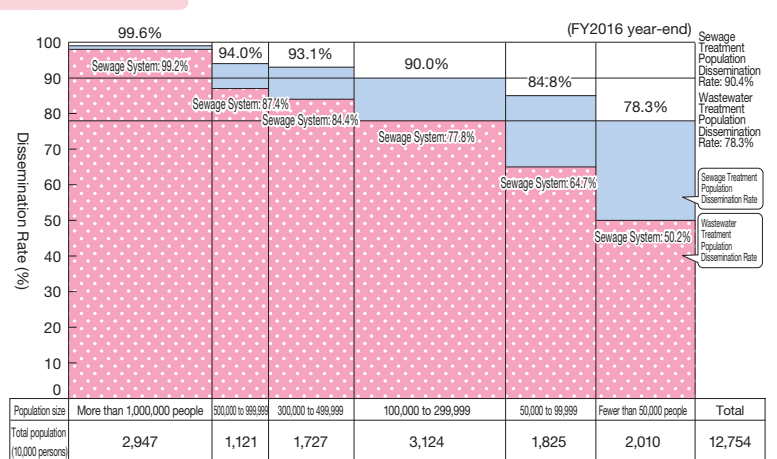
4 Realizing Amenity by Promoting Improvements to Sanitary Drainage

Sewage is the indispensable social infrastructure for the development of healthy cities, treating waste, and preventing floods. In recent years, sewage systems have been asked to take on new roles in helping to form a low-carbon, recycling-oriented society and in maintaining or restoring a healthy water cycle.

(1) Dissemination of Sewage Processing with Sanitary Drainage

Although the dissemination of sewage treatment plants reached around 90.4% (with the dissemination of sewage systems at around 78.3%) of Japan as of the end of FY2016 (total of 46 prefectures, excluding some municipalities in Fukushima due to the effects from the Great Eastern Japan Earthquake), there is a large gap between regions. Dissemination exceeded 90% for the first time since the study began in 1996, but large discrepancies between regions remain. In particular, the dissemination rate of sewage treatment plants in small to medium communities with populations of less than 50,000 people remain low, only reaching a ratio of approximately 78.3%

Figure II-8-4-3 Sewage Treatment Population Dissemination Rate by Size of City (FY2016 year-end)

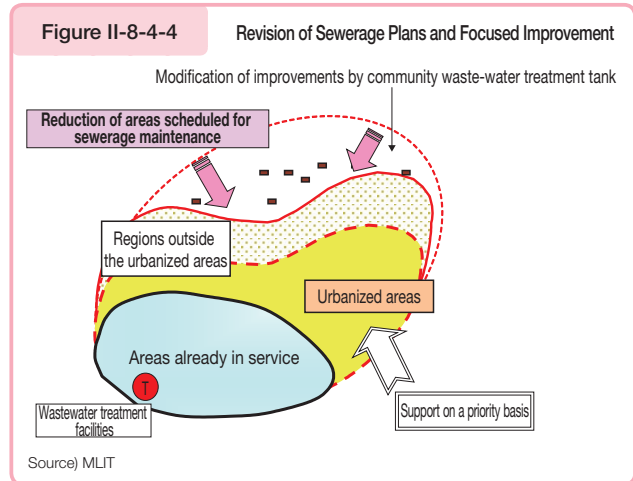


Note: Some municipalities in Fukushima Prefecture, where surveys were not possible due to the Great Eastern Japan Earthquake, were excluded.
Source) Prepared by the MLIT from information provided by the Ministry of Environment and the Ministry of Agriculture, Forestry and Fisheries

(dissemination rate of sewage systems approximately 50.2%). Focusing on improvement in areas with high population density, the advancement of efficient development in accordance to condition of communities and the rectification of the gap between communities are seen as being of the utmost importance for developing sewage systems in the future.

(i) Initiatives towards the septic system overview in roughly 10 years

In regards to the maintenance of sewage treatment facilities, individual disposal by using septic tanks are economical in areas where households are widely distributed throughout a region, while the collective disposal with sewerage systems and drainage facilities for agricultural communities become more economical as the population density rises. For this reason, each prefecture has established a “Prefectural Plan,” a compiled maintenance plan over sewerage treatment which reflects considerations over regional characteristics such as the economic efficiency and importance of protecting water quality. Currently, in light of the population decline of recent years, the MLIT is promoting an immediate reexamination of prefectural programs, and has selected appropriate methods of sewage treatment and created mid-term (action plan)/long-term development plans. We are also proactively promoting efforts to expand and merge through the merging of elimination, consolidation and maintenance at sewage treatment facilities.



(ii) Sewage quick project

Taking into account the population decline and the difficult fiscal situation, this project seeks to widely introduce—with the cooperation of the district citizens and verification of the performance by a committee of experts—maintenance methods that are not stuck in technological standards of the past, that meets the current conditions of the district, and that are low-cost, while making early and flexible maintenance possible. By FY2016, a social experiment was conducted in 14 municipalities, and 6 technologies—such as the “Small-Scale Waste-Water Treatment Facility (contact oxidation method)” —were determined to be effective, leading to a user’s guide being put together for the use of these technologies. The verification/evaluation of the other technologies is in progress to make nationwide usage possible.



(2) Attaining Durability in Sewage Projects

(i) Proper stock management

Sewage systems possess enormous amounts of stock consisting of approximately 470,000 kilometers of pipes and conduits and approximately 2,200 terminal treatment stations (as of the end of FY2016).

As these systems were rapidly developed during and after the period of high economic growth, aging facilities are expected to rapidly increase in number in the future. Although mainly small scale issues were arising, road collapses have occurred in approximately 3,300 places due to corrosion caused by hydrogen sulfide and aging of the conduit facilities. Because the sewage system is an important social infrastructure which supports the safe and secure social and economic activities of urban living and provides a lifeline that is difficult to replace with alternative means, there is a necessity to sustain the required functions by conducting efficient, planned measures to deal with aging facilities through the introduc-

tion of stock management that practices preventative maintenance, while at the same time considering the introduction of comprehensive private consignment and efficient pipe inspection methods.

In May 2015, the Sewerage Act was amended and standards for maintaining and repairing sewage systems were established. In response, it was decided that drainage facilities at significant risk of corrosion would be inspected at an appropriate frequency of at least once every five years and initiatives to ensure sustainable sewage functions are being undertaken. Under these amendments, a council meeting program for engaging in necessary discussions on widening the geographic scope of sewage works and forming partnerships among the administrators of sewage works shall be established and the provision of support to local governments will otherwise be reinforced to ensure the durability of sewerage projects.

(ii) Efforts to expand sewage systems

For the sustainable management of sewage systems, we have established a goal to develop expansion/merging plans in all prefectures by FY2022, and have asked each prefectural government to develop these plans by FY2022 and establish systems for the soonest possible investigation of them by FY2018. We also intend to continue providing both financial and technical support; we created a General Project for Promoting Sewage System Expansion in the FY2018 budget, and provide support for examining as model cases those prefectural governments that have worked on devising plans ahead of others, and apply the results of those examinations throughout the country.

Column Steps Toward the Sustainable Management of Sewer Systems

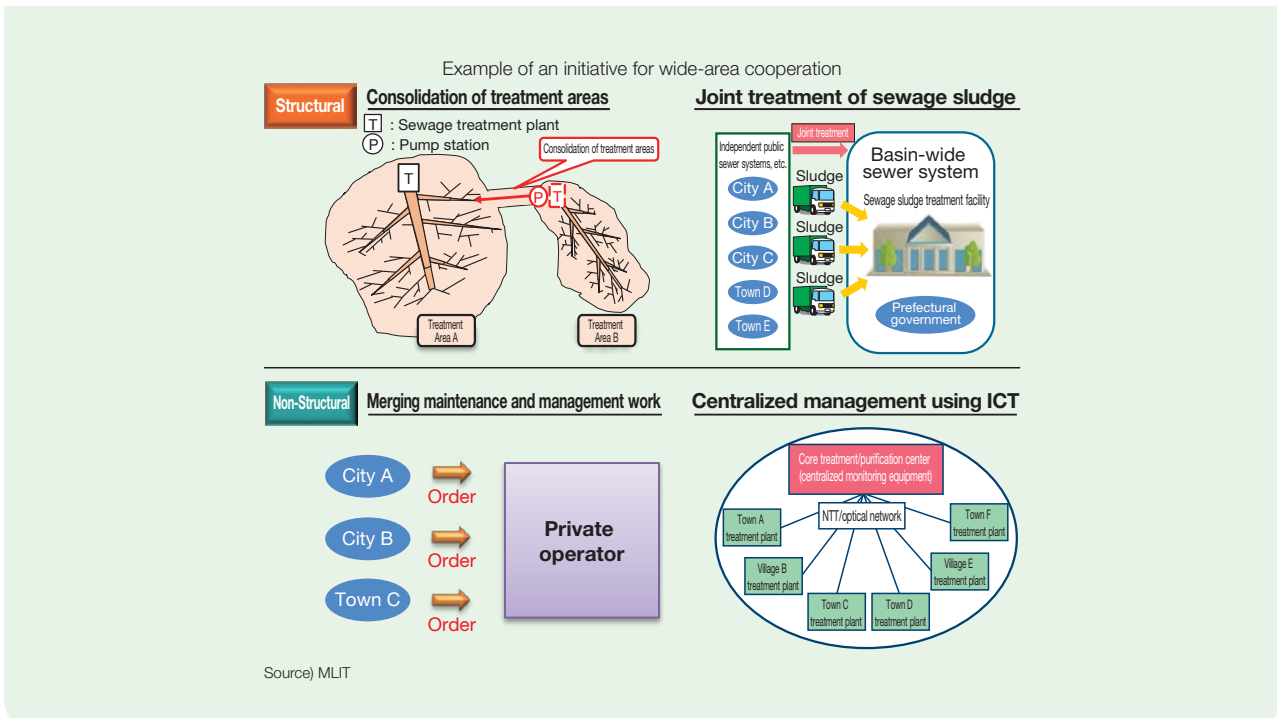
The sewer system management environment has become even more challenging due to factors such as the deterioration of facilities ushering in a period of massive updates, and depopulation causing user fees and the size of the workforce to decrease; in such an environment, more efficient business management is needed.

In order to make sewer system management sustainable, and based on the Basic Policy on Economic and Physical Management and Reform 2017, we established two objectives to promote expansion by FY2022: the number of districts making efforts toward elimination and consolidation at sewage treatment facilities, and the formulation of plans to expand and merge in all prefectures. With the joint signatures of four relevant ministries (the Ministry of Internal Affairs and Communications, the Ministry of Agriculture, Forestry and Fisheries, the MLIT and the Ministry of the Environment), we have asked each prefectural government to establish a plan by FY2022 and create an investigation system as soon as possible in FY2018.

In order to provide financial support for expansion efforts, the MLIT will create a General Project for Promoting Sewage System Expansion in the FY2018 budget to provide comprehensive support for all aspects from formulation to implementation of plans involving expansion.

In addition, to provide technical support, we will support detailed examinations as model cases those prefectural governments that work on devising plans for expansion and merging ahead of others, and apply the results of those examinations throughout the country in the future.

We also intend to continue providing both financial and technical support to enable local governments to more efficiently improve and manage sewer system facilities.



(iii) Promoting financial health

In the operation of sewerage projects, it is a fundamental rule to cover costs (excluding portions covered by public expense) for treating waste water with money acquired from usage fees, and although financial health has been improving overall in recent years, the business environment is expected to grow more stringent in the future due to the impending decrease in income from user fees due to the reduced population and other factors, the increase of repair and update expenses due to deterioration of facilities, and other factors. To address these issues, we are pushing initiatives for the restoration of financial health in sewerage business management by collaborating with the Japan Sewage Works Association to organize ideas for the future state of user fees for collecting the portion of expenses required for asset maintenance in advance, to prepare for future increases in repair and update expenses.

(iv) Consigning facility management to private sectors and acquiring technical capabilities

In the sewerage sector, we are introducing and examining concession systems and other methods of PPP/PFI, and working toward the increased use of comprehensive private sector consignment^{Note} for the maintenance of sewage treatment plants and elsewhere. As for concession systems in the sewerage sector, in Hamamatsu City, a project for the total and long-term consignment of maintenance, mechanical and electrical facility refurbishment and updating, and other work at Seien Treatment Area treatment plants and pump stations to the holder of operation rights is scheduled to begin in April 2018. The proposal from the operation rights holder included goals to work toward cooperation with the community and new technology in addition to a 14.4% cost reduction (VFM); the project is expected to streamline business through private-sector ingenuity and introduce private-sector vitality. Regarding the securement of technical capacity, based on demands from local public organizations, the Japan Sewage Works Agency provides technical support for constructing sewage facilities, as well as for optimizing their operation and maintenance, and cultivating technical experts at local public organizations, while developing new technology.

(3) Revitalizing Communities through Sewage

Sewage systems contribute to regional revitalization in a variety of ways: the proper treatment of wastewater through improvements in sewage systems preserves and creates healthy water environments and stimulates industry and tourism,

Note A method of ordering in pursuit of streamlined operations that reflects the original ideas of private contractors by entrusting operation methods and other details to them, while the ordering entity sets out conditions to ensure a level of performance in terms of facility management, such as observance of effluent quality standards.

and sewage system resources can be used effectively by creating waterfront areas using recycled water from advanced wastewater treatment, stimulating regional activities through the operation and management of harmonized water spaces by citizens and others, utilizing space above wastewater treatment facilities, using sewage heat for heating, cooling, melting snow and as biogas energy throughout communities, and using sewage sludge as fertilizer.

(4) Promoting Environmental Education in the Field of Sewage

Working groups, consisting of elementary school teachers and sewage administrator representatives, created teacher edition textbooks that were well suited for classroom use for sewage education. In order for teachers to freely make use of these teaching materials regarding sewers, they are being offered through the “Sewer Systems, the Path of Circulation Environmental Education Portal Site^{Note1}.” Additionally, subsidies are granted by Sewer Systems: the Path of Circulation Environmental Education Assistance Council Meeting Program to each elementary and middle school for supporting environmental education on sewage.

Figure II-8-4-6

Environmental Education regarding the Sewerage Sector

Project for Sewage Environmental Education for Elementary Schools in Hamamatsu City, Shizuoka



(Source) MLIT

Section 5 Protecting the Marine Environment

(1) Control Policies over Large Scale Oil Pollution

In order to eliminate the substandard vessels (a major factor for large scale oil pollution), Japan actively participates in international initiatives, such as the formulation of the international shipping database (EQUASIS), while also strengthening Port State Control (PSC), in which IMO audit teams ensure that vessels meet standards, by conducting on-site inspection of vessels that enter Japanese ports. In addition, the scheme under which an IMO audit team audits whether a flag state’s government is fulfilling the duties of monitoring and supervising its own ships was approved for establishment as a voluntary scheme at the IMO General Assembly in 2005, based on a proposal from the Japanese government. The audit scheme became mandatory in January 2016. The Japanese government introduced a quality management system based on ISO 9001, and established a system on international level for implementing conventions.

In other fronts, as countermeasures for occurrences of large scale oil pollution in the Sea of Japan, Japan is working on strengthening international cooperation and collaborative systems by drawing up plans such as the “NOWPAP Regional Oil and HNS Spill Contingency Plan” through the “Northwest Pacific Action Plan (NOWPAP),” the framework for joined efforts between Japan, China, Korea and Russia for protecting the marine environment. In addition, we have formulated the Plan for Preventing and Controlling Discharge Oil, etc., and have established prevention and control regulations and the like for dealing with large-scale oil spillages that occur in domestic waters as well as measures for promptly and reliably responding through the utilization of large trailing suction hopper dredgers.

The MARPOL Convention^{Note2} imposes controls on the discharge of oil and garbage by vessels. In Japan, taxation and other forms of support for the development of facilities to receive waste oil or garbage generated inside vessels are being provided and the (draft) “Guidelines for Reception Facilities of Ship-generated Garbage in Ports and Harbors” have been formulated to ensure that oil and garbage are appropriately received in ports and harbors.

Note 1 The Path of Recycling Sewerage Environmental Education Portal Site: <http://www.jswa.jp/kankyo-kyoiku/index.html>

Note 2 International Convention for the Prevention of Pollution from Ships

(2) Control Measures on Air Pollution from Ships

Sulfur oxide (SOx) in the exhaust gas from ships can cause respiratory illnesses and otherwise negatively affect the human body. The International Maritime Organization (IMO) regulates sulfur concentrations in fuel oil used in ships based on the MARPOL Convention, which sets out standard values for each sea area in which ships navigate. Presently, the convention stipulates a maximum sulfur concentration of 0.1% in certain sea areas subject to strict controls (emission control areas) and a maximum concentration of 3.5% in all other sea areas, which will be 0.5% from January 1, 2020.

To enable shipping operators and others to smoothly deal with the regulations starting in 2020, the MLIT established the committee including entities in the shipping industry and others and the committee including relevant ministries and entities in the petroleum industry. These groups convened 10 times in the year starting February 2017, and through these meetings, the MLIT has promoted exchanges of information, investigation of countermeasure policy and other discussions. In addition, at the fifth meeting of the IMO Subcommittee on Pollution Prevention and Response (PPR5) held in February 2018, Japan proposed measures such as the formulation of guidelines for preventing the unauthorized use of non-compliant fuel oil in pursuit of ensuring conditions for fair competition in international shipping. In response, the committee agreed to formulate guidelines for the consistent implementation of SOx regulations by the summer of 2019.

In addition, to encourage the diffusion of ships fueled by liquid natural gas (LNG) with no sulfur content, in April 2017, the Marine Transportation Act was amended and a plan certification system for promoting the introduction of LNG-fueled ships was established.

(3) Responding to Issues of Invasive Aquatic Species Carried by Ships

It is pointed out that the transfer of aquatic species via ships' ballast water^{Note} and ships' biofouling would threaten marine ecosystem in waters where these ships navigate in. In order to prevent the transfer of invasive species, "International Convention for the Control and Management of Ships' Ballast Water and Sediments in 2004" and "2011 Guidelines for the Control and Management of Ships' biofouling to minimize the transfer of invasive aquatic species" were adopted at the IMO. The convention went into effect on September 8, 2017. It is worth noting that the convention defines the initial period of effectiveness as an experience building phase (EBP) for gathering and analyzing data toward future revisions of the convention. Japan is proactively contributing to the gathering and analyzing of data during EBP while also faithfully fulfilling the duties set out in the convention.

Column

Marine Environment Conservation Promotion Activities

The slogan of the Japan Coast Guard ("Preserving Blue Seas for the Future") is the basis for its efforts to provide instruction and education about marine environment conservation through efforts such as holding seminars on the topic aimed at raising awareness among key people in the marine and fishing industries of compliance with laws and ordinances, and hosting coastal clean-up activities and lessons about the environment for the general public. Here, we introduce two of their main activities.

Note Seawater and other matter loaded as weight to balance the ship, mainly when it carries no cargo.

(1) “Preserving Blue Seas for the Future/Japan Coast Guard Drawing Contest”

The Japan Coast Guard hosts the annual “Preserving Blue Seas for the Future/Japan Coast Guard Drawing Contest” with the aim of spreading the concept of marine environmental conservation to children.

For the 18th annual contest in 2017, 30,839 entries were submitted by elementary and junior high school students throughout Japan.

The entries were strictly judged to determine prize winners—among them one special prize (the MLIT Minister’s Award) and three Japan Coast Guard Commandant’s Awards—and an award ceremony for the MLIT Minister’s Award was held at the MLIT Minister’s office on December 22, 2017. At the ceremony, MLIT Minister Ishii presented the award certificate and other items to the winner, Ayumi Nishizato, a fifth grader from Higashi Elementary School in Miyakojima City, Okinawa Prefecture.

The works are displayed in various places, and are also used in various public relations in an effort to spread the concept of marine environmental conservation far and wide.

(2) Beach clean-up activities, etc. in collaboration with the “Umi-to-Nippon Project (Ocean and Japan Project)”

The Japan Coast Guard designates June as Marine Environmental Conservation Promotion Month and promotes marine environmental conservation activities. The Japan Coast Guard also continues to participate in the “Umi-to-Nippon Project (Ocean and Japan Project)” which has been implemented since 2015.

Part of the effort includes beach clean-up activities where standard-design garbage bags are used throughout Japan. To date, 28,198 people in 93 locations throughout the nation have collected and sorted roughly 11,000 bags of waste. Through this project, the Japan Coast Guard has promoted understanding of the impact of every day waste on the marine environment.

The Japan Coast Guard intends to promote activities and intensify collaboration with this project to increase opportunities for people to participate and further spread the concept of marine environmental conservation.

Award presented by MLIT Minister Ishii



Source) MLIT

Winning entry of the special award (MLIT Minister’s Award)



Source) MLIT

Marine conservation program for the general public



Source) MLIT

Section 6 Improving Living Environments by Preventing Atmospheric and Noise Pollution

1 Policies for Environmental Issues Related to Road Traffic

(1) Measures for Individual Vehicles

(i) Exhaust gas reduction measures

Regarding measures for emissions of new passenger vehicles, trucks, buses and two-wheeled motor vehicles, we have introduced and begun to sequentially apply the Worldwide Harmonized Heavy-Duty Certification, which is the world's leading emissions regulation system.

