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Ministry of Land, Infrastructure, Transport and Tourism

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# Preface

In today's world, Japan is currently in the lead as a "population-declining, extremely-aging" society. It is predicted that the population decline that began in 2008 will continue to escalate with the rapidly decreasing population, falling birth rate, and aging society. In particular, the rural areas have districts where, in addition to the decreasing population of youth, the population of seniors is decreasing as well. This puts the severity of population decline in rural areas ahead of the urban areas, and is connected to the economic attrition of these regions. The question of how to deal with these problems in order to build a bright future has become a pressing issue for the entire government.

In May 2014, the Population Decline Issue Review Committee (Chairman: Hiroya Masuda) of the Japan Policy Council shocked the country when it announced its projection that, "By 2040, there is a possibility that 896 municipalities will disappear (the population of young women (age 20-39) will decrease to less than half the current numbers)."

In July of the same year, the MLIT announced the "Grand Design of National Spatial Development towards 2050 ~Creation of a Country Generating Diverse Synergies among Regions~" to provide a philosophy and way of thinking for building up the country towards year 2050, taking into account the rapid decline in population and the imminence of a major disasters.

The government as a whole also established the "Headquarters for Overcoming Population Decline and Vitalizing Local Economy" in September of the same year, in order to deal with the issues of building up rural areas as well as overcoming the population decrease by the government working together as one body. In addition, by December of that year, "Overcoming Population Decline and Vitalizing Local Economies: Long-term Vision" and "Overcoming Population Decline and Vitalizing Local Economies: Long-term Vision" and "Overcoming Population Decline and Vitalizing Strategy" were formulated to be used as the base on which each local government was to establish its own "Rural Population Vision" and "The Rural Comprehensive Strategy."

Based on the above conditions and being mindful of these issues, Part I of the 2015 MLIT White Paper's theme is: "Building up the Country and Regions to Actualize an Abundant Life that Extends to Future Generations ~Creation of a Country Generating Diverse Synergies among Regions~." Taking into account the "Grand Design of National Spatial Development towards 2050", Part I will discuss the full-scale efforts needed for building up the country and regions in a society struggling with a declining population, with a special focus on "Creating Unique Rural Areas."

Chapter 1, "Current Conditions in Japan such as Declining Population", will expound on the challenges Japan is currently facing, such as the decrease in population, the declining birth rate, the aging population, and the overcentralization to Tokyo. In particular, we will analyze the effects women's employment rate and its relationship to the birth rate, which is the fundamental factor of demographic shifts. We will then review how the population decline is affecting the cities and daily life in Rural Areas.

Next, Chapter 2, "Building up the Country and Regions in a Society Amidst a Serious Population Decline", will be divided up into the two parts that contributes to the vitalization of the community: the flow of people and goods (Activity), and the regional structure that provides support (Structure). First, in Section 1, "The Flow of People, Goods, Money, and Information", analyzes the trends and causes of migration to rural areas, and attempts to quantify regional attractiveness, as well as introduce efforts being made for the vitalization of communities through the revitalization of tourism, logistics and regional economic circulation. Then in Section 2, "Structured Community Development Tailord to the Needs of the Times", we will introduce the effects and actual cases of "compact" and "networked"—the core concept of "Grand Design of National Spatial Development towards 2050"—in order to explain the importance of "compact" and "networked" as a way of thinking about the aspect of regional structure (Structure) in the creation of a country generating diverse synergies among regions.

In Part II, the progress made in FY2014 by various sections of the MLIT administration will be reported for each policy issue.

# Part I

# Building up the Country and Regions to Actualize an Abundant Life that Extends to Future Generations

Creation of a Country Generating Diverse
Synergies among Regions ~

# Chapter 1 Current Conditions in Japan such as Declining Population

In Section 1 of Chapter 1, we will give an overview of future demographic estimates and historical reasons for population shifts, then review the serious condition of issues Japan is facing—such as population decline, decreasing birth rate, aging society, the concentration of population and industry in Tokyo —with a particular look at the severe decrease in population of the rural areas compared to the urban areas. In addition, as we analyze the conditions and trends of birth rate, which is the basic cause of population shift, especially in relation to the employment rate of women, we will compare the urban areas with the rural areas.

In Section 2, we will explain the actual effects the progression of population decline has on the rural cities and daily life of the citizens, including daily life-related services, governmental services and local communities, then will raise the issues that continue to rise in the following chapters.