We convened an expert review meeting in April 2017 in response to the Volkswagen emissions scandal that came to light in September 2015. In light of the experts' findings centered around the introduction of on-road driving tests, we amended laws and regulations in March 2018. The sequential application of amendments pertaining to on-road driving tests will begin in 2022.

We are also implementing a program to certify low-exhaust gas vehicles that emit harmful substances from their exhaust pipes at levels far below regulatory values. These vehicles will be certified according to the level of their reduction of exhaust gas in an effort to help consumers identify and select vehicles that perform exceptionally well in terms of reducing emissions.

Exhaust gas measures are being implemented in Tokyo, Nagoya, Osaka and other major cities. One example is countermeasures based on the Act Concerning Special Measures for Total Emission Reduction of Nitrogen Oxides and Particulate Matter from Automobiles in Specified Areas (Automobile NOx/PM Law).

(ii) Reinforcing noise regulations

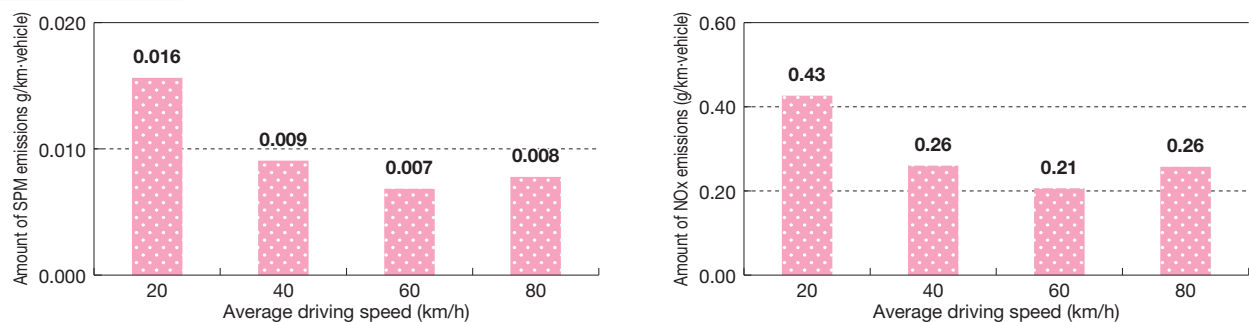
Regarding measures for automobile noise, we have introduced international standards for evaluating the levels of noise generated by acceleration in actual urban driving conditions to regulate the noise generated by four-wheeled vehicles, and began applying the measures progressively in October 2016.

(2) Promotion of Traffic Flow Measures

(i) Countermeasures for air pollution

The volume of particulate matter (PM) and nitrogen oxide (NOx) emissions from automobiles is increasing because of the increasing frequency of stop-and-go traffic and the reduced travel speed. For this reason, we are advancing the shift through traffic in urban areas to bypasses as a way to improve the roadside environment.

Figure II-8-6-1 The Correlation Between Driving Speed and the Emission of Particulate Matter and Nitrogen Oxides (NOx) from Vehicles



*Amount of emissions per mileage for 2015, estimated by the MLIT
Source) MLIT

(ii) Countermeasures for noise pollution

Japan is proceeding with the lamination of low-noise pavement, installation of noise barriers, and maintenance of environmental roadside facilities. Based on the “Law for the Improvement of Areas along Trunk Roads,” in addition to preventative measures for issues caused by traffic noise, financial assistance is being provided for buffer buildings and noise insulation work for housing in construction projects in areas alongside roads.

2 Environmental Measures for Airports and Surrounding Areas

In Japan, we have been steadily implementing various measures to deal with aircraft noise through improvements in materials made possible by the introduction of low-noise aircraft, restrictions on departures and arrivals imposed via regulations governing night-time flights, improvements in flight methods based on noise-abatement operations, upgraded airport structures, and measures concerning the peripheral environment, including sound-insulation work and the provision of compensation for relocation. In recent years, the growing popularity of low-noise aircraft accounts for a reduced impact that aircraft noise is having on areas surrounding airports even as the number of departures and arrivals by aircraft is rising.

We will need to strive to accommodate the growth of areas surrounding airports and the desire to conserve the local environment by continuing to take comprehensive measures to deal with aircraft noise while gaining the understanding and cooperation of local residents in accordance with changes in such conditions as the demand for air travel.

3 Countermeasures for Railway Noise

We are installing noise barriers, raising embankment heights and implementing other measures for noise generated by Shinkansen trains to enable the achievement of environmental standards based on the Environmental Quality Standards for Shinkansen Superexpress Railway Noise announced by the then-Environment Agency in 1975.

As for local railway lines, we are switching to continuous welded rails and implementing other measures to satisfy guidelines based on Noise Countermeasure Guidelines for the New Construction and Large-Scale Improvement of Local Railways, announced by the then-Environment Agency in 1995.

4 Countermeasures for Urban Heat Islands

The heat island effect refers to the phenomenon in which the temperature in the central area of a metropolis is significantly higher than the areas that surround it. Due to the effects of global warming, the global annual mean temperature is rising at a rate of around 0.7°C per century, while that of Japan is rising at a rate of around 1.2°C per century. In contrast, the temperature is rising roughly 2°C to 3°C in Japan’s major cities; the addition of the effects of urbanization to the trend of global warming is producing these remarkable increases in temperature.

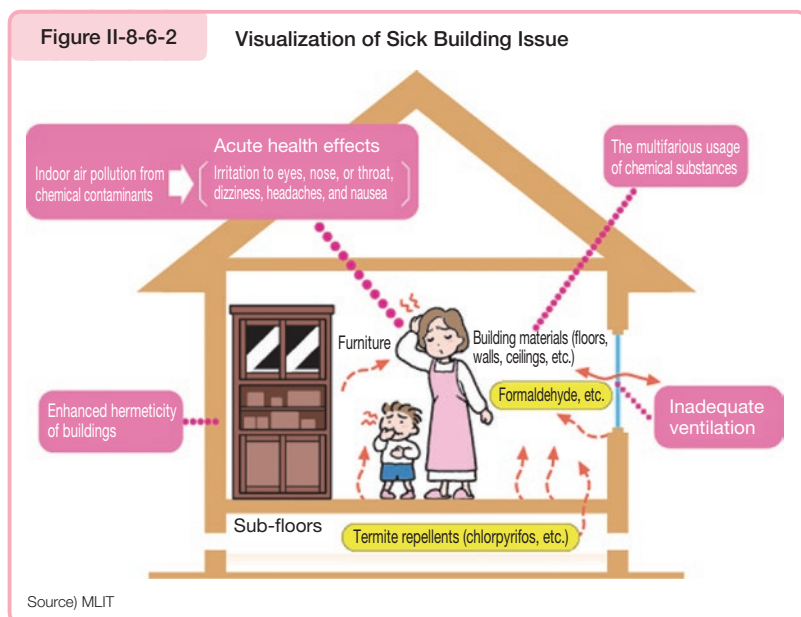
In order to advance comprehensive and effective measures for dealing with the urban heat island effect, we are engaged in various initiatives according to the Outline of Measures for Dealing with the Heat Island Effect (formulated in 2004, revised in 2013), which systematically summarizes specific measures put forth by relevant ministries and agencies. These initiatives include the following: Initiatives that reduce artificial heat emitted by air-conditioning systems and automobiles, initiatives that improve ground surfaces based on the greening of public spaces and the use of water, initiatives that consist of urban development projects that take wind channels into account, and initiatives for which observations, monitoring, and surveys are conducted with respect to the heat island phenomenon.

5 Countermeasures for Sick Building Issue and Soil Contamination

(1) Countermeasures for Sick Building Issue

Sick building issue describes a situation where materials used in the interior of a building disperse chemical substances which are hazardous to health. Japan is taking measures such as regulations on building materials and ventilation in the “Building Standard Act,” and formulating performance labelling systems based on the “Housing Quality Assurance Act.”

In the maintenance of government facilities, Japan has implemented restrictions over the usage of building materials containing chemical substances, as well as measuring the indoor concentration of airborne chemical contaminants after completing construction.



(2) Countermeasures against Issues Related to Dioxins

Studies over the water and earth quality of class A river systems throughout Japan are being conducted for dioxins specified in the “Act on Special Measures concerning Countermeasures against Dioxins.” In FY2016, the sediment of all locations and the water quality of 97% (205 locations out of 211) of the locations satisfied environmental standards.

For rivers, ports, and harbors, we have implemented dioxin countermeasures as required according to the Manual on Measures to Deal with Dioxins at the Bottom of Lakes (proposed), which was revised in April 2008, and the Technical Guide on Measures to Deal with Dioxins at the Bottom of Ports and Harbors (revised edition). Support for programs involving pollution-prevention measures is being provided for rivers, ports, and harbors where dioxins exceeding standards have been detected in samples taken from the bottom of these locations.

(3) Measures against Asbestos

Issues concerning asbestos are life-threatening. As buildings that were built in the 1970s—when mass amounts of asbestos was imported to Japan—each their dismantling period, it is important to implement pre-emptive measures to prevent injuries from occurring.

In order to accurately and efficiently determine the actual use of asbestos building materials, investigators are being trained based on the system for investigators of structures containing asbestos building materials, which was created in FY2013.

Also, based on the “Building Standards Law,” the removal of sprayed asbestos when renovating a building is required, and subsidy of comprehensive grants for social capital development is in place to promote the asbestos removal in existing buildings and follow ups are being done for the situation of the removal and anti-scattering of asbestos in the existing facilities under the jurisdiction of national ministries and agencies.

Furthermore, Japan is promoting the dissemination of information in efforts such as compiling data bases on referential cost estimates for removal work of spray-applied asbestos insulation, documents useful for identifying building materials containing asbestos (Visually identifiable building materials containing asbestos) and information on such materials, as well as pamphlets for measures related to asbestos in buildings.

6 Environmental Measures in Construction

The gas emissions measures (NO_x, PM) for construction machinery that are not driven on public roads, the registration, certification and approval are being handled based on the “Act on Regulation, Etc. of Emissions from Non-road Special Motor Vehicles.” Things like the low interest loan system is in place to provide assistance for the purchasing of construction machinery that have been adapted to be environment-friendly by meeting the latest emission standards and having reduced noise.

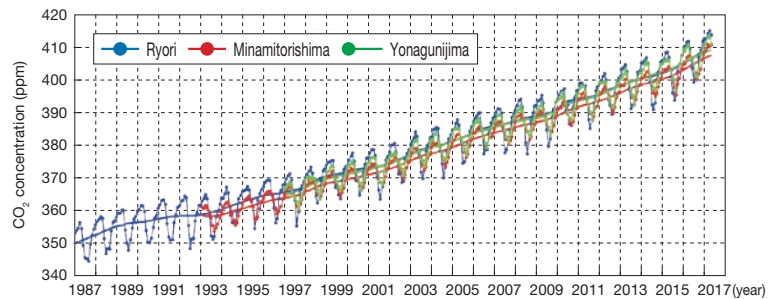
Section 7 Observing, Monitoring, and Forecasting Changes in the Global Environment

1 Observing and Monitoring the Global Environment

(1) Observing and Monitoring Climate Change

In order to grasp the status of greenhouse gases (GHGs), the Japan Meteorological Agency (JMA) is observing GHG concentrations in the atmosphere at three stations in Japan. CO₂ concentrations in the marine atmosphere, as well as those in the sea surface water are being observed in the western North Pacific by research vessels. GHGs in the middle-troposphere in the western North Pacific is also being observed. Furthermore, JMA conducts observation of solar and infrared radiation at five stations in Japan in order to monitor climate changes and reduce uncertainty in global warming projections.

Figure II-8-7-1 Time-series of CO₂ Concentration in Japan



Source) Japan Meteorological Agency

In addition, JMA observes sea level rise accompanied by global warming, and publish information on the long-term change in sea levels around Japanese coasts.

JMA also produced the Japanese 55-year Reanalysis (JRA-55), a historical global atmospheric data with homogeneity in space and time, and is using it to monitor climate change and improve the accuracy of seasonal forecasting.

Moreover, the “Climate Change Monitoring Reports” and the “Report on Climate Change and Extreme Weather” (in Japanese) are being compiled based on the results of observation, and future projections of climate change, extreme weather events and global warming are being disclosed to the public. Serving as the World Data Centre for Greenhouse Gases (WDCGG) of the World Meteorological Organization (WMO), JMA also archives and provides observation data on greenhouse gases around the world.

(2) Observing and Monitoring Extreme Weather Events

JMA monitors unusual weather events occurring in Japan and elsewhere in the world and summarizes and releases periodic and extraordinary information concerning weather disasters and areas where extreme high/low temperatures and precipitation, and other such events have been observed. Also, when extreme weather conditions are occurring that significantly affect the public, summary reports are given covering the information regarding features, factors and the outlook.

Furthermore, as a Regional Climate Centre of the World Meteorological Organization (WMO), JMA provides information such as monitoring and analysis of extreme weather as well as technical assistance through training and dispatch of experts to National Meteorological and Hydrological Services in Asian countries to support the climate service in the Asia Pacific region.

(3) Observing and Monitoring using Geostationary Meteorological Satellites

JMA continues to operate the geostationary meteorological satellites Himawari-8 and Himawari-9. The two-satellite system was established to ensure consistent observation over the long term, and provides constant, 24-hour observation of wide areas of East Asia and the Western Pacific region. By using these satellites, in addition to improving the disaster prevention function against such things like tropical cyclones and torrential rainfalls, Japan is leading the world in strengthening its monitoring function of the Earth's environment, including global warming.

(4) Observing and Monitoring the Ocean

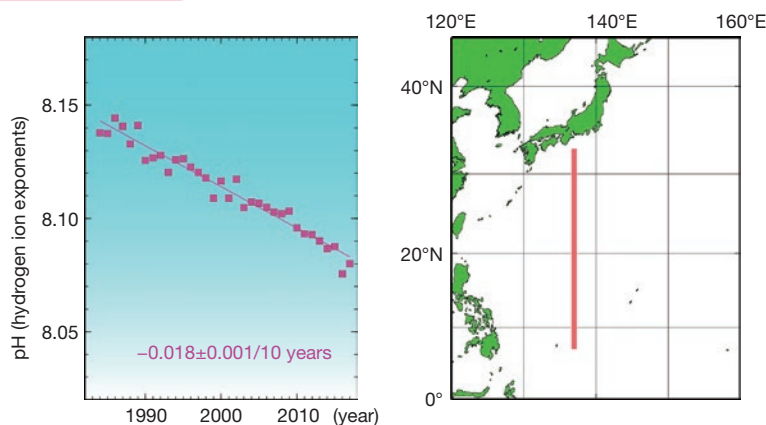
The ocean is greatly impacting the earth's climate by storing a much larger amount of heat than the atmosphere, and it is also easing the progression of global warming by absorbing CO₂ discharged by human economic activity. In order to monitor global warming, an accurate grasp of oceanic conditions is essential.

The Japan Meteorological Agency (JMA), under the international cooperative structure, monitors oceanic conditions by carrying out ocean observation with high accuracy from research vessels in the western North Pacific along with using data from satellites and Argo floats, or profiling floats to automatically observe the ocean interior.

JMA website "Marine Diagnosis Report" provides general information on the ocean such as sea surface temperatures, ocean currents, sea level, sea ice, as well as the present status and the prospect for the future.

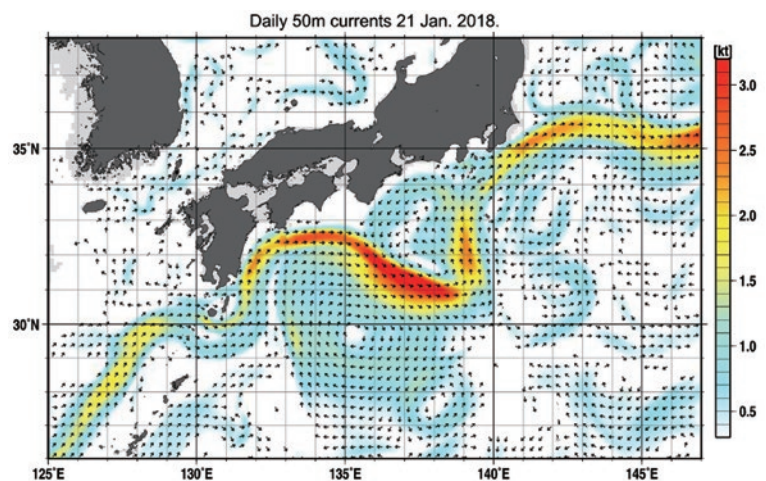
The Japan Coast Guard uses autonomous ocean vehicle (AOV), drift buoys and High Frequency radar to constantly monitor and fully understand the state of ocean around Japan, and publishes their observation results. In addition, the Japan Oceanographic Data Center collects and manages data obtained by Japanese marine research organizations, and discloses it to relevant institutions and to the public.

Figure II-8-7-2 Monitoring the Global Environment Using Research Vessels



This diagram shows long-term changes in the hydrogen ion exponents on the surface of the ocean during the winter along 137°E (average from 7°N to 33°N). The -0.018 decrease in pH over the last decade indicates that the acidification of the oceans is progressing. (Source) Japan Meteorological Agency

Figure II-8-7-3 Example of a "Marine Diagnosis Report" Published on the Japan Meteorological Agency Website



- Ocean Current Charts: Comprehensive analysis (data assimilation) of the results of ocean general circulation model (MRI.COM) and observation data from satellites, ships, buoys, profiling floats and the like enables us to calculate water temperatures and currents anywhere from the ocean surface to areas near the seafloor.
 - The speed of ocean current is color-coded according to the scale on the right-hand side of the chart. Here, red indicates strong currents. Ocean Current Chart from January 21, 2018:
 The strong currents to the south of Japan depicted here in red and yellow correspond to the large meandering path of the Kuroshio Current, which veers offshore of Japan between the Kii Peninsula and area offshore of Tokai, turning southward near 31°N, 137.5°E.
 (Source) Japan Meteorological Agency

(5) Observing and Monitoring the Ozone Layer

The Japan Meteorological Agency (JMA) annually publishes the outcome of observations on ozone and ultraviolet radiation. According to these studies, the global amount of ozone has increased slightly since 2000, but continues to be lower than it was in the 1970s. JMA also provides hourly updates of the current intensity of ultraviolet rays (UV analytical values) and daily updates of the projected intensity of ultraviolet rays for the current and following day (UV projected values) on its website to contribute to Japanese residents' measures against harmful ultraviolet rays^{Note}. To describe the intensity of ultraviolet rays, the agency uses the UV index, a metric that indicates the effects of harmful ultraviolet rays on the human body.

(6) Promoting Routine Operational Observation in the Antarctic

The Geospatial Information Authority of Japan facilitates activities carried out by Antarctic research expeditions. At the same time, it makes geodetic observations, produces and updates topographical maps, and develops satellite image maps on the Antarctic region in order to contribute to international activities relating to research on global environmental changes and geodetic surveys.

The Japan Meteorological Agency continues to conduct observation of ozone, solar and infrared radiation, surface and upper-air at the Syowa Station (Antarctica). Accumulated meteorological data contribute to monitor and research the global environment, such as the changes in Antarctic ozone hole and global climate, and are utilized for the formulation of international policies.

The Japan Coast Guard is conducting topographical studies on the sea floor. The observation data is being used for compiling nautical charts and as the basis for research related to past environmental conditions such as glacial erosion and sedimentary environments. In addition, they conduct tidal observations and monitor the fluctuations in sea levels, which are closely tied to global warming.

2 Research of and Predictions of the Global Environment

The Japan Meteorological Agency and the Meteorological Research Institute are developing prognostic models on changes in climate around Japan and the world, and actively participate in international research programs such as the World Climate Research Programme (WCRP). Earth system models that track the carbon cycle process and other changes and higher-resolution regional climate models are being developed, and research for making warming predictions is being conducted. In FY2016, JMA released Global Warming Projection Volume 9, which takes uncertainty into account as it shows detailed warming predictions for the area around Japan based on a highly developed regional climate model. In addition, JMA made proactive contributions to the fifth assessment report of the Intergovernmental Panel on Climate Change (IPCC) (released in 2013-2014), the National Plan for Adaptation to the Impact of Climate Change (adopted by a Cabinet decision in November 2015), the Plan for Global Warming Countermeasures (adopted by a Cabinet decision in May 2016), and efforts toward the development of adaptation measures by local governments and others.

The National Institute for Land and Infrastructure Management released the results of research into climate change adaptation in terms of flood control, water utilization, and the environment in the Report on Research into Climate Change Adaptation (2017) and other documents. These results have been incorporated into various materials, including a report issued in August 2015 by the Social Development Council entitled Adapting to Climate Change in the Area of Water Disasters, and a plan for adapting to climate change drafted by the MLIT in November 2015.

3 Promoting Global Geodetic Observation

Japan contributes to the determination of the shape and variation of the earth through activities such as international observations using Very Long Baseline Interferometry (VLBI, a method of observation using radio waves from quasars) and Satellite Laser Ranging (SLR, a method of measuring the distance to artificial satellites using lasers), tide observations, absolute gravity measurements, and continuous GNSS observations using GNSS continuously operating reference stations, and is promoting the establishment of a Global Geodetic Reference Frame (GGRF).