## Section 1 Demographics of Japan

#### Japan's Population Shift and Future Demographics

#### (1) Estimated Future Demographics

#### (Japan's Demographics)

Japan's total population was in a continual growing trend throughout the First Baby Boom (1947~1949) after World War II and the Second Baby Boom (1971~1974), but since reaching its peak of 128.08 million in 2008, the total population has been in a steady declining trend.

According to "Population Projections for Japan" released by the National Institute of Population and Social Security Research (hereafter "IPSS"), in a midterm estimate with the Total Fertility Rate ^{Note 1} (hereafter simply referred to as "TFR") projected to shift at 1.35, it is predicted that by 2050 the population will dip below 100 million, and that by 2100, it will decrease to half that, dipping to below 50 million. (Figure 1-1-1).

However, if over the next 20 years there was to be a recovery of the fertility replacement level to TFR 2.07, in Fertility Replacement Case 1 (France's Recovery Rate)" the rate of Population Decline would ease up and the total population would stabilize at about 95 million from 2110. Drastic recovery of TFR will not be easy, and working on actualizing the younger generation's hopes for marriage and childrearing will be vital for promoting TFR ^{Note 2}.

Note 1 Total Fertility Rate is the total of the birth rate of women ages 15 to 49 at each age, and is equivalent to the number of children one woman will give birth to if it is assumed that she gives birth at each age during her life time according to the age level birth rate of that year (Figure 1-1-25)

Note 2 According to "Overcoming Population Decline and Vitalizing Local Economies: Long-term Vision" (December 2014), based on the premise that marriage and child bearing is always based on the free will of the individual, "If the younger generation's hope for marriage and child rearing are actualized, it is projected that Japan's TFR will improve to about 1.8."



2 Population replacement case in (Plances nectory nate). An estimate made based on using the 2013 male reintale Population (total population) by Age (each age) as the base population (TFR 1.43) to hypothesize that each year the birth rate will increase by the average rate (0.03) of the change in France's birth rate from 1994 to 2006 (increase from 1.66 to 2.00), reaching Population Replacement Rate (2.07) in 2035 and that the same level will be maintained thereafter.

"Population Replacement Case 2 (Japan's Recovery Rate)": An estimate made based on using the 2013 Male Female Population (total population) by Age (each age) as the base population (TFR 1.43) to hypothesize that each year the birth rate will increase by the average rate (0.02) of the change in Japan's birth rate from 2005 to 2013 (increase from 1.26 to 1.43), reaching Population Replacement Rate (2.07) in 2043 and that the same level will be maintained thereafter. Source) The actual figures for 1950 to 2013 prepared by MLIT from MIC's "National Census Report" and "Population Projections", MHLW's "Vital Statistics". Estimated figures developed by MLIT

Source) The actual figures for 1950 to 2013 prepared by MLIT from MIC's "National Census Report" and "Population Projections", MHLW's "Vital Statistics". Estimated figures developed by MLIT from "Population Projection for Japan" (Estimated in January 2013) by National Institute of Population and Social Security Research, MHLW's "Vital Statistics".

#### (Number of Births and Total Fertility Rate)

The TFR became 4.54 in 1947 during the post-war First Baby Boom with approximately 2.7 million births, reaching the highest for both numbers of birth and TFR during the 3 years of that Baby Boom (Figure 1-1-2).

Since then, after reaching a record of 2.09 million births in 1973 during the Second Baby Boom, the number of births and the TFR has generally continued to show a decreasing tendency.

In 1989, the TFR went below 1.58 recorded in 1966, which was the year of 'Hinoeuma' ^{Note 3}, and this was called the "1.57 Shock," due to the major social repercussion incurred.

In 2005, the TFR was 1.26, the lowest post-war value, and although there has been a marginal increasing tendency since then, the number of births has been the lowest ever for 3 years straight since 2011, and in 2013 reached a record low of approximately 1.03 million births.



Next is a comparison of the changes by age group for every 50 years, using the socalled "Population Pyramid" (Figure 1-1-3).

In 1950, due to the overwhelmingly large number of youth headed up by the socalled post-war Baby Boomers generation, the graph is "Mount Fuji" shaped. By 2000, although the Baby Boomers and the Junior Baby Boomers lead the total population, due to the sudden drop in the population of those under the age of the 20 to 30 group, the graph is "Bell" shaped. The figure for 2050 based on the median estimates by IPSS (National Institute of Population and Social Security Research) is expected to be "Vase" shaped due to a further decrease in population.