Note JMA UV Information website: <http://www.jma.go.jp/jp/uv/>

Chapter 9

Strengthening Strategic International Development and Contributions

Section 1

Promoting the Overseas Development of Infrastructure Systems

1 General Government Policy

The government established the “Management Council for Infrastructure Strategy” in March 2013 and compiled the “Export Strategy for Infrastructure Systems” in May of the same year, based on deliberations on government policies carried out by ministers involved, including the Minister of Land, Infrastructure, Transport and Tourism. A revised version of this strategy was formulated in May 2017 with the aim of Japanese companies securing orders for overseas infrastructure systems totaling up to approximately JPY 30 trillion in 2020 (approximately JPY 10 trillion in 2010). The active promotion of the overseas development of infrastructure systems is also stated in “Growth Strategy 2017” (approved by the Cabinet in June 2017).

In May 2015, a Partnership for Quality Infrastructure incorporating the provision of approximately 110 billion dollars of Japan’s Quality Infrastructure Investment in the Asian region over the ensuing five-year period was announced by Prime Minister Abe. Through this partnership, the government aims to further mobilize private-sector funds and expertise to realize infrastructure investments that are sufficient in terms of both quality and quantity. In November of the same year, the Prime Minister announced that systemic improvements of yen loans and overseas investments and loans and other more specific measures for the Partnership for Quality Infrastructure would be carried out.

Prior to the G7 Ise-Shima Summit in May 2016, the Expanded Partnership for Quality Infrastructure Initiative announced by Prime Minister Abe set out policies to expand the target area from Asia to the entire world, and to provide USD 200 billion of investments over the ensuing five-year period. The participants of the G7 Summit reached a consensus regarding the importance of the global community sharing a common understanding of the basic elements of Quality Infrastructure Investment, and agreed upon the G7 Ise-Shima Principles for Promoting Quality Infrastructure Investment.

2 Initiatives of the Ministry of Land, Infrastructure, Transport and Tourism

In accordance with the abovementioned strategy and by making the most of the aforementioned systemic improvements, MLIT will powerfully advance the overseas developments of infrastructure systems in sectors MLIT is concerned. In order to successfully overcome competition with foreign countries and win bids for Japanese companies, we must rely on Japan’s strengths, such as by building safe and reliable systems that combine structural and non-structural aspects, while flexibly addressing the needs of recipient countries. Therefore, we are planning to promote three pillars of the applicable measures: (i) “upstream” planning and information sharing, (ii) mitigation of business risks, and (iii) overseas development of soft infrastructure.

(i) ‘Upstream’ planning and information sharing

In order to promote participation from the concept stage of each project (upstream), Japan will appeal its technology to foreign countries, especially how it provides safety, reliability, and superior cost-effectiveness in the long run, including with respect to the operations stage. Japan will share these information by utilizing trade promotion activities carried out through joint efforts by leaders in the public and private sectors, organizing city tours for foreign ambassadors in Japan, and taking advantage of opportunities at international conferences.

(ii) Mitigating business risks

We established the Japan Overseas Infrastructure Investment Corporation for Transport and Urban Development (JOIN) in October 2014 to reduce business risks—such as huge initial investments, long-term maintenance requirements, and demand risks—incurred by companies expanding into downstream (management and operations) functions in the field of transportation and urban infrastructure, and are seeking to provide multifaceted support to Japanese companies involved in the overseas development of infrastructure systems through the proactive use of JOIN, as well as through such means as the establishment of a hotline for overseas construction and safety measures to serve as a liaison to help resolve problems faced by companies that challenges into overseas markets; the dissemination of updated information through databases of overseas construction, real estate markets and etc.; support through mission dispatches and other efforts to help small and medium-sized construction firms develop into overseas markets; and support for developing into third countries that collaborate with geopolitically important countries.

(iii) Overseas development of soft infrastructure

Various efforts are underway to create an environment ideal for Japanese companies to participate in projects, including international standardization of Japanese technologies and systems, becoming the “de facto standard” of partner countries, supporting for institutional development of partner countries to improve the business environment for Japanese companies, and supporting for training engineers and skilled workers that contribute to sustaining administration and maintenance of infrastructure in partner countries.

(1) Establishment of System to Promote Overseas Infrastructure System Development

Regarding overseas infrastructure projects where MLIT is concerned, in order to strongly promote the development of Japanese business firms to go overseas, the Cabinet approved the Act for Promotion of the Participation of the Japanese Business in Overseas Infrastructure Projects in March 2018 and submitted it to the Diet, which enables the minister for MLIT to set up basic policies of overseas social infrastructure development, and which enables administrative agencies to do investigations and etc. overseas, so as to engage in overseas projects.

(2) Top Sales Promotion

In FY 2017, Keiichi Ishii, the Minister of Land, Infrastructure, Transport and Tourism, visited eight countries including Malaysia, Singapore, Indonesia and the United States of America, and engaged in top sales of Japanese infrastructure systems by holding discussions and exchanging opinions with top officials and cabinet ministers authorized in the same sectors in these countries. In addition, the State Ministers and Parliamentary Vice-Ministers of the MLIT visited a total of 21 countries including Myanmar, Colombia and Senegal, and promoted Japan’s infrastructure systems to countries with potential infrastructure demands. Additionally, visits to Japan by foreign ministers and dignitaries, the hosting of seminars, and other such opportunities were actively used to send messages of the superiority of Japanese infrastructure systems.

Column**Strong Promotion of Top Sales**

During FY 2017, the Minister, State Ministers, and Parliamentary Vice-Ministers of the MLIT conducted sales promotion of Japan’s infrastructure systems to key government officials. Here, we introduce examples of top sales by the Minister.

(1) Official trip to Singapore and Malaysia by Minister Keiichi Ishii.

In August 2017, Minister Keiichi Ishii visited Singapore and Malaysia to hold bilateral meetings to promote the Japanese Shinkansen system to key government officials and discuss cooperation in the infrastructure and transport sectors.

In Singapore, he attended a symposium on high-speed rail and expressed his intent to share the experience, skills and know-how Japan has gained from its Shinkansen system with key persons in Singapore and to deepen the relationship between the two countries. He also attended the port seminar, and urged the need of strengthening of cooperative relations with Japan to promote LNG bunkering and to work toward the realization of a next-generation container terminal.

In Malaysia, Minister Ishii attended a ceremony to commemorate the establishment of the ASEAN Regional Training Center for marine traffic control where he stressed the significance of Japanese support in the establishment of the center as part of enhancing ASEAN navigation safety measures, and expressed his hopes that the center will ensure the safety of marine transportation for ASEAN in the future and lead to the further development of cooperative relations between Japan and ASEAN.

(2) Official trip to Myanmar by Kazuo Yana, Parliamentary Vice-Minister of MLIT

In November 2017, Parliamentary Vice-Minister Kazuo Yana attended a ceremony on urban development projects by Japanese companies in Yangon, Myanmar. As these projects are symbolic of friendly relations between Myanmar and Japan, he expressed his intent to provide the utmost support for the realization of many projects by Japanese companies, and to contribute to the development and resolution of urban problems in Myanmar. Parliamentary Vice-Minister Yana also toured the sites of ongoing urban development projects promoted by Japanese companies.

(3) Official trip to Sri Lanka and India by Minister Ishii

In December 2017, Minister Ishii engaged in discussions about infrastructure and transportation sector policy with key persons from the Sri Lankan and Indian governments. The officials exchanged opinions about cooperation with Sri Lanka in the fields of water- and sediment-related disasters, the need for sewage system improvement triggered by urbanization, and more, and cooperation with India on high-speed railway projects and other railway projects, urban development around high-speed railway stations, roads and more.

Discussions with Malaysia Prime Minister Najib Razak



Source) MLIT

Parliamentary Vice-Minister Kazuo Yana delivers the greeting at a ceremony



Source) MLIT

Discussions with India Minister of Railways, Coal and Corporate Affairs Piyush Goyal



Source) MLIT

(4) Official trip to Senegal and Morocco by Takao Makino, State Minister of MLIT

In January 2018, State Minister Takao Makino was joined by roughly 20 member companies of the Japan-Africa Infrastructure Development Association (JAIDA), which was launched in September 2016, in hosting a public-private infrastructure conference in Senegal. At the conference, and in the presence of Senegal President Macky Sall, State Minister Makino and Senegal Minister of Infrastructure, Land Transport and Opening-Up Abdoulaye Daouda Diallo signed a memorandum of understanding on the promotion of Japan's Quality Infrastructure Investment and the continuation of cooperative relations, and agreed to launch a Dialogue on Quality Infrastructure so that the discussion would continue after the conference. The two sides also exchanged views on projects that are expected to involve the cooperation of Japanese companies, such as the "Project for Rehabilitation of the Third Wharf in Dakar Port" and the "Mamelles Seawater Desalination Project."

In Morocco, State Minister Makino and Morocco Minister of Equipment, Transport, Logistics and Water Abdelkader Aâmara signed a memorandum of understanding concerning the cooperative promotion of Japan's Quality Infrastructure Investment in which the two countries agreed to deepen cooperative relations to promote the development of quality infrastructure jointly with Morocco and other African countries. He also recommended Japanese companies to top-level officials in hopes of winning bids for Japanese firms in the "Kenitra Atlantic Ocean New Port Construction Project."

(5) Official trip to the USA by Minister Ishii

In January 2018, Minister Keiichi Ishii held Japan Infrastructure Investment Forum 2018 in Washington D.C. based on a memorandum of cooperation in the field of transportation infrastructure signed with the US Department of Transportation in October 2017. In the keynote speech, which Minister Ishii jointly delivered with US Secretary of Transportation Elaine Chao, he stressed the importance and possibilities of Japan-US cooperation in infrastructure maintenance to the attendees.

He also exchanged opinions with Secretary Chao and US Secretary of Housing and Urban Development Ben Carson in bilateral discussions about the Texas high-speed railway, Japan-US infrastructure cooperation and future housing and urban policy.

Conclusion of memorandum of understanding between State Minister Makino and Senegal Minister of Infrastructure, Land Transport and Opening-Up Abdoulaye Daouda Diallo



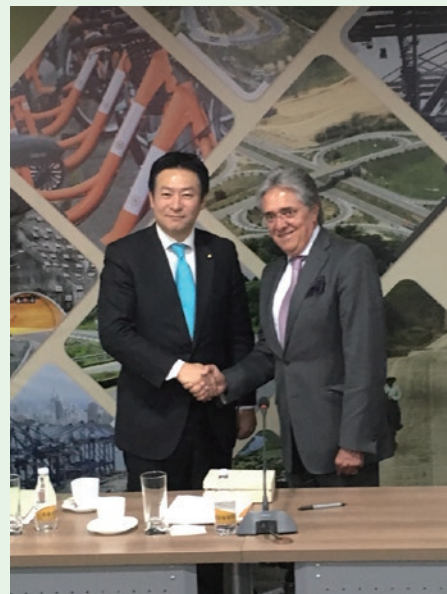
Source) MLIT

Discussions with US Secretary of Transportation Elaine Chao



Source) MLIT

Discussions with Colombia Minister of Transport Germán Cardona



Source) MLIT

(6) Official trip to Panama and Colombia by Tsukasa Akimoto, State Minister of MLIT

In January 2018, State Minister Tsukasa Akimoto made an official trip to Panama and Colombia. In Panama, he participated in the Japan-Panama Dialogue on Maritime Affairs Policy with the CEO of the Panama Canal Authority Jorge L. Quijano and Panama Deputy Administrator of the Panama Maritime Authority Agustin Moreno. The two sides agreed to continue to deepen cooperation between the two nations. In Colombia, State Minister Akimoto met with Colombia Minister of Transport Germán Cardona to exchange views on cooperation on railway projects such as the Bogotá Metro, and in the infrastructure such as ports and harbors) and transportation sectors.

(3) Formulating Action Plan 2018 of the Ministry of Land, Infrastructure, Transport and Tourism for Overseas Development of Infrastructure Systems

The demand for infrastructure has rapidly increased in various countries including neighboring ASEAN member countries, and the heightened competition of winning bids has been getting fiercer. The government as a whole has strived to achieve the “Partnership for Quality Infrastructure” delivered by Prime Minister Abe through, for example, fundamental institutional improvements to win more orders. The role of the MLIT is large in Japan’s overseas development of infrastructure, and this must be further promoted through new activities which act accordingly to changes in the present situation in concert with national diplomacy strategies, while continuing and strengthening current efforts and making most of institutional improvements. In light of the submission of the Act for Promotion of the Participation of the Japanese Business in Overseas Infrastructure Projects and the progress of various projects and other matters, Action Plan 2018, which was devised in March 2018, sets out five strategies: (1) establishment of “Team Japan”, (2) strengthening of competitiveness, (3) measures towards increasing PPP projects, (4) increasing opportunities to win business through contributions to partner countries, and (5) continuous support for companies after contracting. The Plan also includes specific efforts in diverse fields including railways, ports and harbors, airports, urban/real estate development, and the construction industry.

(4) Further Use of Private-Sector Funds for the Overseas Development of Infrastructure Systems

The world-wide infrastructure market is projected to continue growing; in particular, we are seeing more requests for public-private partnerships (PPP) based on the use of private-sector funds. However, since transportation and urban development projects are characterized as long-term development, demand risks during the operations stage, and local government organs exercising their influence, participation by private-sector players alone is sometimes challenging.

For this reason, the MLIT established the Japan Overseas Infrastructure Investment Corporation for Transport and Urban Development (JOIN) in October 2014 to carry out capital investments and participate in projects on an integrated basis in accordance with demand risks in order to help Japanese private companies participate in overseas markets for transportation and urban development. Until today, JOIN has decided (with the authorization of the Minister of the MLIT) to provide support on eleven projects involving ports and harbors, railways, urban development and logistics. In addition, in light of the Quality Infrastructure Export Expansion Initiative announced by Prime Minister Abe in May 2016, we have implemented further systemic improvements for the overseas development of quality infrastructure, such as revising government ordinances and deregulating the “biggest investor standard.” Furthermore, we have concluded memorandums of understanding with private companies and relevant government organizations from Singapore, Argentina and other countries. In FY 2018, 126.8 billion yen was posted to the Fiscal Investment and Loan Program (63.9 billion yen for industry investments and 62.9 billion yen for government guarantees). JOIN will continuingly be utilized proactively.

(5) Promoting International Strategic Public Relations

In order to further advance the overseas development of infrastructure systems, initiatives for strategic publicity shall be promoted, such as by producing and effectively highlighting public relation to convey the concept of a high-quality infrastructure, a salient feature of infrastructure systems in Japan, in an easy-to-understand manner. We will utilize the videos that we produced which specifically convey the concept of high-quality infrastructure, at top-level trade promotion activities, occasions when dignitaries visit Japan and seminars. We will also call for online broadcasting channels and

transmission media to reach broad audiences in targeted countries and regions.

(6) Initiatives in Different Countries and Regions

In addition to the aforementioned initiatives, public-private partnership-based infrastructure conferences and bilateral dialogues are being continued to promote greater understanding of high-quality infrastructure investments advocated by Japan as a way to create opportunities to advance the overseas development of infrastructure systems through public-private partnerships. Overseas public-private partnership councils have also been established in different fields of infrastructure—namely eco-cities, water, roads, disaster prevention, rail, ports and harbors, and aviation—to facilitate sharing information on Japanese infrastructure.

For example, in developing Talks for Cooperation in Disaster Prevention in the pursuit of solutions for an emerging country dealing with disaster-prevention issues in collaboration with academic, business, and government circles in both countries, Japanese technologies would be introduced and proposed to the government of the other country through a partnership with the Japan Disaster Prevention Platform, an organization building a cooperative framework among academic, business, and government circles established in June 2014. In order to promote such projects as those involving participation in the development and operations of ports and harbors in Myanmar, Indonesia, Kenya, Mozambique and elsewhere, the introduction of port EDI system in Myanmar and Cambodia, and the introduction of national technical standards for port and harbor facilities in Vietnam, the development of human resources is being enriched, and information sharing, exchanges of views and other efforts through the Overseas Port Logistics Projects Council are being implemented. In addition, public-private partnership initiatives are being carried out through the Japan Conference on Overseas Development of Eco-Cities and other such bodies tasked with promoting urban development overseas, and support was provided for Japan to have an exhibition booth at MIPIM, an international real estate show for professionals (held in Cannes, France in March 2016).

In addition, we have implemented verification projects regarding the modernization of agricultural product logistics systems in Myanmar and the promotion of the use of freight railways in India as a logistics pilot project for the overseas development of Japanese quality logistics systems.

The MLIT has also cooperated with Japanese expressway companies to develop Japanese quality expressway systems overseas; in FY 2017, we participated in overseas toll road projects in Vietnam with the Central Nippon Expressway Company and in India with the East Japan Expressway Company.

In June 2017, we launched the Japan Association of Small and Medium-Sized Enterprises for Overseas Construction (JASMOC) to promote development into the international market by small and medium-sized Japanese construction companies, and have hosted seminars in Japan, dispatched missions and made other efforts to help those companies sell their distinct technologies and make connections with key persons in foreign countries.

Discussions, collaborations, and other initiatives promoting the overseas development of infrastructure systems and undertaken with different regions and countries in FY 2017 are outlined below.

(i) ASEAN region

In the ASEAN Economic Community (AEC), which was launched at the end of 2015 in pursuit of the realization of a giant single market, emphasis on economic development through the reinforcement of regional connectivity and other efforts have produced expectations of increased activity in the movement of people, goods and other items in the future.

Amidst a growing number of requests for system development support from developing countries and other ASEAN member states, and to promote the development of human resources capable of spreading the development of systems related to land and construction, in September 2017, the MLIT brought government workers from the ASEAN member states together in one place to implement a construction policy program that provided courses on relevant systems and on-site inspection tours.

In FY 2017, we implemented the following bilateral efforts with the respective ASEAN member states.

- Indonesia

In July 2017, Indonesia Minister for Public Works and Housing Basuki Hadimuljono and others were invited to Japan. Minister Basuki and MLIT Minister Ishii held meetings where they exchanged views on cooperation involving social

infrastructure improvement—namely road and dam redevelopment and sewage systems—and confirmed their intent to further improve bilateral relations.

In October 2017, we co-hosted the Japan-Indonesia Technology Corporation Seminar with the Bandung Institute of Technology for the purpose of helping small and medium-sized Japanese construction companies sell their technologies and make connections with key people in Indonesia.

In November 2017, the eighth meeting of the Japan-Indonesia Senior Transport Officials was held in Tokyo. At this meeting, opinions were exchanged on solutions to issues, the future direction of cooperation and other matters concerning railways, ports and harbors, aviation and other important matters for cooperation between the two countries in the transportation sector. The two sides confirmed their intent to continue cooperating and collaborating closely on structural aspects such as infrastructure construction as well as non-structural aspects such as system establishment and human resources development. In addition, at the 10th Japan-Indonesia Conference on Construction, which was held in Jakarta, opinions were exchanged about the construction industry, namely efforts to improve productivity and future policy for the industry.

In December 2017, Indonesia Coordinating Minister for Maritime Affairs Luhut Binsar Pandjaitan visited Japan and held a meeting with MLIT Minister Ishii. At this meeting, the two sides confirmed their intent to further improve cooperative relations between Japan and Indonesia heading into 2019, which marks the 60th anniversary of the establishment of diplomatic relations between the two countries. In addition, the Seminar on Dam Rehabilitation and Bridges was held in Jakarta. At the seminar, which was attended by Minister Basuki, detailed proposals from Japan regarding dam rehabilitation and bridge deterioration/earthquake-proofing countermeasures and other matters were explained and shared with many key people from the Indonesia side.

In January 2018, the fifth meeting of the Japan-Indonesia Senior Construction Officials was held in Tokyo in conjunction with the Indonesia Ministry of Public Works and Public Housing. The overall meeting was broken down into themes such as dam rehabilitation and tunnel technology. The fields of roads, housing and construction, disaster prevention and water resources, sewage systems, and construction were discussed in individual working groups. In addition, the two sides exchanged information about efforts, challenges, technology and other matters in both countries alongside poster presentations that introduced the technology of Japanese companies.

- Thailand

In May 2017, MLIT Parliamentary Vice-Minister Yukinori Nemoto made an official trip to Thailand, where he held discussions about policy issues in the railway, transportation safety, flood countermeasures, bus transportation and other sectors.

During a visit to Japan by Thailand Deputy Prime Minister Somkid Jatusripitak, Minister of Transport Arkhom Termpittayapaisith and Minister of Science and Technology Achaka Sriboonreung in June 2017, the third meeting of the Japan-Thailand High Level Joint Commission was held with Chief Cabinet Secretary Yoshihide Suga and MLIT Minister Ishii in attendance to promote cooperation projects between the two countries. At the meeting, Minister Ishii concluded two memoranda of cooperation, one with Minister Arkhom concerning the railway sector, and another with Minister Achaka for the establishment of a network of GNSS-based control stations.

In December 2017, MLIT State Minister Takao Makino made an official trip to Thailand, where he engaged in top sales and policy discussions about development, mainly in the railway and tourism sectors. State Minister Makino also submitted the final report of the feasibility study on the high-speed railway from Bangkok to Chiang Mai to Minister Arkhom, and encouraged the Thai government to approve the project as quickly as possible to enable the introduction of a Japanese Shinkansen system.

In February 2018, the MLIT introduced Japan's systems and technology related to recycled asphalt in a seminar dedicated to the topic in order to promote the establishment and diffusion of construction recycling systems.

- Vietnam

In April 2017, MLIT Minister Ishii held a meeting with Ho Chi Minh City Communist Party Committee Secretary Tan, who was on an official visit to Japan. At the meeting, they exchanged views on the development of underground shopping areas, railways, roads and other infrastructure in Ho Chi Minh City.

That same month, Minister Ishii held a meeting with Vietnam Minister of Planning and Investment Zun, who was on an official visit to Japan. At the meeting, they exchanged views on airports, underground shopping area development, railways, roads, ports and harbors, automobiles and other sectors in Vietnam.

In June 2017, MLIT Parliamentary Vice-Minister Ono and Vice-Minister for Engineering Affairs Mori individually held meetings with Vietnam Vice-Minister of Transport Duong, who was on an official visit to Japan. At these meetings, they exchanged views on ports and harbors, airports, roads and other sectors in Vietnam. In addition, at the Akasaka State Guest House, with Prime Minister Abe and Vietnam Prime Minister Nguyen Xuan Phuc witnessing, a “Memorandum on Cooperation in Developing National Technical Standards for Port and Harbor Facilities,” and a “Memorandum of Cooperation Regarding Expressway PPP Projects,” which aims to actualize PPP projects for expressways in Vietnam, were signed with the Vietnam Minister of Transport.

In July 2017, Vice-Minister for International Affairs of MLIT Narahira made an official trip to Hanoi, Vietnam, and held a meeting of the Japan-Vietnam Senior Transport Officials. At the meeting, senior transport officials engaged in policy discussions about matters for cooperation between the two countries in the transportation sector.

In October 2017, as part of the Disaster Management Collaborative Dialogue with the Vietnam Ministry of Agriculture and Rural Development (MARD), the MLIT hosted a public-private workshop with Vietnam where efforts were made to enhance disaster prevention cooperation in both countries under public-private cooperation in the field of landslides and sediment disasters.

In November 2017, a joint job fair for Vietnamese technical university students was held in pursuit of building networks in Vietnam and securing and training human resources who can contribute to the expansion of Japanese companies into Vietnam.

In December 2017, in order to strengthen cooperative relations between Japan and Vietnam and land-related sectors and provide support for establishing legislation, the two sides shared knowledge and experience and concluded a memorandum of understanding concerning the joint promotion of pilot projects for introducing information systems concerning Japanese-style land evaluation in Vietnam. In addition, the MLIT worked together with the National Graduate Institute for Policy Studies to implement training for Vietnamese government personnel to support the improvement and diffusion of land-related systems.

In December 2017, MLIT State Minister Makino made an official trip to Vietnam, where he engaged in top sales to promote exchange in the tourism sector, the development of cooperation projects in which the introduction of Japanese quality transportation infrastructure systems are investigated, and other matters to key people in Vietnam.

In January 2018, MLIT Parliamentary Vice-Minister Tsukasa Akimoto made an official trip to Vietnam, where he participated in the Japan-Vietnam Transportation Technology Cooperation Seminar. At the seminar, Parliamentary Vice-Minister Akimoto furthered understanding of Japanese Quality Infrastructure by introducing soft infrastructure (technology/standards, operation and management, human resources, etc.) and the Japanese transportation sector in an effort to promote the production of Japanese infrastructure in Vietnam.

At the 10th Vietnam Expressway Seminar held in the same month, opinions were exchanged about systems in Vietnam, Japan’s efforts in Vietnam, including proposals regarding PPP projects for roads.

In February 2018, the MLIT introduced Japan’s systems and technology related to recycled asphalt in a seminar dedicated to the topic in order to promote the establishment and diffusion of construction recycling systems.

In March 2018, the 11th intergovernmental conference regarding the sewerage sector was held based on the memorandum of cooperation in the sewerage sector concluded with the Vietnam Ministry of Construction (and updated in April 2017).

- Philippines

In November 2017, the first Japan-Philippines Conference on Construction was held to strengthen relationships in the construction sector and for other purposes. At the conference, opinions were exchanged about efforts related to training human resources in construction and other matters.

- Malaysia and Singapore

In April 2017, a meeting of the Japan-Singapore Senior Transport Officials was held in Singapore. At the meeting—the

first since the two countries agreed at the Japan-Singapore Summit Meeting held in September 2016 to host meetings of senior officials from relevant ministries and agencies to strengthen bilateral cooperation in the land, sea and air transport sectors—the two sides exchanged views on the state of current efforts, the direction of future cooperation and other matters concerning the various transport sectors.

In April 2017, a memorandum of cooperation in the port and harbor sector was concluded with the Maritime and Port Authority of Singapore. Based on this memorandum, in August 2017, the Singapore & Japan Port Seminar 2017 was held, and the Japan-Singapore Joint Study on LNG Bunkering was launched.

On official trips to Malaysia and Singapore in May and August 2017, MLIT Minister Ishii exchanged opinions with key people from both governments about cooperation in the transportation, urban development and other infrastructure and transport sectors, and bilateral cooperation in the tourism sector. He also attended symposia on high-speed railways in Malaysia in May and in Singapore in August, where he stressed the social and economic advantages Malaysia and Singapore stand to gain from introducing a Japanese Shinkansen system, as well as the human resources development, technology transfer and other benefits of cooperation with Japan.

In December 2017, MLIT Parliamentary Vice-Minister Akimoto made an official trip to Malaysia, and held meetings with Malaysia Deputy Prime Minister Devamany and Ministry of Natural Resources and Environment Vice-Minister Hamim. At the meeting with Deputy Prime Minister Devamany, Parliamentary Vice-Minister Akimoto promoted Japan's role in the Malaysia-Singapore high-speed railway plan and confirmed Japan's intent to continue to implement human resources development and strengthen cooperative relations between the two countries to enable the introduction of a Japanese Shinkansen system. At the meeting with Vice-Minister Hamim, Parliamentary Vice-Minister Akimoto confirmed Japan's intent to cooperate toward finding solutions in the field of water-related disasters—which is significant because flood damage occurs often in both Japan and Malaysia—and to continue to share knowledge about the advanced use of geospatial information.

- Myanmar

In July 2017, JOIN decided (with the authorization of the Minister of MLIT) to provide support for an urban development project that calls for the construction and operation of a complex in downtown Yangon.

In October 2017, Vice-Minister for International Affairs of MLIT Narahira made an official trip to Naypyidaw, Myanmar, and held a meeting of the Japan-Myanmar Senior Transport Officials. At the meeting, policy discussions were held about matters for cooperation between the two countries in the transportation sector.

In November 2017, MLIT State Minister Makino held a meeting with Myanmar Ministry of Transport and Communications Vice-Minister Kyaw Myo, who was on an official visit to Japan. At the meeting, the two sides exchanged opinions on projects in the railway and airport sectors in Myanmar as well as traffic mitigation and transportation safety measures in Yangon.

That same month, in light of the 2016 memorandum of cooperation concerning the housing and urban sectors in both countries, the MLIT provided support for housing finance, and made a preliminary announcement about the Housing Finance Expansion Project, an ODA loan.

In December 2017, MLIT Minister Ishii made an official trip to Yangon, Myanmar, where he attended the third Asia-Pacific Water Summit. Minister Ishii gave speeches at the opening ceremony as well as three different sessions with the themes of water and disasters, water cycles, and sewage systems. He spoke about Japan's experiences in dealing with its own water-related issues to demonstrate Japan's presence in the field, and promoted Japanese technology for resolving those issues in an effort to contribute to the overseas development of infrastructure systems.

In January 2018, the MLIT held Talks for Cooperation in Disaster Prevention with the Myanmar Ministry of Agriculture, Livestock and Irrigation, the Ministry of Transport and Communications, and the Ministry of Social Welfare, Relief and Resettlement, and exchanged opinions regarding cooperation concerning disaster prevention policy in both countries.

In March 2018, we helped host the third Myanmar-Japan Construction Round Table to facilitate practical discussion regarding highly detailed and urgent issues in the construction sector. In addition, the MLIT worked together with the National Graduate Institute for Policy Studies to implement training for Myanmar government personnel to support the improvement and diffusion of land-related systems.

That same month, the fifth meeting of Myanmar-Japan Senior Construction Officials was held, and participants en-

gaged in policy discussion regarding roads, the construction industry, urban development and housing.

- Cambodia

In May 2017, MLIT Minister Ishii made an official trip to Cambodia, where he engaged in top sales and exchanged opinions with key government officials about cooperation in the road, port and harbor, automobile, urban development, sewage system, tourism exchange and other infrastructure, transport and tourism sectors.

In response to a request from Cambodia, JICA conducted technical training in Japan in June 2017 and held a seminar in Cambodia in December 2017 as part of Country-Focused Training: Housing Policy, a three-year plan launched in 2016.

In August 2017, when Cambodia Prime Minister Hun Sen made an official trip to Japan, the MLIT provided on-site inspection tours of New Transit Yurikamome and promoted the technology of Japan's new transportation systems. Also regarding new transportation systems, we provided an on-site inspection tour of Yokohama Seaside Line to the Cambodia Minister of Public Works and Transport on their visit to Japan in November 2017.

Starting in August 2017, the MLIT dispatched experts to Cambodia on four occasions to offer assistance in drafting a bill for construction legislation based on the memorandum of cooperation concluded with the Cambodia Ministry of Land Management, Urban Planning and Construction in January 2017.

In November 2017, Minister Ishii held meetings with Cambodia Minister of Land Management, Urban Planning and Construction Sun Chanthol, who was on an official visit to Japan. At the meetings, Minister Ishii engaged in top sales regarding Japan's roads, ports and harbors, automobiles, urban development, sewage systems and more. The MLIT also hosted an international logistics seminar on the theme of logistics in order to promote the participation of Japanese companies in logistics projects in and around Cambodia, which is located in the center of the Southern Economic Corridor.

- Laos

In April 2017, MLIT Parliamentary Vice-Minister Nemoto made an official trip to Laos, where he engaged in policy discussions with key government officials about policy issues in the air transport, road, construction industry, logistics and other sectors. He also attended the handover ceremony for the meteorological system developed with support from Japan.

In July 2017, Laos Ministry of Public Works and Transport Bunchan made an official visit to Japan, where he exchanged opinions about infrastructure development and human resources development in the air transport, road and construction sectors in Laos.

(ii) South Asia

- India

In September 2017, during Prime Minister Abe's visit to India, letters regarding the first ODA loan (100 billion yen) were exchanged at the groundbreaking ceremony for the Mumbai-Ahmedabad High-Speed Railway Project.

In October 2017, the MLIT helped host the Workshop on Structural Seismic Isolation and Mitigation Technology Diffusion with the aim to promote understanding of Japanese structural earthquake-proofing technology, namely seismic isolation and mitigation technology.

In November 2017, the fourth meeting of the Japan-India Joint Working Group on Road and Road Transport was held, giving the opportunity of exchanging opinions about disaster restoration and reconstruction measures in mountainous areas, the development of bridge technology, ITS policy, rest facilities on expressways, and more.

In addition, in December 2017, the 10th Japan India Joint Working Group on Urban Development was held, and participants shared information and exchanged opinions about urban transportation, urban development and aquatic environments. Also, JOIN decided (with the authorization of the Minister of the MLIT) to provide support for a project involving participation in toll road management through the acquisition of a portion of the shares of the company that manages and operates India's existing toll roads.

Furthermore, that same month, MLIT Minister Ishii made an official visit to India, and held meetings with India Minister of Railways, Coal and Corporate Affairs Piyush Goyal and other key government officials. At these meetings, opinions were exchanged about cooperation in high-speed railway and other railway projects, urban development around high-speed railway stations, roads and other infrastructure and transport sectors.

- Sri Lanka

In December 2017, MLIT Minister Ishii made an official trip to Sri Lanka, where he exchanged opinions with key government officials about cooperation concerning water- and sediment-related disasters, sewage system improvement, the climate and other sectors.

In February 2018, the Japan-Sri Lanka Real Estate Development Seminar was held to facilitate exchanges of views about establishing cooperative relations in the real estate development sectors in both countries, as well as issues in promoting investment in both countries.

- Bangladesh

In June 2017, a memorandum of understanding concerning the establishment of a framework that grants Japanese companies preferential negotiation rights and an exemption from the competitive bidding process in specified PPP projects was concluded with the Bangladesh PPP Authority. In August 2017, the Japan-Bangladesh PPP Joint Committee was established to work toward the formulation of specific projects, and in December 2017, Japan hosted the first Japan-Bangladesh Joint PPP Platform Meeting with relevant ministries and agencies from Bangladesh.

(iii) USA

Collaboration with the USA on economic aspects continues through the Japan-US Economic Dialogue launched in April 2017, which is steered by collaboration toward the actualization of the Texas high-speed railway—a project symbolic of Japan-US cooperation—joint research by the two countries on housing for elderly people, and other efforts in the transport infrastructure sector.

At the G7 Transport Ministers' Meeting held in Cagliari, Italy in June 2017, MLIT Minister Ishii and US Secretary of Transportation Elaine Chao confirmed the aim to intensify a wide range of collaboration in the transport infrastructure sector. Then, in October 2017, the MLIT and the US Department of Transportation signed a memorandum of cooperation.

As the first step toward cooperation based on this memorandum, Japan Infrastructure Investment Forum 2018 was held in Washington DC, USA in January 2018. The forum featured a joint keynote speech delivered by MLIT Minister Ishii and Secretary Chao, panel discussions and seminars about PPP and infrastructure maintenance, and the sharing of the latest technology and experiences of the two countries. With participation by 230 people from 120 groups including private sector companies from Japan and the US, the forum was an opportunity to establish networks that transcend national borders.

(iv) Middle East

- Saudi Arabia

In July 2017, Saudi Arabia Vice-Minister of Economy and Planning Mohammed Al Tuwaijri made an official visit to Japan. The MLIT provided on-site inspection tours of disaster prevention centers, and MLIT Parliamentary Vice-Minister Nemoto engaged in top sales regarding our efforts toward disaster prevention.

- Israel

During a visit to Japan by Israel Minister of Transportation and Road Safety Yisrael Katz in October 2017, the MLIT and the Israel Ministry of Transportation and Road Safety concluded a memorandum of cooperation in the transport sector that aims to promote participation by Japanese companies in public transportation infrastructure development in the two countries.

- Turkey

In March 2018, with the aim of supporting the expansion into third countries on which Japanese and Turkish companies had cooperated, the MLIT and the Turkey Ministry of Economy jointly hosted the fourth Japan-Turkey Construction Industry conference, where business matching and other efforts were carried out to expand business for collaborating companies from both nations in Africa, the Middle East, Central Asia and elsewhere.

(v) Russia

The MLIT is promoting cooperation in the urban environment and transportation infrastructure sectors based on the Cooperation Plan for Russia Living Environment Superpower, Industrial/Economic Reform, which is a comprehensive policy of the Russian government. At the Eastern Economic Forum in September 2017, the heads of state from both countries agreed to promote the further specification of the Cooperation Plan. We are driving forward with cooperation for Russia's urban environment sector through the Japan-Russia Urban Environment Issues Working Group, which works toward the realization of creating comfortable, clean cities that are easy to live and move about in, which is one of the eight items of the Cooperation Plan. The seventh general meeting was held in March 2017, and the eighth was held in August of that year. We completed an urban development pilot project in the model city of Voronezh, and in December 2017, we presented to the Russian side an urban development concept organized on the Japanese side for the city of Vladivostok.

In addition, the fourth senior officials' meeting of the Japan-Russia Working Group on Transportation was held in August 2017, and the participants exchanged opinions about railways, ports and harbors, air transport and other sectors. Furthermore, experts exchanged opinions at the second meeting of Japanese and Russian port authorities in April 2017 and the fourth meeting of Japanese and Russian railway experts in August 2017.

(vi) Central Asia

As a follow-up to Prime Minister Abe's visit to the Central Asia region in October 2015, a seminar to present the technology of Japanese companies that contribute to Quality Infrastructure was held in Uzbekistan in July 2017. In addition, in September 2017, the second Japan-Kyrgyzstan Public-Private Infrastructure Conference was held in Tokyo, and MLIT State Minister Makino and Kyrgyzstan State Agency for Investment and Export Promotion Secretary Orozobekofu signed a memorandum of understanding for continuing cooperative relations in the infrastructure sector.

(vii) Latin America

In July 2017, MLIT State Minister Tanaka made an official trip to Mexico, Peru, Argentina and Brazil, where he engaged in top sales regarding the infrastructure and transport sectors with key people in the national and state governments in each country.

In October 2017, Federico Gutiérrez, the mayor of Medellín, Colombia, made an official visit to Japan. We provided on-site inspection tours of cases of urban transportation and urban development, and MLIT Parliamentary Vice-Minister Takahashi promoted Japanese urban development and urban transportation technology at meetings with Mayor Gutiérrez.

In January 2018, MLIT State Minister Akimoto made an official visit to the Republics of Panama and Colombia. In Panama, he participated in a dialogue on maritime policy, and in Colombia, he engaged in top sales to key government officials about the railway and port and harbor sectors.

In February 2018, we hosted an Urban Transportation Seminar in Medellín to promote the overseas development of Japanese urban transportation systems.

In March 2018, Parliamentary Vice-Minister Akimoto visited the Federative Republic of Brazil and the Republic of Peru, and attended the eighth World Water Forum in Brazil. At the ministerial-level meetings, he presented information about the need for societies to be aware of water-related disaster prevention, and how efforts related to water cycles and other efforts by Japan can contribute to the sustainable development of countries throughout the world. The ministerial declaration that summarized the meetings demonstrated awareness of the importance of water cycle-oriented perspectives, and incorporated matters such as the securement of sufficient financial resources for disaster countermeasures. In Peru, Parliamentary Vice-Minister Akimoto engaged in top sales regarding the urban transportation sector.

(viii) Africa

We used the Japan-Africa Infrastructure Development Association (JAIDA), which was founded based on the ministerial declaration adopted at the Japan-Africa Public-Private Infrastructure Conference held in August 2016 in Kenya to coincide with TICAD VI, to proactively disseminate information to the nations of Africa regarding Japanese technology and experience in supporting Quality Infrastructure, and to promote the establishment of relationships with both public and private entities and partner countries.

In FY 2017, we hosted (ministerial-level) public-private infrastructure conferences in Ghana, Madagascar and Senegal

for the first time; to that point, the conferences had been held in eight African countries (Kenya, Ethiopia, Mozambique, Tanzania, Côte d'Ivoire, Nigeria, Uganda and Zambia). At the conferences, we agreed with the partner countries to launch Quality Infrastructure Dialogues (QID) as a way to continue the good relationships built at the conferences and to provide regular opportunities for people concerned to exchange opinions.

We also held the second Public-Private Infrastructure Conference with Uganda in Tokyo, and hosted QID with Zambia and Madagascar.

(ix) China

The ninth Japan-China High-Level Talks on Transportation were held in Tokyo in June 2017 to facilitate policy dialog at a vice-ministerial level between Japan and China on transportation sector issues facing both countries. The two sides exchanged opinions on three topics—(1) the state of autonomous driving and other smart transportation technology development in both Japan and China, (2) the progress of action plans agreed upon at the China-Japan-Korea Ministerial Conference on Maritime Transport and Logistics, and efforts toward environmentally-friendly logistics, and (3) efforts toward the realization of comprehensive development of intercity transport in both Japan and China—and agreed to continue driving forward with bilateral cooperation in the transport sector.

Section 2 Promotion of International Cooperation and Negotiations

1 Initiatives in the Field of Economic Partnerships

(1) Trans-Pacific Strategic Economic Partnership (TPP) Agreement

The TPP Agreement constitutes an economic partnership agreement forming the basis of rules governing trade and economic activities in the Asia-Pacific region as well as a pillar for a Japanese growth strategy to help the Asia-Pacific region grow. Japan participated in negotiations in July 2013, and the parties of the partnership reached an agreement in principle in October 2015. Japan signed the agreement in February 2016, and the National Diet approved it and established relevant bills in December of that year. Although the USA withdrew from the agreement in January 2017, 11 countries reached an agreement in principle for a new TPP Agreement (the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)) in November of that year. In the government procurement sector, general competitive bidding will be newly mandated in Malaysia, Vietnam and elsewhere, a change that is expected to lead to the promotion of overseas development of Japanese infrastructure systems. In addition, in light of the Japan-EU EPA, which reached an agreement in principle, the Comprehensive TPP-Related Policy Outline organized by the government in November 2015 was revised in November 2017.

(2) Japan-EU EPA and Other Economic Partnership Agreements and Free Trade Agreements (EPA/FTA)

Japan is strategically promoting economic partnerships with the Asia-Pacific region, the East Asia region, Europe, and elsewhere. As of March 2018, EPAs with 15 countries and regions (excluding the TPP) have been put into effect, signed, or are otherwise under negotiations with a view to eventually being concluded, an example of which is the Regional Comprehensive Economic Partnership for the East Asia region (RCEP). These arrangements will serve to strengthen the international competitiveness of Japan's transport, construction, and other industries, promote international development and the opening of the service sector in partner countries, including by way of the abolition or deregulation of foreign capital restrictions, and promote the expansion of participation opportunities relating to government procurement.