Although the figure is called a "Population Pyramid", in recent years the shape is no longer a pyramid, and is projected that the youth population—which makes the base of the pyramid—will continue to decline.



Changes in Population Aging Rate of

Other Countries

(Population Aging Rate in Comparison with Other Countries)

Japan has been called an aging society for some time, but how does its population aging rate Note 4 compare with other countries? (Figure 1-1-4)

Overall, the population aging rates are rising in all the countries compared, however, it is evident that Japan's rate is rising significantly more than the other countries.

By 2010, the population aging rate had already exceeded 20%, which means that currently in Japan one person in five is elderly. Also, according to the median estimates produced by IPSS (National Institute of Population and Social Security Research), the Aging Rate is estimated to be 25.1% in 2013, meaning one person in four would be elderly in Japan. Further, by 2025 the Aging Rate will exceed 30% in Japan overall, and has been projected that by 2050 the rate will reach almost 40%. It is expected that hereafter Japan will progress even further as an elderly society to become a type of society never before experienced by the major countries of the world.

#### (2) Changes in Demographic Shift for Urban and Rural Areas

(Changes in Demographic Shift for the 3 Major Metropolitan Areas and Rural Areas)

After World War II, during the 1950-1970's, a period of rapid economic growth, along with the rise in Japan's overall population, a sudden population increase occurred in the 3 major metropolitan areas, due to factors such as the youth from rural areas Note 5 moving to the 3 major metropolitan areas for further education and employment. Due to this demographic shift, the housing supply could not keep up with the demand in the 3 major metropolitan areas, causing large-scale new town developments in the suburbs to thrive. However, from the mid-1970s, the excess numbers of people moving in to the Nagoya



Figure 1-1-4

(%) 45.0

40.0

35.0

30.0

25.0



and Osaka areas have almost leveled out (Figure 1-1-5).

In the mid-1980s, due to the "Bubble Economy", the excess numbers of people moving in to the Tokyo area increased, but because the property prices in the city center suddenly escalated, a "donut phenomenon" occurred, where the city center area hollowed out due to people seeking housing in the suburbs.

Note 4 The ratio of elderly (over age 65) population to total population

Note 5 The District divisions are as follows:

Tokyo Area: Saitama, Chiba, Tokyo, Kanagawa; Nagoya Area: Gifu, Aichi, Mie; Osaka Area: Kyoto, Osaka, Hyogo, Nara; The 3 Major Metropolitan Areas: Tokyo Area, Nagoya Area, Osaka Area; The Rural Areas: All areas other than the 3 Major Metropolitan Areas

After the Bubble Economy burst in the first half of the 1990s, the demographic shift to the Tokyo area declined briefly, but with the drop in property prices and the lowering of interest rates on housing loans, as well as housing prices coming down to an affordable range, the demographic shift to Tokyo started increasing again by the mid-1990s.

Although there have been temporary decreases in excess move-in numbers due to the effect of the Lehman Shock in 2008 and the Great East Japan Earthquake in 2011, in recent years the demographic shift to Tokyo is showing a rising trend.

### (Trends in Population Projection for Japan by Regional Block)

The demographic trends of the rural areas and the 3 major metropolis areas differ in tendency.

In looking at the trends of median estimates of estimated future populations for the 3 major metropolitan areas and the rural areas by age groups (ages 0-14, ages 15-65, ages over 65), it is evident that there will be an overall population decline, as well as population aging for all areas from 2010 to 2060 (Figure 1-1-6).

Looking at the actual numbers of elderly people by regional block, the peak for rural areas will be reached in 2030 at 18.6 million, and thereafter there will be a declining trend. However, for the Tokyo area, the elderly population will reach 11.2 in 2040, peak at 11.5 million in 2050, then decrease in 2060, though over 10 million will still be elderly in 2060.

As indicated above, it is clear that the timing of the increase in the number of elderly people are different in the 3 metropolitan areas and the rural areas.



### (Timing Difference in Population Decline for Metropolis and Rural)

Population decline, broken down into broad stages, progresses according to the three stages listed below.