The Japan-EU EPA was decided to start negotiations in March 2013. Both parties reached an agreement in principle in July 2017, and finalized the agreement in December of that year. Following the finalization of the agreement, the Government of Japan including the MLIT is accelerating efforts toward signing and putting the agreement into effect as soon as possible. As for the main content of the agreement relating to the MLIT, the agreement calls for efforts to improve market access in both Japan and the EU in the railway sector of government procurement. The agreement also includes provisions for cooperation between Japan and the EU toward promoting the international harmonization of standards and certification systems in the United Nations for automobile environment and safety standards.

Sixteen countries, including the ASEAN countries, China, South Korea, and Australia, are participating in the RCEP negotiations. These negotiations began in May 2013 and seventeen negotiation sessions have been held as of March 2018.

(3) World Trade Organization (WTO)

Discussions among interested countries and regions, including Japan, have been undertaken with a view to enacting a new Trade in Services Agreement (TiSA) in order to further liberalize trade in service sectors. Negotiations began in June 2013.

2 Contributions to and the Strategic Use of International Organizations

(1) Asia Pacific Economic Cooperation (APEC)

APEC is a framework for economic cooperation through which activities to promote trade and investment liberalization, business facilitation, economic and technical cooperation, and other such objectives are carried out to promote the sustainable growth and prosperity of the Asia-Pacific region. The MLIT is proactively involved in ministers' meetings and working groups that pertain to APEC's transportation and tourism sectors.

In the transportation sector, meetings of the transportation ministers to facilitate the flow of goods and people and support trade and investment within the given area are held.

At the 10th APEC Transport Ministers' Meeting in Papua New Guinea in October 2017, discussions were held on the topic of regional connectedness through robust, sustainable transportation and innovation, and Japan gave a presentation on the topic of promoting PPP in infrastructure projects; these discussions were summarized in the joint ministerial declaration.

In addition, the 44th meeting of the APEC Transportation Working Group, which deals with the transport sectors of APEC members, was held in Chinese Taipei in April 2017. Japan participated actively in this meeting, where liberalization, streamlining, security, safety and other factors of the transport sectors in APEC regions were discussed.

Domestically, in light of the G7 Ise-Shima Principles for Promoting Japan's Quality Infrastructure Investment adopted at the G7 Ise-Shima Summit in May 2016, relevant government officials from APEC member economies were invited to the APEC High-Level Conference on Quality Infrastructure in October 2017 in an effort to foster understanding and promote the international standardization of Japan's Quality Infrastructure Investment in APEC member nations. Japan released the "Report on the Results of the APEC High-Level Conference on Quality Infrastructure" in light of the discussions at the conference to promote and sustain efforts related to Japan's Quality Infrastructure Investment throughout the APEC region, and proactively contributes to discussions about Quality Infrastructure in APEC.

(2) Cooperation with Association of Southeast Asian Nations (ASEAN)

In an effort to further promote Quality Transportation in ASEAN, the MLIT is implementing various cooperation projects for overland, maritime and air transport under the ASEAN-Japan Transport Partnership, a cooperative framework for the transportation sectors in Japan and ASEAN established in 2003. The projects include joint research on paving technologies and overload management technologies in support of global road networks, joint research regarding port and harbor technology, re-surveying of channels and improvement of nautical charts for the Singapore Strait and Strait of Malacca, training of VTS controllers at regional training centers in ASEAN, and support for air transport security systems. The "ASEAN and Japan Transport Ministers Meeting" is held every year to monitor the progress of current projects and to discuss new projects and future direction.

At the 15th ASEAN and Japan Transport Ministers Meeting held in Singapore in October 2017, the ASEAN-Japan Transport Partnership Work Plan for 2017-2018, which is a specific implementation plan of the ASEAN-Japan Transport Partnership, was approved, as well as three new cooperation projects: the ASEAN-Japan Cold Chain Logistics Project, the Development of the Guidelines for Maintenance of Navigation Channels in ASEAN, and the Development of Guidelines for Safety Measures with Ships' Routeing. In addition, the Disaster Prevention and Mitigation Guidelines for Ports in ASEAN, and the Best Approaches Book on User-Friendliness in the Transport Sector were approved as project outcomes.

(3) Organization for Economic Co-operation and Development (OECD)

The MLIT participates in the activities of multiple OECD organizations, including the International Transport Forum (ITF), the Council Working Party on Shipbuilding (WP6), the Regional Development Policy Committee (RDPC), the Tourism Committee, and the Transport Research Centre (TRC) of the ITF.

The ITF hosts annual ITF Transport Ministers' Meetings at which transport ministers from 59 countries play a central role in annual meetings to facilitate high-level and open discussions with world-renowned experts and business persons regarding transport policy. Previous topics discussed include climate change in the transport sector and inclusive transportation. At a ministers' meeting in May 2017, discussions based on a theme of transportation governance were held, with an exploration of various perspectives. Participants discussed matters such as climate change countermeasures in the transport sectors in light of COP22, the sharing economy, and regulations and rules for autonomous driving.

In order to ensure normal competitive conditions in the shipbuilding industry, the Council Working Party on Shipbuilding (WP6) works toward increasing transparency by conducting reviews of the shipbuilding policies of each country and developing lists of policy support. In light of excessive public subsidies in some countries for the shipbuilding industry including massive financing for struggling shipbuilders by some governments in recent years, the WP6 has been discussing the development of a legally binding instrument to address market distorting measures in the shipbuilding sector.

The RDPC proactively conducts reviews of the policies of member countries with respect to land and regional policies, studies on urban policies in the context of green growth strategies, and surveys on resilient cities and the like, and in April 2016, the decision was made to implement projects involving the improvement of productivity in urban and regional areas. That same month, a second review by country for Japan's land and regional policies was announced. This review praised Japan, a society that is undergoing a population decline and is aging at the same time, for attempting to convert this crisis into an opportunity through a long-term, comprehensive land plan.

The TRC conducts surveys and researches on policy issues commonly applicable to member countries. Japan also participates in a working group focused on smart road use methods proposed and adopted by Japan.

(4) United Nations (UN)

(i) International Maritime Organization (IMO)

IMO is a specialized agency of the United Nations that establishes international rules on safety of ships and marine environment protection. Japan actively participates in the activities of this organization as a global leader in shipping and shipbuilding. In FY 2017, Japan actively contributed to discussions promoting measures to reduce greenhouse gas emissions from ships and the enforcement of the International Convention for the Control and Management of Ships' Ballast Water and Sediments, the commencement of discussions about safety standards and other international rules for maritime autonomous surface ships, the revision of passenger ship safety standards, and the development of guidelines for maritime cybersecurity.

(ii) International Civil Aviation Organization (ICAO)

ICAO is a specialized agency of the United Nations that has set forth certain rules and other stipulations for the safe and orderly development of international civil aviation and the sound and economic operations of international air transportation. Japan's financial contributions are third among member states FY2017 and Japan, as a Governing Council state under PART I (States of chief importance in air transport), actively participates in various ICAO activities and contributes to the development of international civil aviation.

Japan participated in the first Asia Pacific Ministerial Conference on Civil Aviation held in Beijing from January 31 to February 1, 2018. A ministerial declaration was adopted at this conference with the aim of accelerating efforts toward air traffic control and air transport safety in the region.

(iii) UN-Habitat

UN-HABITAT is a UN funding and planning agency specializing in human settlement issues. Japan has been an active council participant since the foundation of UN-HABITAT, and has taken advantage of its knowledge and record of accomplishment on improving land, regional, and residential environments to contribute to improving human settlement issues worldwide, with particular focus on the Asian population explosion and rapid urbanization.

The ninth World Urban Forum was held in February 2018 with the theme of implementing the New Urban Agenda, a set of guidelines for international efforts toward resolving issues related to urbanization and human settlement over the next 20 years. At the forum, Japan pledged to contribute to the realization of the New Urban Agenda through such efforts as encouraging sustainable, comprehensive urban growth through land and regional policy, Japan's Quality Infrastructure Investment and other efforts. Japan also hosted exhibits to introduce Japan's outstanding advanced technology and infrastructure systems in the urban development and housing sectors.

(iv) UN efforts regarding water and disaster prevention

The MLIT participated in the ninth and 10th meetings of the High-Level Experts and Leaders Panel on Water and Disasters (HELP) and the Third UN Special Thematic Session on Water and Disasters, where we discussed efforts of the global community to increase global awareness of water-related disasters, share experience and knowledge, and advance policies in each country. In addition, at the High-Level Panel on Water (HLPW) sponsored by the secretary-general of the United Nations and the president of the World Bank and attended by former heads of state of many countries, the Japanese government worked together with HLPW Special Advisor and UN Secretary-General Special Envoy on Disaster Risk Reduction and Water Dr. Han Seung-Soo to contribute to the formulation of future action plans for water-related disaster management. Based on these actions, we intend to attend international conferences related to water and disasters during the UN International Decade for Action on the Water on a regular basis, and to contribute to resolving issues in this sector.

(v) Sustainable development goals (SDGs)

Given the adoption of sustainable development goals (SDGs) at the UN Summit in September 2015, the Japanese Sustainable Development Goals Promotion Headquarters, which is chaired by Prime Minister Abe, determined indicators for implementing SDGs in Japan (SDG implementation indicators) in December 2016, and in December 2017 announced the SDGs Action Plan 2018. To realize sustainable development inside and outside Japan, the MLIT will also implement efforts toward the achievement of SDGs through related measures such as the promotion of Quality Infrastructure Investment.

(vi) UN efforts regarding geospatial information

Japan participates in the United Nations Initiative on Global Geospatial Information Management (UN-GGIM), which is a part of the United Nations Economic and Social Council, and uses its experience in geospatial information implementation to contribute to the establishment of a Global Geodetic Reference Frame (GGRF) and other efforts. In addition, Japan is the chair of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific (UN-GGIM-AP), and has contributed to the UN's work regarding geospatial information through such efforts as hosting the sixth UN-GGIM-AP plenary meeting in the city of Kumamoto in October 2017.

(5) World Bank (WB)

At international events held in November 2017 and February 2018 by the World Bank for key people involved in urban development in various countries, the MLIT introduced Japanese knowledge of urban development in order to effectively share information about Japan's Quality Infrastructure Investment with infrastructure officials in other countries.

(6) Conference on African Development (TICAD)

In August 2016 at TICAD VI, the first TICAD conference held in Africa, the Nairobi Declaration, which mentioned the importance of Quality Infrastructure Investment, was adopted. In light of this declaration and the Leaders' Statement for the Promotion of Japan's Quality Infrastructure Investment adopted by cabinet ministers from Japan and various African countries at the Japan-Africa Public-Private Infrastructure Conference held to coincide with TICAD VI, we are promoting

efforts such as these public-private infrastructure conferences to promote Japan's Quality Infrastructure Investment in Africa. To prepare for TICAD VII, which is scheduled to be held in Japan in 2019, we will accelerate efforts to promote understanding of Japan's Quality Infrastructure Investment.

3 Multilateral and Bilateral International Negotiations and Collaborative Initiatives in Different Sectors

(1) National Land Policy Sector

We regularly hold bilateral director-level conferences with South Korea at which we exchange information concerning similar issues affecting both countries regarding national land policy, regional policy and land policy. In light of international agreements from Habitat III regarding the strategic promotion of national land policy, we will establish a Platform for Support of National Land/Regional Plan Formulation/Promotion by Asian nations and international organizations in order to proactively promote the overseas deployment of Japanese national land policy and regional policy.

(2) Urban Sector

In FY 2017, we held bilateral discussions on urban policy with South Korea, China and France. In addition, we have notified Japanese municipalities about the EU International Urban Cooperation Project, in which cities throughout the world are paired with cities in the EU for intercity cooperation, and cooperated in the selection of participating cities.

In response to a request from the Myanmar Ministry of Construction, we provided support for the development of an enforcement ordinance for urban and regional development planning legislation, conducted a study of infrastructure plans for balanced urban development in the city of Yangon, and also implemented technical cooperation through the dispatch of JICA experts.

(3) Water Sector

Based on the common understanding of water problems as global-scale problems, discussions toward the resolution of these problems are taking place at international conferences and other venues. MLIT Minister Ishii attended the third Asia-Pacific Water Summit held in Myanmar in December 2017, and spoke about Japan's experiences in dealing with its own water-related issues to demonstrate Japan's presence in the field, and promoted Japanese technology for resolving those issues in an effort to contribute to the overseas development of infrastructure systems. The Yangon Declaration, which was created as an output of the summit, maps out a route for water security for sustainable development. The declaration incorporated management of sound water cycles, investing in advance to reduce the risk of disasters, sanitation and sewage control, and other matters brought up by Japan. In addition, in March 2018, Parliamentary Vice-Minister Akimoto attended the eighth World Water Forum in Brazil, where he presented information about the need for societies to be aware of water-related disaster prevention, and how efforts related to water cycles and other efforts by Japan can contribute to the sustainable development of countries throughout the world at the ministerial-level meetings. The ministerial declaration that summarized the meetings demonstrated awareness of the importance of water cycle-oriented perspectives, and incorporated matters such as the securement of sufficient financial resources for disaster countermeasures.

In addition, Japan is coordinating efforts with the Network of Asian River Basin Organizations (NARBO) to contribute to the dissemination and promotion of Integrated Water Resources Management (IWRM).

Furthermore, we have hosted bilateral meetings about water resource management and other topics with South Korea. At these meetings, we have shared information about current circumstances, pioneering efforts and other matters in each country. In addition, we hosted the third China-Japan-Korea Ministerial Conference on Water, at which the three countries jointly declared their intent to cooperate with one another in an effort to achieve SDGs.

In addition, the Water and Environmental Solution Hub, an alliance of local governments; the Japan Sewage Works Agency; the MLIT; and others has provided expertise on sewage works to developing countries through seminars, training, and other programs.

(4) Disaster Management Sector

To reduce the damage of water disasters around the world, the MLIT disseminated Japan's experiences and technology and made efforts to establish international solidarity regarding the strengthening of water disaster prevention in order

to build consensus that disaster prevention is the key to sustainable development. We engaged in coordination between industry, academia and government between Japan and Indonesia, Vietnam, Myanmar and other countries dealing with disaster-related issues to deploy efforts toward Disaster Prevention Collaboration Dialogues in each country to strengthen cooperative relations in the disaster prevention sector during normal times. We are currently moving ahead with the formulation of projects that use Japanese technology in the fields of dam rehabilitation, which makes effective use of existing dams, and sediment-related disaster countermeasures. We hosted bilateral meetings about the river and disaster prevention sectors with South Korea where we exchanged opinions to share and resolve issues faced by the two countries. The International Centre for Water Hazard and Risk Management (ICHARM), which was founded in the Public Works Research Institute, has provided technical cooperation and international assistance to countries and regions vulnerable to water-related disasters through various efforts such as developing an integrated flood analysis system (IFAS) and rainfall-runoff-inundation (RRI) model, researching risk management, implementing human resource development programs, participating in UNESCO and Asian Development Bank projects, and acting as the secretariat of the International Flood Initiative (IFI).

In accordance with a letter exchanged between the EU's General Office on Disaster Prevention and the MLIT, working level talks were held for the purpose of enhancing disaster prevention measures in place in both Japan and the EU. In addition, in the sediment control sector, we have hosted bilateral conferences regarding sediment control technology with Italy, South Korea, Switzerland and Austria, and have implemented technical cooperation through the dispatch of JICA experts and other efforts for warnings and evacuation from landslide disasters, land-use regulations and the like in Brazil and Sri Lanka.

(5) Road Sector

Japan proactively participates in various technical committees and is spearheading the formulation of future policy of the World Road Association (PIARC). In addition, at the PIARC Annual Council Meeting held in Bonn, Germany in October 2017, we introduced two topics: Vehicle Infrastructure Integration Required for Autonomous Driving, and Autonomous Driving Services to Support Aging Societies. On the topic of Vehicle Infrastructure Integration Required for Autonomous Driving, we introduced concepts based on the creation of dynamic map data, which is the basis of autonomous driving, as well as efforts toward public-private joint research on providing information at merging areas of interchanges, which have proven to be a challenge for autonomous driving systems. On the topic of Autonomous Driving Services to Support Aging Societies, we touched on issues in hilly and mountainous areas of Japan and introduced efforts to test and verify low-speed autonomous driving services based at hubs such as Michi-no-ekis (roadside stations) as viable modes of transportation.

(6) Housing and Building Sector

Japan attended the world conference of the Inter-Jurisdictional Regulatory Collaboration Committee (IRCC), and made other efforts to exchange information with relevant countries concerning global trends in building codes and the like.

We hosted bilateral meetings with South Korea, Germany, and China at which we exchanged information about housing policy, energy-efficient construction, housing finance and other matters.

Broad technical cooperation was provided to Myanmar and Cambodia through the dispatching of JICA experts and other measures based on the memorandums between both countries.

(7) Automotive Sector

Based on the ASEAN-Japan New Cooperative Program on Comprehensive Vehicle Safety and Environment Measures Including Development of Technical Regulations and Establishment of a Type Approval System for Vehicles endorsed at the 13th ASEAN-Japan Transport Ministers' Meeting in 2015, in November 2017, we hosted a Public-Private Joint Forum for the Asian region, at which we exchanged information about activities for the global harmonization and mutual recognition in the Asia region. In addition, continuing from last year and based on the program, we implemented and exchanged pertinent information and opinions regarding a program in Malaysia to improve their automobile transportation safety and environmental conservation policy formulation process.

(8) Maritime Sector

In the maritime sector, in addition to responding to the IMO global agenda, Japan has also responded to the bilateral agenda through Director-General-level conferences. In FY 2017, Japan held its first Director-General-level conference with Denmark based on the Memorandum of Cooperation in the Maritime Sector, where the two countries shared information and exchanged views about the enforcement of international regulations, digitalization and other matters. In October 2017, Japan concluded the Memorandum of Understanding regarding the implementation of the joint hydrographic survey of the Strait of Malacca and the Singapore Strait with the countries on the straits. In addition, Japan hosted seminars targeting travel agencies and other local companies in Malaysia and the Philippines based on the ASEAN-Japan Cruise Promotion Strategy approved at the ASEAN-Japan Transport Ministers' Meeting.

Furthermore, in order to promote the development of Green Ship Strategy in ASEAN which was endorsed at the ASEAN-Japan Transport Ministers' Meeting in 2016, Japan hosted the first meeting of "Expert Group on Green Ships (EGGS)" in Malaysia in September 2017.

(9) Ports Sector

The MLIT exchanges information about port and harbor administration, promotes cruise industry and engages in other activities at meetings such as the Northeast Asia Port Director-General Meeting and meetings of APEC Transportation Working Group. We also emphasize collaboration with the World Association for Waterborne Transport Infrastructure (PIANC) and the International Association of Ports and Harbors (IAPH)—the Japanese government is a member of both—and engage in exchange with key government officials from other countries and proactively participate in the activities of various research committees. We are particularly proactive in PIANC with efforts toward the overseas deployment and international standardization of Japanese technical standards.

Furthermore, in July 2017, three new entities including the Port of Vancouver signed the Memorandum of Understanding on Cooperation on the Development of LNG as a Marine Fuel (signed by eight port authorities from seven countries in October 2016) to further strengthen the global network of LNG bunkering ports.

(10) Aviation Sector

In August 2017, the 54th Conference of Director-Generals of Asia-Pacific Civil Aviation was held in Mongolia. At the conference, we exchanged opinions about efforts by countries in the Asia-Pacific region toward aviation safety, aviation security, air traffic control and other general aviation matters.

In addition, in September 2017, the third meeting of the Japan-France Cooperative Working Group was held in Osaka in accordance with a memorandum of understanding concerning technical cooperation in the civil aviation sector that has been concluded with France, and it was decided to advance cooperation including regular meetings to be held in the future.

(11) Logistics Sector

Trilateral cooperation among Japan, China, and South Korea is being advanced in the logistics sector in accordance with an agreement reached at the sixth China-Japan-Korea Ministerial Conference on Transport and Logistics held in July 2016, such as by way of studies into the expansion of the mutual access of chassis, the expansion of covering ports in Japan, China, and South Korea that are subject to the Northeast Asia Logistics Information Service Network (NEAL-NET), and the expansion of such ties to ASEAN countries and other partners.

Discussions on enhancing the logistics environment are also being carried out in the context of bilateral logistics policy dialogue under the framework of the ASEAN-Japan Transport Partnership; discussions were held with Indonesia in November 2017 and the Philippines in December 2017. In May 2017, students were provided with development training in Vietnam to help secure exceptional human resources in the ASEAN region.

(12) Geospatial Information Sector

The MLIT provides support to ASEAN member states and others for the introduction of the world geodetic system and the comprehensive operation of a network of GNSS-based control stations. In light of the cooperative agreement that resulted from the Japan-Thailand Summit Meeting held in February 2015, the MLIT concluded a memorandum of cooperation with the Thailand Ministry of Science and Technology in June 2017, held seminars to establish a network of GNSS-based control stations in December 2017, and continues to dispatch experts as it has since FY 2016. We are proactive in Myanmar, dispatching workers for JICA survey missions and making other efforts toward the Yangon Mapping Project, which aims to establish GNSS-based control stations and create topographic maps of the precincts of Yangon. Furthermore, with China and South Korea, we held cooperation conferences about surveying and mapping and exchanged information about surveying technology and projects.

(13) Meteorological and Earthquake/Tsunami Sector

Under the framework of the World Meteorological Organization (WMO), Japan has provided the world meteorological community with various information including tropical cyclone forecasts taking advantage of its advanced technologies as well as exchanged meteorological data and technical information. Also, under the framework of the United Nations Educational, Scientific and Cultural Organization (UNESCO) Intergovernmental Oceanographic Commission (IOC), Japan has provided the Northwest Pacific Tsunami Advisory to various countries in the region to contribute to tsunami disaster mitigation.

(14) Coast Guard Sector

Coordination and cooperation among coast guard organizations in various fields—including search and rescue as well as maritime security measures—are being actively promoted through partnership of the North Pacific Coast Guard Forum (formed by six countries consisting of Japan, Canada, China, South Korea, Russia, and the United States), the Heads of Asian Coast Guard Agencies Meeting (20 Asian countries and one region), and bilateral top-level meetings, as well as joint exercises.

The Japan Coast Guard is also proactively participating in various international organizations by formulating standards concerning the production of nautical charts through committees of the International Hydrographic Organization (IHO), coordinating for the Northwest Pacific Ocean region through the Cospas-Sarsat Programme, conducting investigations into VDES^{Note} development through committees of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), and dispatching staff members from the Japan Coast Guard to the Information Sharing Center based on the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP). In addition, international contributions are being made through different initiatives, such as those that help improve the capabilities of the coast guard sector in developing countries.

Furthermore, through such efforts as promoting interaction and fostering mutual understanding among coast guard organizations throughout Asia, and in order to create a common awareness of the importance of collaboration and cooperation between countries toward ensuring safety at sea and advancing the concept of “maritime order governed by law and rules and not by coercion”, we have accepted young senior officials from coast guard organizations throughout Asia into the Maritime Safety and Security Policy Program, a master’s degree program for maritime safety and security policy established in October 2015.

Note Short for VHF Data Exchange System

In addition, the successive establishment of new coast guard organizations throughout Asia and other changes in social circumstances in recent years have increased expectations of the Japan Coast Guard to provide support for capacity building to coast guard organizations of other nations. To dutifully respond to these expectations, in FY 2017, the Japan Coast Guard established the Japan Coast Guard Mobile Cooperation Team, which focuses exclusively on supporting international capacity building. On their first dispatch in November 2017 in the Philippines, the team used high speed small boats to conduct law enforcement training for coast guard organization members from the Philippines, Vietnam, Malaysia and Indonesia. The team intends to continue providing support for capacity building in response to requests from the coast guard organizations of various countries.

Column

Hosting the Coast Guard Global Summit

Coast guard organizations are maritime safety institutions that strive to ensure safety on the sea through rescue operations at sea, disaster response, marine environmental conservation and maintaining public order at sea based on the rule of law under international maritime law so that people all over the world can safely use and enjoy the various benefits of the ocean.

Given that global-scale changes to the natural and social environment have multiplied the various damage and threats to the ocean in recent years, the Japan Coast Guard and the Nippon Foundation co-hosted the world's first Coast Guard Global Summit on September 12-14, 2017 in an effort to establish interregional cooperative relations that build on and surpass the existing frameworks created by coast guard organizations of the world through bilateral—and in some regions, multilateral—cooperation. The summit drew over 250 participants, roughly 160 of which came from outside Japan—including executive-level officials from coast guard organizations in 34 countries and one region in Asia, Oceania, the Americas, Europe and Africa, and secretary-generals from three international organizations—in addition to observers from relevant Japanese ministries and agencies, and embassies in Tokyo.

In recognition of the global expansion of the roles of coast guard organizations, summit participants expressed their support for strengthened collaboration and expanded dialogues, and specifically for considering the ideal state of human resources while sharing leading case examples and experiences in various fields and deepening understanding of a common set of behavioral ideals among coast guard organizations. As for comments from participants from other countries, the United States Coast Guard commented on the need to use this summit to strengthen partnerships in order to deal with issues.

We hope that coast guard organizations spread the concepts championed at the summit throughout the world and commit them into action, and in so doing contribute to the peace of mind and safety of people

Coast Guard Global Summit



Source) MLIT

Farewell reception



Source) MLIT

around the world developing along with the ocean.

We plan to hold working level meetings in the future in order to discuss the purpose of the summit, management rules and meeting logistics, etc.

Welcome reception at the State Guest House



Source) MLIT

Section 3 Initiatives Towards International Standardization

(1) Efforts for International Standardization

To promote high safety and environmental performance automobiles early and cost efficiently, Japan is actively participating in activities of the World Forum for Harmonization of Vehicle Regulations (WP.29) to promote the international harmonization of safety and environmental regulations, and is also promoting the international spread of Japanese automobiles with superior safety, and environmental features, and new technology through participation in these activities. In order to promote such activities, the “Action Plan for the Internationalization of the Regulation and Certification System” with its four pillars of: 1) Strategic international standardization of Japanese technology and regulations, 2) Realization of international whole vehicle type approval system (IWVTA), 3) Promoting participation of Asian countries in international harmonization of regulations, and 4) Establishing a framework to handle globalization of regulations and certification, is being steadily realized to promote the internationalization of automobile regulation and certification systems.

(2) International Standardization and Other Initiatives in the Railway Sector

As Europe actively promotes the international standardization of European standards, the possibility of significant obstacles arising in the overseas expansion of railway systems is increased if Japan’s superior technology is excluded from the scope of international standards. Because this will affect global competitiveness in the railway sector, it is important to actively promote international standards in railway technology. For this reason, the Railway Technical Research Institute’s Railway International Standards Center, which is the centralized organization that handles railway-related international standards, works proactively to further advance railway safety and the expansion of the railway industry.

As a result, Japan has played a central role in contributing to the proposals of individual standards and committee activities in the Technical Committee for Railway Applications (TC269) of the International Organization for Standardization (ISO), and secured successful results. As Japan’s presence in various international conferences, including those organized by ISO/TC269 and the Technical Committee for Electrical equipment and systems for railways (TC9) of the International Electrotechnical Commission (IEC), rises, works on promoting international standardization with respect to railway technology. The National Traffic Safety and Environment Laboratory of the National Agency for Automobile and Land Transport Technology (Independent Administrative Institution), the first domestic certification body of international standards in the railway sector, has acquired solid certification experience following the establishment of the Railways Certification Office, and contributes to the overseas expansion of Japan’s railway systems.

(3) International Standards Regarding Ships and Mariners

In order to aim to mitigate the environmental impact and increase the safety of shipping and help disseminate superior Japanese energy-saving technologies, Japan has spearheaded discussions in the context of the formulation of standards under the SOLAS Convention^{Note 1}, MARPOL Treaty^{Note 2}, and STCW Convention^{Note 3}, all of which have been adopted under the auspices of the International Maritime Organization (IMO).

Moreover, the Japan Coast Guard has participated in discussions on international standards applicable to nautical charts, nautical publications, and navigational warnings as hosted by a working group operating under the auspices of the International Hydrographic Organization (IHO). In order to ensure the safety of vessel traffic and increase the operating efficiency of vessels, we are leading the discussion in the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) e-Navigation Committee regarding the international standardization of VDES, a new maritime data communication system.

(4) International Harmonization of Standards and Certification Systems in the Civil Engineering and Building Sectors

In the civil engineering, building, and housing sectors, we are working to promote the international harmonization of standards and certification systems by operating programs for certifying imported building materials in terms of perfor-

Note 1 International Convention for the Safety of Life at Sea.

Note 2 International Convention for the Prevention of Pollution from Ships.

Note 3 International Convention on Standards of Training, Certification and Watchkeeping for Seafarers.

mance and for approving rating agencies, obtaining technical cooperation from organizations like JICA, and participating in the establishment of ISO standards for design and construction technology. Likewise, as part of the efforts to incorporate Japan's accumulated technology in international standards, discussions are in progress to develop and revise domestic technical standards by taking into account trends in the creation of international standards.

(5) International Standardization of Intelligent Transportation Systems (ITS)

In order to promote the development of efficient applications, international contributions, and the development of related industries in Japan, the international standardization of ITS technology is progressing within international standardization bodies, including ISO and the International Telecommunication Union (ITU).

In particular, we are participating in the Technical Committee on International Standardization of the ITS (ISO/TC204) and have been engaged in standardization activities concerning the use of probe data gathered with the ETC2.0 service. Japan has spearheaded the formulation of international regulations governing automatic driving, such as by co-chairing the Intelligent Transport Systems and Automobile Driving Informal Working Group and Automatically Commanded Steering Function Informal Working Group, which were established under the United Nations' World Forum for Harmonization of Vehicle Regulations (WP29) and proposing regulations for automatic steering to enable automatic driving on expressways.

(6) Standardization of Geographic Information

For the purpose of ensuring compatibility for the interoperability between different Geographic Information Systems (GIS) dealing with geospatial information, Japan is actively participating in the formulation of international standards by the ISO Technical Committee for Geographic information/Geomatics (ISO/TC211). Likewise, we are working on standardizing domestic geographic information.

(7) Mutual Recognition of International Technical Qualifications

Within the APEC Architect Project and the APEC Engineer Project, we have conferred mutual designations on people qualified to produce architectural designs and qualified engineers within APEC who have satisfied certain requirements. Within the APEC Architect Project, we are promoting the mobility of persons qualified to produce architectural designs through our signing of bilateral memorandums of understanding for mutual acceptance with Australia and New Zealand, and efforts such as our participation in the APEC Architect Central Council.

(8) Sewage Sector

Presently, our proactive and leading participation in the Technical Committee on the Water-reuse (ISO/TC282), Technical Committee on Sludge Recovery, Recycling, Treatment, and Disposal (ISO/TC275), and Working Group on Stormwater Management (ISO/TC224/WG11) represents efforts to promote the deployment of high-quality Japanese sewage technology overseas.

(9) Promotion of the International Standardization of Logistics Systems

We are promoting the standardization and international standardization of Japanese logistics systems, thereby contributing to improved logistics environments in Asian distribution networks and strengthening the international competitiveness of Japanese logistics companies, based on the services and know-how those companies have, which is of the world's highest level, including cold chain and delivery services.

Chapter 10

Utilizing ICT and Promoting Technology Research and Development

Section 1

Promoting Innovation in the Fields of Land, Infrastructure, Transport, and Tourism Through the Use of ICT

Information technology initiatives in the fields of land, infrastructure, transport and tourism within the Declaration to be the World's Most Advanced IT Nation—Basic Plan for the Advancement of Public and Private Sector Data Utilization (endorsed on May 30, 2017) are being promoted in coordination with the IT Strategic Headquarters (Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society) as headed by the Prime Minister.

1 Promoting ITS

Intelligent Transport Systems (ITS), a system created through the integration of people, roads, and vehicles using the latest Information and Communications Technology (ICT), enables advanced road use, the safety of drivers and pedestrians, the dramatic improvement of transport efficiency and comfort, solves various social problems such as traffic accidents and congestion, environmental and energy problems, and is leading to the creation of new markets in the related fields of the automotive industry, information technology industry, and others.

We are also proactively promoting initiatives pertaining to the collection and distribution of road traffic information which will work effectively for safety enhancement, congestion mitigation, and disaster preparedness in accordance with our aim to realize the world's safest, environmentally friendly, economical road traffic society based on our Declaration to be the World's Most Advanced IT Nation—Basic Plan for the Advancement of Public and Private Sector Data Utilization, which was endorsed by the Cabinet in May 2017, and on our Public-Private Partnership-Based ITS Concept and Roadmap, which was endorsed by IT Strategic Headquarters in June 2014 and revised in June 2015, May 2016, and May 2017.

(i) The spread of ITS in society and its effect

a. Promotion of ETC and its effects

Electronic Toll Collection (ETC) is now available on all national expressways, as well as most of the toll roads in Japan. The total number of new setup onboard units is roughly 58.76 million as of March 2018 and its usage rate on all national expressways is roughly 91.3% as of January 2018. Congestion at tollgates, which used to account for roughly 30% of the cause for expressway congestion, has been mostly alleviated and has contributed to reductions in CO₂ emissions and environmental burdens. Additionally, measures utilizing ETC are being implemented, such as the introduction of Smart IC dedicated to ETC interchange and discounts for ETC vehicles. In addition to such toll road uses, it is also possible to use ETC for parking payments and boarding procedures for ferries, showing the spread and diversification of services utilizing ETC.

b. Improvement of providing road traffic information and its effects

Vehicle Information and Communication System (VICS)-compatible onboard units aim to advance travel route guidance and, as of the end of December 2017, roughly 57.70 million units have been shipped. By providing road traffic information such as travel time, congestion conditions, and traffic restrictions in real-time through VICS, drivers' convenience is improved. This ultimately contributes to better mileage and reduces environmental burdens, including the reduction of CO₂ emissions.

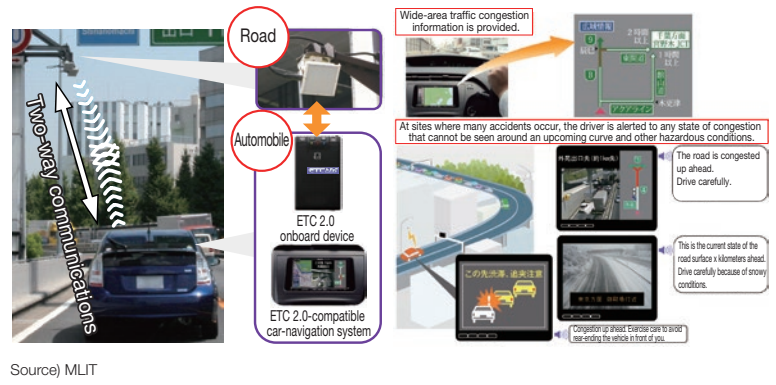
(ii) Technological development and the popularization of new ITS services

a. Popularization and utilizing ETC 2.0

ETC 2.0 onboard units came onto the market in full force in August 2015, and as of March 2018, roughly 2.61 million units had been set up. Using ETC 2.0, we are making efforts to enhance the provision of information on support for traffic congestion prevention and for safe driving, and are advancing efforts aimed at smooth and safe traffic, utilizing about roadside ETC 2.0 units at 1,700 locations on highways across Japan. We are also promoting efforts for smart road use through pinpoint countermeasures for traffic congestion, countermeasures for traffic accidents, productive and smart logistics management, etc., by utilizing a wide variety of extremely detailed big data, including data on speed, routes used, and sudden braking.

Figure II-10-1-1

Wide-area Traffic Congestion Information is Provided by ETC 2.0.



b. Promotion of the Advanced Safety Vehicle (ASV) Project

Based on the Advanced Safety Vehicles (ASV) promotion plan, efforts are underway for the development, commercialization, and widespread adoption of Advanced Safety Vehicles (ASV) that assist drivers to drive safely using advanced technology. In FY2017, discussions were held regarding the development of practical ASV technology and other technologies, namely advanced systems that pull vehicles over to the shoulder and take other emergency measures when the driver is driving abnormally.

Figure II-10-1-2

Illustration of a Telecom Use-Type Safe Driving Support System (Advanced Safety Vehicle (ASV))



2 Realizing Autonomous Driving

The Autonomous Driving Strategic Headquarters, led by the Minister of Land, Infrastructure Transport and Tourism, discussed the ministry's policies concerning the important matters concerning autonomous driving, and released its interim report in June 2017, from the three perspectives : the development of an environment toward the realization of autonomous driving, the promotion of the development and dissemination of autonomous driving technology, and the demonstration experiments and social implementation aimed at the realization of autonomous driving.

Regarding the development of an environment toward the realization of autonomous driving, Japan has been appointed to jointly chair the Intelligent Transport System and Automatic Driving Informal Working Group (established in November 2014) and the Automatically Commanded Steering Function Informal Working Group (established in February 2015), which were established under the UN World Forum for Harmonization of Vehicle Regulations (WP.29), and is spearheading studies of international safety regulations applicable to automatic driving. Domestically as well, we began discussions about safety criteria that motor vehicles with advanced autonomous driving systems should fulfill and measures to ensure safety. In addition, we released a report (March 2018) by the Research Group On Liability For Accident Compensation

Concerning Autonomous Driving regarding the form that liability for accident compensation related to autonomous driving should take from the viewpoint of the Act on Automobile Liability Compensation (Act 97 of 1955).

Regarding the development and dissemination of autonomous driving technology, we are making efforts for dissemination and awareness raising carried out by public and private sectors in the form of the Safety Support Car (Safety Support Car S), which is equipped with functions to support safe driving, including brakes to reduce damage from impact and devices to restrict acceleration when the acceleration pedal is pushed accidentally, and efforts for the international standardization of leading-edge safety technology. We are also working toward support for autonomous driving through information provision at merge lanes of expressways and toward the enhancement of snow-removal vehicles, for which autonomous driving is being considered.

With respect to demonstration experiments and social implementation aimed at the realization of autonomous driving, in addition to starting demonstrations on public roads of transport services using autonomous driving for the “last mile,” we have implemented demonstration experiments of autonomous driving services based at *Michi-no-ekis* (roadside stations) in mountainous regions in 13 locations across Japan. In addition, we have implemented demonstrations of manned convoy driving toward realizing self-driving truck convoys on the Shin-Tomei and Kita-Kanto Expressways.

Column

Demonstration Experiments of Autonomous-Driving Services based at Michi-no-ekis in Mountainous Areas

With the aging population in mountainous areas, it is becoming an urgent issue to provide a means of transportation for people and goods in everyday life. Meanwhile, most of the 1,134 Michi-no-ekis across Japan are in mountainous areas, and are integrating services necessary for life, including retail, clinics, and administrative counters.

To use these Michi-no-ekis as a hub to provide transportation means for people and goods, the MLIT has been implementing demonstration experiments of autonomous-driving services based at Michi-no-ekis and other places in 13 locations since FY2017. In addition, feasibility testing (theoretical consideration) is being carried out at five locations across the country, with a view toward further substantiation of business models.

The demonstration experiments included technical verification of the smooth driving of autonomous-driving vehicles when sharing roads with regular motor vehicles and of the safety of autonomous driving on snow-covered roads. In addition, the experiments tested delivery of agricultural products and processed goods from villages to Michi-no-eki with autonomous-driving vehicles which were shared by passengers and cargo, and transportation of agricultural products collected using autonomous-driving vehicles to urban areas via highway busses, which should provide an opportunity of considering a business model that is unique to the local area.

In FY2018, we are planning to focus on a long-term experiments in order to create business models, aiming at full-fledged implementation by 2020.

Road and Traffic Inspections



Smooth passage of autonomous and other vehicles



Autonomous driving during snowfall

Verification of public acceptance

(Credibility of autonomous driving, traveling comfort, etc.)



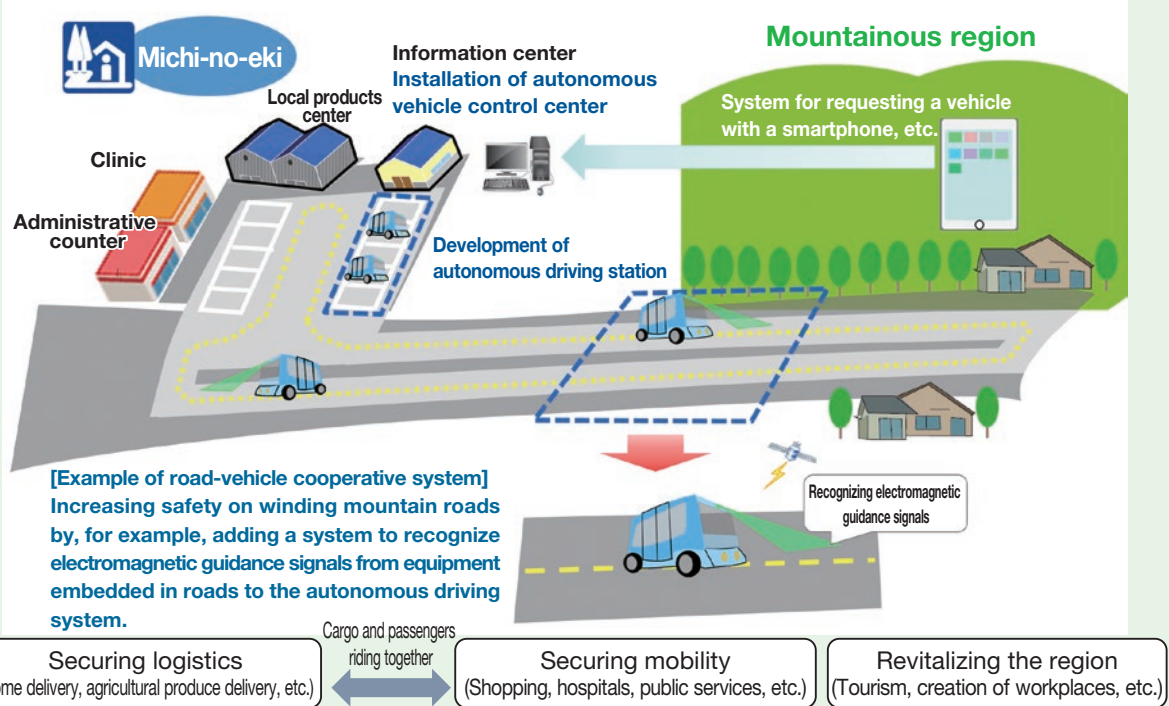
Riding and alighting in wheelchairs

Verification of effect on regions



Delivering fresh produce from a village to a Michi-no-eki

- **Social verification and implementation of autonomous driving services based at such places as Michi-no-ekis through a road-vehicle cooperative system, in mountainous areas where the population is aging in order to secure the movement of people and logistics.**



Sequential trials in 13 places across the country (from September 2017)

Source) MLIT

3 Realizing a Society that Utilizes Geospatial Information in an Advanced Manner

We are promoting efforts toward advancing the use and application of geospatial information^{Note 1} using ICT and other technologies based on the Basic Plan for the Advancement of the Utilizing of Geospatial Information, which was adopted by a Cabinet decision in March 2017, in pursuit of the realization of a G-Spatial Society (an Advanced Geospatial Information Utilization Society) where anyone can utilize the geospatial information they need anywhere and anytime.

(1) Developing and Updating Geospatial Information as the Foundation of Society

We are coordinating with relevant administrative organizations to promote the rapid development and updating of Fundamental Geospatial Data^{Note 2}, which can serve as the common basis for positioning on digital maps, and the Digital Japan Basic Map^{Note 3}, which is a basic map of Japan that includes information required for national land management and other efforts. Various types of information regarding national land are being developed, such as aerial photographs, geographical name information, National Land Numerical Information, continuous monitoring of crustal movements with GNSS-based control stations, and preparation of guidelines for using data obtained from city planning basic surveys to Geographic Information System (GIS). In addition, a system is being constructed that enables prompt assessment and provision of information on national infrastructure, such as development of information on the topographical classification used as the basic material for developing hazard maps prepared for future disasters, and taking aerial photographs urgently during disasters.

(2) Initiatives to Promote the Utilization of Geospatial Information

We are driving forward with efforts to further promote the sharing and mutual use of geospatial information throughout society; our efforts include the promotion of distribution of geospatial information centered on G-Spatial Information Center, which collects and provides various geospatial information developed by each entity, and the improvement of GSI Maps^{Note 4} that enables users to overlay various geospatial information on the web. In addition, we are promoting the development of a verification project working toward further diffusion to the general public, human resource development, and the realization of a G-Spatial Society, and we collaborated with industry, academia and government to host the Geospatial EXPO 2017 in October 2017.

Column

Japan's Standard for Gravity Values Updated for the First Time in 40 years

Are you familiar with the phrase, "Water seeks its own level"? When explaining that human nature is fundamentally good, Mencius used this phrase to mean that, just as the flow of water from high to low is natural providence, so is the fact that human nature is good.

The fact that water flows from high to low is an obvious natural phenomenon, but would a drop of water that has fallen onto completely flat ground stay still? In almost all cases, the drop of water would move. This is because, even on completely flat ground, water moves due to the increase in gravity caused by the pulling force (attractive force) of heavy substances underground. (Fig. 1)

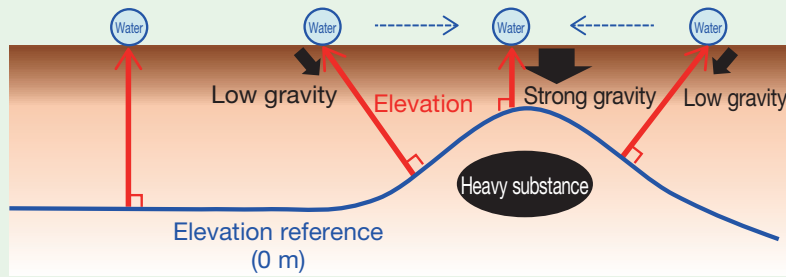
Note 1 Information that represents the position of a specific point or area in geospace (including temporal information pertaining to said information) as well as any information associated with this information. Also called G-spatial information (Geospatial Information).

Note 2 Serves as the basis for the position determined for geospatial information on the digital map such as positional information for the geodetic control points, coastlines, boundaries of public facilities, and administrative boundaries. Criteria and standards are defined by ministerial ordinances of MLIT. The Geospatial Information Authority of Japan completed the preliminary development in FY2011, and it is currently being updated along with the Digital Japan Basic Map.

Note 3 Electronically compiled maps that serve as Japan's basic maps instead of the traditional paper maps, including the 1:25,000 scale topographic maps. In addition to depicting Japan's territory appropriately, it serves as the most fundamental information of the nation's land conditions with geospatial information developed by the Geospatial Information Authority of Japan.

Note 4 Web maps operated by the Geospatial Information Authority of Japan (<https://maps.gsi.go.jp/>). More than 2,000 layers of geospatial information have been distributed.

Figure 1 Gravity and Water Flow



What kind of force is gravity? On the surface of the Earth, where we live, centrifugal force due to the motion of the Earth works alongside the Earth's attractive force. Gravity is the combination of the Earth's attractive force and centrifugal force. In addition, the strength of gravity depends on the time and place. (Fig. 2)

The value of gravity as measured by the Geospatial Information Authority of Japan is used in many useful ways for our lives on the Earth's surface, including (1) in deciding the elevation reference in order to understand the flow of water, (2) calibrating measurements of mass, (3) surveying active faults and prospecting for resources. (Photo)

Why is the value of gravity used in calibrating measurements of mass? The weight of an object depends on the strength of gravity. Earth's centrifugal force is lower at high latitudes, so gravity is a little stronger in Hokkaido than in Okinawa, with their different latitudes, and as a consequence an object will be heavier in Hokkaido. For example, if you were to buy 1 kg of gold in Okinawa and then measure it in Hokkaido, the scales would say it is about 1 g heavier. Therefore, to prevent confusion in the community and to ensure that any item can be measured at the same weight at any place in the world, the value of gravity in different places is used to calibrate measurements of weight. (Fig. 3)

Figure 2 Relationship Among Attractive Force, Centrifugal Force, and Gravity

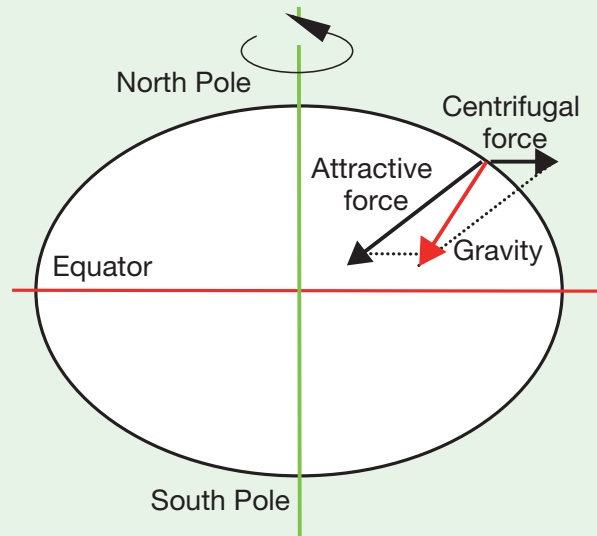


Photo Measuring Gravity



Furthermore, in places with very dense substances in the ground, like around mineral deposits, the value of gravity measured on the surface increases due to the attractive force of the substances. In places where there are breaks in the geological strata, for example around active faults, the density of each side differs, causing fluctuations in the value of gravity. As the state of subsurface structure can be understood through investigation of the distribution of the value of gravity, gravitational values are utilized in the fields of disaster prevention/reduction and in prospecting for subsurface resources, including measurements of the distribution, shape, and scale of active faults underground. (Fig. 4)

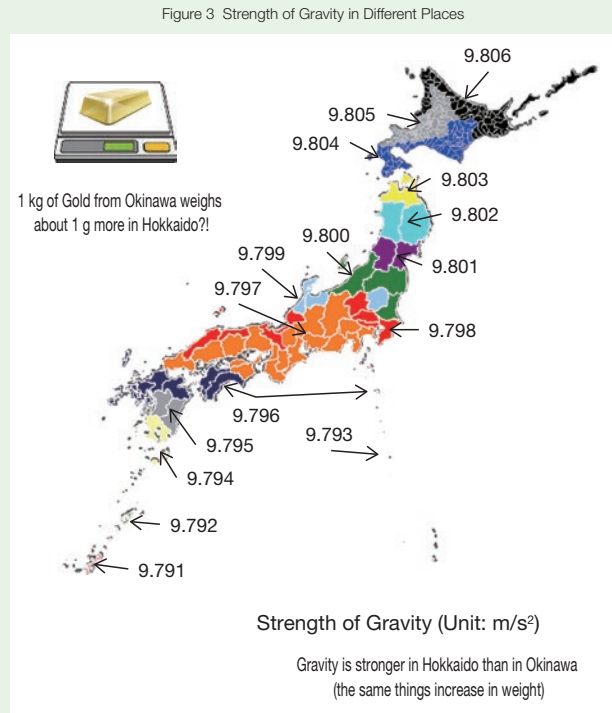
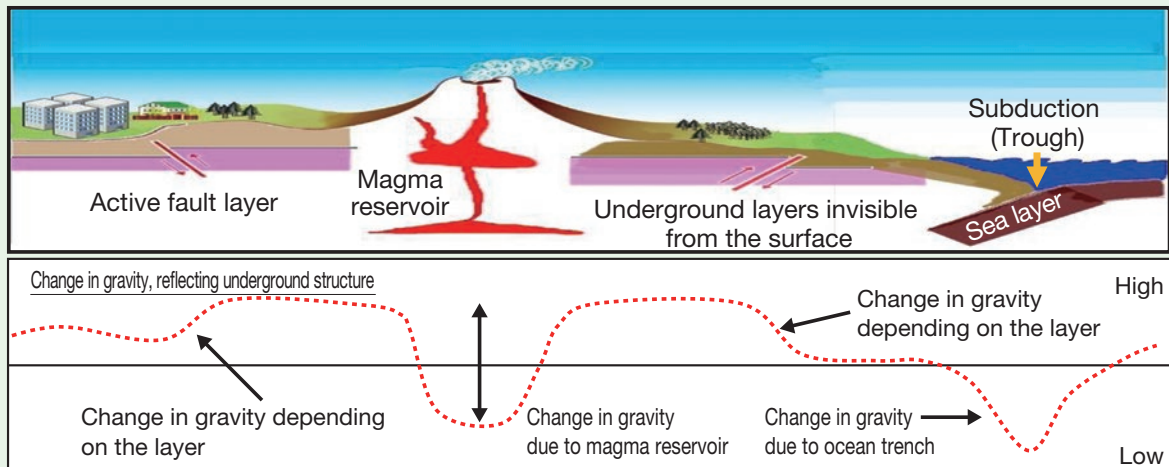


Figure 4 Relationship between Underground Structure and Strength of Gravity



The Geospatial Information Authority of Japan updated, for the first time in 40 years, the national standards for gravity values, which are used in deciding the elevation reference for understanding the flow of water, calibrating measurements of mass, surveying active faults, prospecting for resources, etc., and released Japan Gravity Standardization Net 2016 (JGSN2016). The Authority will continue its highly efficient gravity measurements using aircraft and plans to develop uniform and high-quality gravity values encompassing the whole of Japan.

Column Toward the Creation of New Services and Industries Utilizing Geospatial Information

Although “geospatial information” may be a slightly difficult term, it comes from positional information and information associated with that. It is used all round us, for example, in car navigation information, information on the position of people or facilities, tourism information, and statistical information.

Until now, this kind of geospatial information was collected and utilized individually by the national government, local governments, companies, other entities, etc., under insufficient coordination.

Under those circumstances, the G-Spatial Information Center launched a service to gather geospatial information held by industry, academia, and government, and provide those information in a form easy for anyone to utilize in November 2016.

As the service promotes the industry-academia-government coordination of geospatial information, the creation of new industries and services utilizing geospatial information is expected.

For example, during the July 2017 torrential rains in northern Kyushu, landslides occurred and blocked roads.

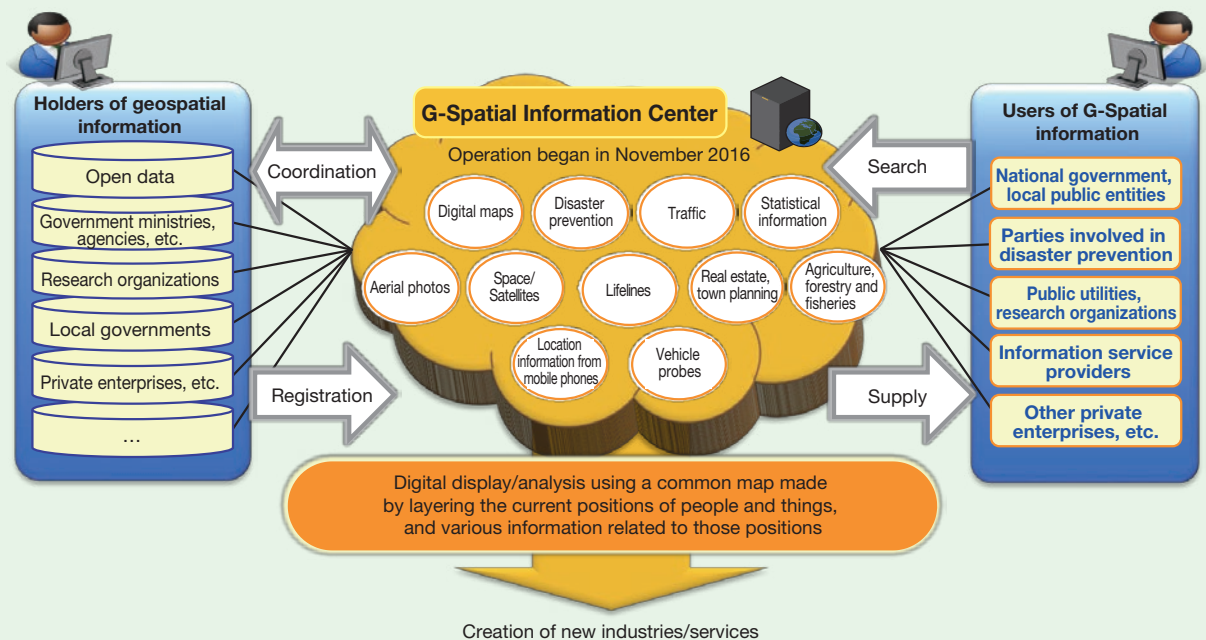
Under this situation, the G-Spatial Information Center contributed swiftly to disaster restoration by ascertaining the disaster status with aerial photos and facilitating the ascertaining of traffic routes by providing records of motor vehicle traffic.

Geospatial information is also expected to be utilized in various other ways throughout everyday life, including in town planning and tourism. A showcase of case examples is described on the G-Spatial Information Center website.*

The provision of geospatial information useful for our lives and for the creation of industries and services will continue to advance through the G-Spatial Information Center.

* https://www.geospatial.jp/gp_front/

Outline of G-Spatial Information Center



Source) National Spatial Planning and Regional Policy Bureau, MLIT

4 Realizing an Electronic Government

We are making efforts toward realizing an electronic government, based on our Declaration to be the World's Most Advanced IT Nation—Basic Plan for the Advancement of Public and Private Sector Data Utilization. As part of those efforts, with regard to digitization across the whole government—both national and regional—and other policies that have a major effect on increasing convenience for citizens and businesses, we are actively promoting efforts that the government as a whole should take, based on the Implementation Plan for Digital Government (endorsed at an e-Government ministerial meeting on January 16, 2018).

Regarding automobile ownership procedures, a “One-Stop Service (OSS)” that allows for the execution of various procedures, such as inspection, registration, automobile parking space certification, and payment of various vehicle taxes online and at the same time, is being promoted through the cooperation of various ministries. Before this year, the OSS had only been introduced for the new car registration process in 11 prefectures, but in April 2017, we dramatically expanded the target processes and regions. Specifically, nearly all processes required for continuous inspections (vehicle inspections known as “shaken”), registration of moves and other changes, and registration of used cars purchased by a new owner are now eligible for OSS, and we are committed to progressively implementing OSS to reduce the burden on prefectural governments by continuing development to integrate national and prefectural systems. In light of government policies such as the Japan Revitalization Strategy and the Declaration to be the World's Most Advanced IT Nation, we intend to continue discussions regarding matters such as measures to further improve convenience using My Number cards.

5 Development and Opening of Optical Fiber for the Management of Public Facilities and Its Housing Space

The development and opening of optical fiber for the public facilities management and its housing space is being promoted in rivers, roads, ports, and sewage, as a response to the “e-Japan Priority Policy Program.” As of April 2016, the total extent of the optical fiber controlled by the government for river and road management was about 38,000 km, and of this a portion of core cable roughly 19,000 km that does not interfere with the facilities management was opened to private sector business, and applications for additional use have been received.

6 Sophisticated Water Management and Water Disaster Prevention Utilizing ICT

In light of the new developments in information technology of recent years, new technology is being applied in the field to further the sophistication of water management and water disaster prevention.

Regarding the monitoring of rivers and their basins, XRAIN (eXtended RADar Information Network), a high-resolution, high-frequency system used to accurately and fully understand concentrated heavy rainfall and localized heavy rainfall, is being harnessed for rainfall observations. For the observation of flow amounts and water levels, the introduction and practical application of new technology, such as ADCP (Acoustic Doppler Current Profiler) and image analysis based on the utilization of CCTVs and other types of images, are being promoted. In ascertaining the extent of flooding during a disaster, we are also promoting efforts for emergency observations using a satellite-based SAR system (DAICHI-2), based on the Agreement to Cooperate in Provision of Disaster Information Using Satellites, concluded between the Ministry of Land, Infrastructure and Transport and JAXA in May 2017.

In addition, in pursuit of advancing river management and disaster response, we are promoting efforts to acquire drones equipped with green lasers that can take measurements below water surfaces and to install small, passive water gauges that do not require long-term maintenance.

Also, for sediment-related disasters caused by heavy rains and other factors, unusual conditions are always monitored through such means as a radar rain gauge that can observe the rainfall situation over a large area with a high degree of accuracy, volcano monitoring cameras, and landslide monitoring systems. Additionally, in preparation for the occurrence of a deep-seated catastrophic landslide, the measures that detect the location and scale of such an occurrence at an early stage are being promoted for rapid emergency restoration measures as well as the prevention and mitigation of damage through appropriate warnings and evacuations.

As for the sewage sector, in an effort to reduce flood damage from localized heavy rainfall and the like, we are driving

forward with the verification of technology to support the promotion of self-help and mutual aid among regional residents, and efficient operation through the optimal use of the capacity of existing facilities through the use of water levels inside pipes, rainfall, inundation and other observational data provided by sensors, radars and the like.

7 Promoting Open Data

Efforts to address open data are being actively promoted within the national government and local public entities, as part of developing environment aimed at utilizing public and private sector data as stated in the Declaration to be the World's Most Advanced IT Nation—Basic Plan for the Advancement of Public and Private Sector Data Utilization. One of those efforts is to have discussions toward making the data held by the Ministry of Land, Infrastructure and Transport open data, while ascertaining in detail the needs of private enterprises, through the Public-Private Round-tables on Open Data (an opportunity for direct discussion between enterprises in the private sector wishing to utilize data and administrative institutions that hold data), hosted by the Cabinet Secretariat from January 2018.

Under these circumstances, regarding data held by public transportation business operators, we set up the Review Meeting for Promoting Open Data in the Field of Public Transportation in March 2017, with the aim of creating opportunities to promote open data in that field. Interested parties from the public and private sectors participated and discussed relevant issues, and an interim report was released in May 2017. In light of the finding that the following three efforts should be made first, we are promoting efforts toward open data: 1) demonstration experiments through public-private sector coordination, 2) discussions about transforming operation status information (positioning information, etc.) and information that would help people with limited mobility to travel into open data, and 3) promoting open data in local regions.

8 The Use of Big Data

(1) Support for Formulation of Transportation Plans, etc., Using Big Data

Due to a declining population, a dwindling birthrate, and an aging population, the business conditions of route bus businesses, particularly in local regions, are worsening and giving rise to concerns that public transportation networks will shrink and service levels will suffer further. The stabilization of the management of route bus businesses and the restructuring of sustainable local public transportation networks are pressing issues, and management improvements by operators and plans for the reorganization of public transportation by local governments are being studied in many localities.

In light of the circumstances, in FY2017, continuing from 2016, we are providing the Local Route Bus Innovation Business Model Implementation Manual and Data Collection/Analysis Tools, which we developed as measures to support innovations by analyzing local route bus business utilizing big data and other relevant information and creating plans to restructure bus routes and schedules and improve management that we instituted based on the Survey to Support Innovations Benefiting Local Route Bus Businesses with the Use of Big Data in FY2015. In addition, we enhanced these Data Collection/Analysis Tools after implementing a trial analysis of bus business operations in model regions utilizing new big data (population flow statistics).

In FY2018, we will implement efforts toward disseminating these Data Collection/Analysis Tools.

(2) Utilization of Automobile Related Information

Based on the Vision of Future Utilization of Automobile Related Information, formulated in January 2015, demonstration experiments of methods for collecting and utilizing information when motor vehicles are serviced or when used motor vehicles are sold have been implemented. The basis for the experiments is a framework for the collection, management, and provision of historical information about motor vehicles organized so far, toward the realization of traceability services that collect and use historical information about motor vehicles. In light of the results of demonstration experiments, we will continue to advance the development of an environment for promoting the utilization of automobile-related information, in conjunction with the digitization of vehicle inspection certificates, which is being discussed from the viewpoint of making procedures related to motor vehicle ownership more efficient.

(3) Promotion of Economic Strategies for Local Roads Using IT/Big Data

In an effort to support growth and flexibility and robustly promote progress on issues involving regional economies and societies, we are promoting a new road policy that uses and applies ICT technology and big data to the fullest.

Due to the full-scale introduction of ETC 2.0 in August 2015, and the establishment of systems for collecting big data on road transportation speeds and the like, the amount of other transportation, economic and other big data and other information distributed has increased nine-fold over the past nine years. In light of these circumstances, and to resolve regional transportation issues, in December 2015, academic and government entities collaborated to establish institutes in 10 locations in Japan for researching economic strategies for local roads, and are promoting discussions about the implementation of road policies and pilot programs using a wide array of big data, including ETC 2.0, that account for issues in each region.

For example, in order to prevent traffic accidents involving rental cars driven by foreign tourists, the number of which is rapidly increasing, efforts are being implemented for pinpoint accident countermeasures, including the designation of characteristically dangerous spots for foreign tourists by utilizing data on sudden braking recorded by ETC 2.0 in rental cars departing from areas around airports used often by foreign tourists, and installing multi-language signs calling for attention and providing warnings in multi-language pamphlets.

(4) New Town Development Using Transportation-related Big Data

We are advancing the development of smart planning, which is a planning method for considering facilities distribution, formation of spaces, and transport policies through simulation of the movement of people and estimation of the effects of policy implementation based on activity data at the individual level extracted from transport-related big data.

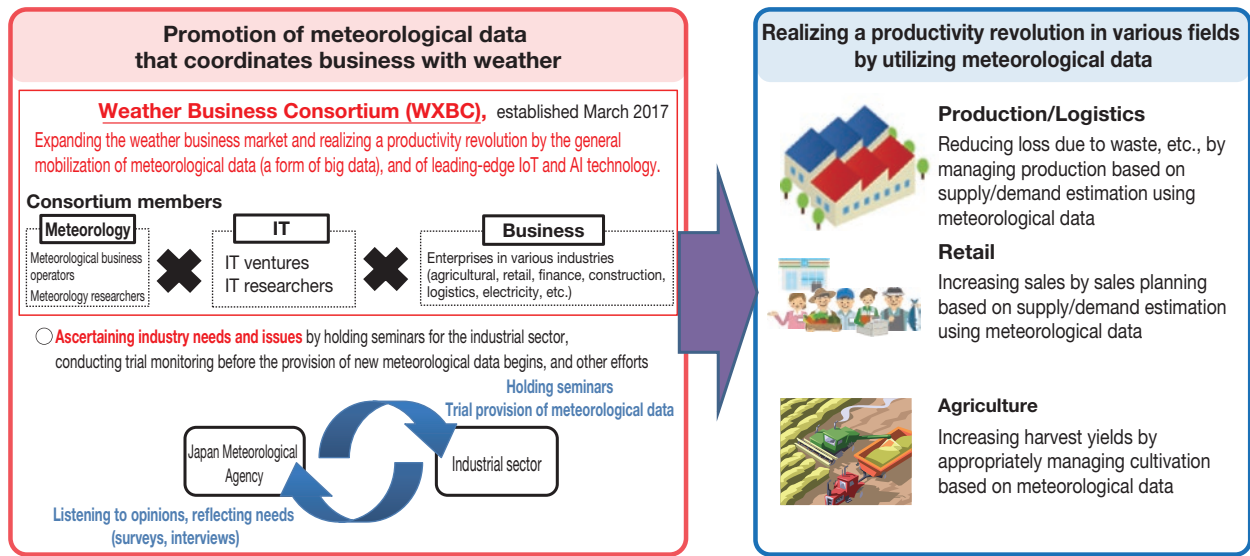
In FY2017, we endeavored to advance improvement in sophisticated systems through verification in multiple cities and enhance measures that can be evaluated and performance indicators. We are also taking efforts to disseminate analysis methods, including working with the Smart Planning Research Subcommittee, setup under the Japan Society for Civil Engineers, to host a seminar on the contents of The Guidebook for Practicing Smart Planning (tentative name), which was formulated in FY2016. The seminar attendees included academic experts, local public entities, consultants, and companies selling big data.

9 Efforts for Increasing Productivity in Business Utilizing Meteorological Data

By combining ICT technologies, in which IoT and AI have rapidly developed, with meteorological data (a form of big data), increases in work efficiency and sales, and improvements in safety are expected in a wide range of industries, including agriculture, retail, transportation, and tourism. Therefore, the Japan Meteorological Agency has been ascertaining the industrial sector's needs and related issues through the Weather Business Consortium (WXBC; established in March 2017)—an industry-academia-government collaboration—and has been promoting the utilization of meteorological data, by providing new meteorological data in response to those needs.

The specific results of these efforts include advances in the utilization of observation data from the Himawari 8 weather satellite and solar radiation estimation data. For example, a demonstration experiment of efficient harvesting of dry, high-quality pasturage made possible by the very detailed water vapor forecast is planned to be held in Hokkaido in summer FY2018.

Figure II-10-1-3 Increasing Productivity in Various Fields by Promoting Meteorological Data Utilization



Source) Japan Meteorological Agency

Section 2 Promoting Technological Research and Development

1 The Position of Technological Research and Development in Technology Policies and Comprehensive Promotion

In light of the policies of the government as a whole, including the Science and Technology Basic Plan (adapted by a Cabinet decision on January 22, 2016), MLIT developed the Fourth MLIT Technology Basic Plan in March 2017. This plan has conveyed the MLIT's policies concerning technological research and development, human resources development, and other matters to national research and development agencies, industry, and academia, etc. As a result, while endeavoring to foster common understanding and to instigate coordination among them, we have encouraged them to work as one for effective and efficient technological research and development, and have also actively adopting the resulting outcomes in public utilities and in the construction and transportation industries.

(1) Initiatives in facilities and Other Organs, Extraordinary Organs, External Bureaus, and National Research and Development Agencies

Key initiatives undertaken by facilities and other organs, extraordinary organs, external bureaus, and national research and development agencies under the jurisdiction of MLIT are as outlined in the figure. National research and development agencies selectively and efficiently conduct research according to social and administrative needs for the purpose of securing maximum results from research and development for the sound growth of our national economy through improvements in the level of science and technology in Japan and other benefits.

Figure II-10-2-1 Major Initiatives for FY2017 by Facility Organizations, Special Organizations, and External Bureaus

Organizations, etc.	Summary
Geospatial Information Authority of Japan	Operating under the auspices of the Geography and Crustal Dynamics Research Center, the Geospatial Information Authority of Japan engages in research and development activities in order to realize a society that utilizes geospatial information in an advanced manner and to contribute to disaster-prevention and environmental objectives by development of technique to monitor crustal movements in real time using real-time kinematic precise point positioning (PPP-RTK), research on aerial detection of temporal development of national land ground deformation through InSAR time series analyses, research on the realization of a vertical reference frame based on a precise gravimetric geoid, research on the analysis of crustal movements considering topology and subsurface structure, research on the development of a rapid and highly accurate GNSS routine analysis system, and research on real-time interpretation of flooding.
Policy Research Institute for Land, Infrastructure, Transport and Tourism	The Policy Research Institute for Land, Infrastructure, Transport and Tourism carries out surveys and research activities: simplified methods of surveying the present state of vacant houses; analysis on detached housing and condominiums with missing or unidentified owners; analysis of macroeconomic effects of public investment using DSGE models; methods for verifying measures for maintaining public transport in regions; sustainable tourism policies; and organizational safety management tools of transport companies.
National Institute for Land and Infrastructure Management (NILIM)	For the purpose of pursuing responses to society's needs and solutions to local issues, the National Institute for Land and Infrastructure Management (NILIM) has been promoting research for an attractive society that is safer, more secure, and more vigorous by research contributing to the following: 1) Disaster prevention and disaster mitigation, and crisis management "such as flood risk visualization project, and establish of prompt inspection and restoration methods for airport pavement when earthquake occurs; 2) " Infrastructure maintenance "such as verification in actual field of survey technology to detect abnormalities in sanitary sewer conduits for improvement of maintenance and management efficiency of sanitary sewer conduits; and 3) " Productivity revolution "such as creating draft standards for in-vehicle devices and communication necessary for the cooperative vehicle-highway ITS system through public-private sector coordination, and efforts toward application of mixed structures that combines timber structures using CLY with reinforced concrete structures.
Meteorological Research Institute	Conducted research on understanding the phenomena of weather, climate, earthquake volcanoes, and the ocean as well as predictions to contribute to "strengthening measures for typhoons and torrential rains," "strengthening measures for earthquake, volcano, and tsunami disasters," and "strengthening of measures related to climate change and global environment."
Japan Coast Guard	Conducted testing and research for equipment and materials used for Coast Guard duties, testing and research for forensic science at sea, and advancing observation technology for seafloor crustal movements.

Figure II-10-2-2 Key initiatives undertaken by national research and development agencies under the jurisdiction of MLIT in FY2017

National research and development agency	Summary
Public Works Research Institute*	Conducted research and development to contribute to the realization of a safe, secure society; the strategic maintenance and improvement of social infrastructure; and the realization of a sustainable, active society for the purpose of helping to the efficient creation of quality social infrastructure and the development of Hokkaido.
Building Research Institute*	Conducted research and development on technologies related to housing, buildings and urban planning including developing technology to ensure the structural safety of buildings to contribute to the prevention of damage and destruction due to giant earthquakes and other natural disasters; developing technology to realize the efficient use of resources and energy in harmony with the natural environment in housing, buildings and urban areas to contribute to the reduction of greenhouse gas emissions; and conducted training related to earthquake engineering.
National Traffic Safety and Environment Laboratory	Conducted test research related to the safety assurance of land transport and environment preservation, technical standards conformity assessment of automobiles, and technical evaluations related to recalls, including "Promoting the development and commercialization of next generation heavy vehicles" and "Survey on the requirement for communication between a pedestrian and a vehicle."
National Institute of Maritime, Port and Aviation Technology*	<p>Cross-Sectoral Research Conducted cross-sectoral research and development on the issues of promoting the use of seas and strengthening global competitiveness, including research and development regarding sea floor observation and exploration, underwater construction, transportation and communications between offshore platforms and the sea floor, transportation and navigation assistance from land to offshore platforms and other next-generation technologies for surveying marine resources, and research and development regarding the improvement of the safety and maintenance efficiency of runway and other airport infrastructure in terms of enhancing the functions of metropolitan-area airports.</p> <p>National Maritime Research Institute Conducted research and development regarding the fundamental research and development to support assurance of safety in maritime transportation, conservation of the marine environment, marine development and maritime transportation, including research and development regarding the systematization of pioneering methods of evaluating vessel safety and more efficient safety regulations; research and development regarding innovative technology to contribute to the realization of green innovation for ships, and methods of evaluating operation performance in actual ocean zones; research and development regarding the establishment of fundamental technology and safety evaluation methods for marine renewable energy production systems; and research and development regarding technology to contribute to technical innovations in human resource development that underpin the development of maritime industries.</p> <p>Port and Airport Research Institute Conducted research and development regarding the reduction of and recovery from disasters in coastal areas, the formulation of stock to support industry and national life, the preservation of maritime rights and interests and the use and application of the seas, and the formulation and use of aquatic environments, including research and development regarding the reduction of and recovery from earthquake damage; research and development regarding the enhancement of port, harbor and airport functions for ensuring global competitiveness; research and development regarding the development and use of the seas through such efforts as developing ports and harbors on remote islands and securing effective marine energy; and research and development regarding the conservation and use of coastal ecosystems.</p> <p>Electronic Navigation Research Institute Conducted research and development that strives to improve safety in air traffic while contributing to the expansion of air-traffic capacity, the improvement of the convenience of air transportation, the improvement of the efficiency of aircraft navigation, and the reduction of the environmental impact of aircraft, including research and development on the advancement of air traffic management through trajectory-based operation; the advancement of airport operations: the optimization of air traffic through the use of onboard information; and the advancement of information sharing and communications between relevant personnel.</p>

*National research and development agency

(2) Initiatives of Regional Development Bureaus

Technical and Engineering Offices as well as Port and Airport Technology Investigation Offices coordinate with relevant offices in their jurisdiction for tests and research of civil works material and water quality, hydraulic tests and design for the effective and efficient development of facilities, development of environmental monitoring systems, and other matters for technology development, as well as the utilization and promotion of new technology tailored to the region.

(3) Promoting Research and Development Technologies of Construction, Traffic and Transportation Fields

Of the important research issues concerning construction technology, issues that are especially urgent and involve a wide range of fields are taken up with the governmental departments taking the lead with the coordination of industry, academia and government to comprehensively and organizationally implement research for the “comprehensive technology development projects,” where in FY2017, research and development was conducted for a total of five issues, including Research on Increasing Construction Productivity through Comprehensive Utilization of the ICT.

Also, for the traffic and transportation fields, technological research and development that contributes to ensuring safety, improving convenience, and protecting the environment are being promoted efficiently and effectively with the coordination of industry, academia and government. In FY2017, we engaged in the development of technology that could be used for upgrading public transportation systems utilizing high-precision positioning technology.

(4) Supporting Private Sector Technological Research and Development

To promote private sector investments in research and development, support is given through preferential tax measures for experimental and research expenses.

(5) Promoting Open-Type Research and Development

In order to promote technological innovation in the construction sector, an open call for the development of technologies to solve policy issues (targeted commercialization in two to three years) was made through the Construction Technology Research and Development Subsidy Program, which invites proposals concerning technological research and development to help upgrade and enhance the international competitiveness of construction technology under the purview of MLIT and further promote research and development carried out by MLIT. In FY2017, seventeen new issues and six ongoing issues were adopted.

In addition, in FY2017, four new projects and five ongoing projects were adopted under the Transportation Technology Development Promotion Competitive Funding Program, in which researches and developments were conducted toward the realization of a safe, secure, and comfortable transportation society, the reduction of environmental burdens, and the resolution of other policy issues in the traffic and transportation sectors. And “Traffic and Transportation Technology Forum” was held on December 13, 2017, to introduce the current state of researches and developments and present outcomes under the program, and to elicit a wide range of opinions.

2 Promoting the Utilization and Adoption of New Technology for Public Works

(1) New Technology Utilization System for Public Works

In order to actively utilize promising new technology developed by private sector businesses, a “new technology utilization system for public works” that utilizes the New Technology Information System (NETIS) is under operation. Up to now, there were 28 recommended technologies and 66 runner-up recommended technologies (in total as of the end of FY2017) chosen as innovative new technologies that will further raise the level of technology concerning public works. Also, to promote efficiency of maintenance and management in the field, for the adoption of new technology in the field and the promotion of further technological development, NETIS is leveraged to set technical themes to use and evaluate the submitted technologies in the field.

(2) Supporting the Utilization of New Technology

In order to promote the utilization of new technology in public works and other areas, utilization is evaluated at every design stage, and technology that provides great utilization benefits are designated by the ordering party when construction is contracted. In addition, we prepare technology comparison charts for every type of construction and theme to serve as references for both orderers and builders in the process of selecting new technologies.

Section 3 Improving Construction Management Technology

1 Improving Costing Technology for Public Works

For the purpose of promoting ensured quality in public works, and in order to accurately establish price estimates from the viewpoint of appropriately reflecting the mid- to long-term fostering and securing of workers and market conditions, efforts have been made to consider quantity survey standards and implement revisions when necessary.

Regarding public civil works, efforts have been made to make all construction processes fully appropriate. Such efforts include the revision of the Quantity Surveying Criteria for Civil Works Utilizing ICT, based on policies stated in the Expansion of Comprehensive ICT Utilization in i-Construction, for the purpose of promoting i-Construction, which is aimed at attractive construction sites, as well as the active implementation of works comprehensively utilizing ICT, including works for SMEs.

In addition, the overall quantity survey standards have been revised, in light of the latest status of enforcement and regional characteristics, by revising laws and design criteria and accurately reflecting labor, resource, and transaction costs in social economic trends and markets.

2 CIM and BIM Initiatives

Construction Information Modeling/Management (CIM) endeavors to seamlessly connect processes at all stages by linking and developing three-dimensional models from the survey, planning, and design stages to the construction and maintenance management stages and promoting the sharing of information among concerned parties involved in the entire project. With trial operations having begun in FY2012, along with progress made in discussions toward the introduction and promotion of CIM from the perspectives of both system and technology through industry-academia-government coordination, the Guideline to CIM Introduction (tentative name) was formulated in FY2016. The guideline contains guidelines for making CIM models, utilization methods, etc., and also addresses the role played by CIM businesses that place orders with related parties coordinating widely with public utilities, and fundamental work methods and points for consideration.

Since FY2010, the adoption of Building Information Modeling (BIM) to help visualize design content and integrate and consolidate building information has been subject to trial operations to verify the effect of the adoption of BIM and any issues that might consequently arise. In addition, Guidelines for the BIM models to Create and Use in Government Building Projects, which outline the basic principles and considerations to be taken into account when using BIM for government building projects, were compiled in March 2014. Since FY2014, a track record of cases involving BIM introduction to which the guidelines were applied has been maintained.

Section 4 Technology Development for Construction Machinery and Mechanical Equipment

(1) Development and Supply of Construction Machinery

In order to carry out the appropriate maintenance and management of rivers and roads managed by the national government and respond quickly to disaster recovery, initiatives are being carried out across the nation to implement machinery for maintenance and management, as well as machinery for disaster measures. In FY2017, an extra thirty-nine machines were added and 209 aging machines were updated.

Furthermore, in order to improve efficiency, conservation of labor, and safety of construction associated flood control projects and road development projects, studies as well as research and development for construction machinery and construction processes are being undertaken.

(2) Streamlining and Improving the Reliability of the Maintenance and Management of Machinery

For the protection of citizens' lives and properties from disasters, the construction of floodgate facilities, storage and drainage pump facilities, and road drainage facilities were furthered, starting around late 1965, and many of the facilities are becoming decrepit. As such mechanical equipment is required to function reliably during floods, we are proactively promoting the application of condition-based preventive maintenance in an effort to realize efficient, effective maintenance while ensuring the reliability of facilities.

(3) Utilizing the Accomplishments of Construction Technology Development

In order to safely and swiftly carry out restoration activity at disaster sites where the danger of secondary disasters such as large-scale floods, sediment-related disasters, and slope collapses are high, a hydraulic shovel that can be remotely controlled, dismantled, and airlifted was developed and 11 units were deployed in FY2014.

One of these was deployed to areas affected by deep-seated landslides due to Typhoon Lan in the Kuri Daira District, Totsukawa Village, and Nara Prefecture, where some erosion control units were devastated, and has been utilized in other disaster restoration activities.

Column

Enhancing On-Site Safety through the Development of Unmanned Construction Technology (i-Construction in the field of erosion prevention)

In locations hit by a landslide, there are many sites that are dangerous for people to enter. Under such circumstances, unmanned construction technology that can be controlled remotely has been developed in order to prevent subsequent disasters from occurring on urgent construction sites immediately after a landslide. As the technology particularly contributes to the enhancement of safety, which is one of the goals of i-Construction, it is being promoted for use in erosion protection. One result of this effort is the countermeasure to the large-scale slope slip that occurred in the Aso Ohashi Bridge area during the 2016 Kumamoto earthquake. By using advanced unmanned construction technology to prevent a subsequent disaster due to the slipping of the large amount of unstable earth remaining in the upper slope, the safety at the construction site was increased dramatically. "Advanced" as used here means that a remote-control room 1 km away can be used to control up to 14 items of heavy equipment at the same site at the same time without signal interference. The unmanned construction technology used this time was evaluated highly, even winning the Outstanding Civil Engineering Achievement Award granted by Japan Society of Civil Engineers.



Remote control room



Unmanned operation



May 4, 2016 Kyushu Regional Development Bureau Photo from Harukaze helicopter

(4) Promotion of Development and Introduction of Next Generation Robots for Social Infrastructure

The social infrastructure of Japan is facing problems such as progression of aging, risks of earthquake, storm and flood damage. Therefore, for the “5 important fields” (Maintenance and management: Bridge, Tunnel, and Water; Disaster Response: Investigation and Emergency Restoration) that require the development and introduction of robots, initiatives are underway for the maintenance and management of the social infrastructure and improvement of effect and efficiency during disaster, by planning for the development and introduction of highly practical robots. In FY2014 and FY2015, we made a public appeal to private companies, universities and others for robots capable of addressing our five priority fields, and conducted testing and evaluations at actual sites. Over two years of on-site verifications, we confirmed which technologies have a specified level of capabilities in the maintenance and management, and since FY2016, have been verifying their practical utility by testing them in environments identical to those in which they will actually be used for inspection. In addition, since FY2017, the establishment of requirements (required performance) based on the verification of their practical utility has been facilitated.