Stage One: The population of youth decreases but the elderly population increases (2010 to 2040)

- Stage Two: The decline of the youth population accelerates while the elderly population remains level or slightly decreases (2040 to 2060)
- Stage Three: The decline of the youth population further accelerates and the elderly population also decreases (After 2060)

The Figure below is an indexation of the estimated numbers for each year with 2010 as 100 (Figure 1-1-7).

Currently, the metropolitan areas such as central Tokyo and other core cities are in the First Stage where the productive population and the child population is already decreasing but the elderly population is expected to increase from now to 2040. However, the small cities and the depopulated districts of the rural areas have already entered the Second and Third Stages where not only the productive and child populations but the elderly population are also just maintaining their numbers or showing a decrease.

In other words, not only are the rural areas going to decline, it is predicted that first the rural areas will decline, then the human resource supply from the rural areas to the metropolis areas will dry up so that urban areas will also start to decline, until finally all of Japan will go into a decline.



#### (Income and Employment Gaps Accompanying Demographic Shift)

The cause for the population shift from the rural areas to the 3 metropolitan areas is largely related to income and employment.

Looking at the relationship between the excess in-migrants ratio and the disparities in income and employment for the 3 major metropolitan areas, there was a high correlation to the income disparities before 1990, and it is evident that when the income disparities became significant, the excess in-migrants ratio increased (Figure 1-1-8).

Conversely, after the 1990s, the correlation to employment disparities became high, so that when the ratio of active job openings to active job applicants became relatively high, the excess in-migrants ratio increased, showing that the demographic shift between the metropolis areas and the rural areas were greatly affected by economic factors.



#### (Demographic Shift Conditions in Rural Areas According to Age)

In the rural areas, there is a correlation between the change in life stages and demographic shift (Figure 1-1-9).

The first major demographic shift period is the population exodus that happens when students leave to go to university. From 1985 to 1990, there was a population drain of 185 thousand people, but since then there has been a yearly decrease so that from 2005 to 2010, 112 thousand people left, a marked decrease in the number of people leaving to about 60 percent of the peak period.

Also, previously those who moved away from the rural areas to pursue higher education returned after graduation to find employment, turning into excess in-migrants, but after 2000, those who moved away from the rural areas more often than not stayed in the metropolitan areas to find employment, changing the trend to additional excess outmigrants.

On the other hand, looking at the retirement period, the population influx to the rural areas has increased by ten thousand people from the periods of 1985 to 1990 and 2005 to 2010, and in recent years there seems to be a trend of returning to rural areas at retirement.



In terms of the demographic shift within the rural block, a comparison of the 4 blocks in which there are rural core cities ("Hokkaido (Sapporo City)", "Tohoku Area: Miyagi Prefecture (Sendai City)", "Chugoku Area: Hiroshima Prefecture (Hiroshima City)" and "Kyushu Area: Fukuoka Prefecture (Fukuoka City)" is shown in the chart below (Figure 1-1-10).

Looking at the demographic shift from 1955 to 2014, each of the core cities all show the tendency towards excess inmigrants. However, within each block there is an excess out-migrants tendency.



#### (In-migrants/Out-migrants by Prefecture and Total Fertility Rates)

In looking at the excess in-migrants/out-migrants by prefecture (Bar Figure: Left Axis) for 2013 and 2014, the excess in-migrants are extremely large for Tokyo, making it very clear that the population is heavily concentrated in the Tokyo metropolitan area (Figure 1-1-11).

Other than Tokyo, in the metropolises of Miyagi Prefecture, Saitama Prefecture, Chiba Prefecture, Kanagawa Prefecture, Aichi Prefecture, Osaka Prefecture (2013 only) and Fukuoka Prefecture, there was an excess of out-migrants, while other districts show a decrease. Especially in 2014, in addition to excess in-migrants decreasing in prefectures outside of Tokyo Area, Osaka Prefecture had an excess of out-migrants, which shows that the population concentration in the Tokyo Area is progressing right from the surrounding areas.

Looking at the birth rate (Line Graph: Right Axis) for 2013, the rate is extremely low in Tokyo and tends to be low for all the other prefectures that also have excess in-migrants.



Based on the above, it can be said due to causes such as the post-WWII economic growth, Japan's population, lead by its younger generation, are being drawn to the Tokyo Area—with its good income and employment conditions—from the Rural Areas, and although there are minor fluctuations due to social and economic conditions, the tendency to concentrate in Tokyo is continuing.

In order to slow down the population decline, it is important to remedy the tendency to concentrate everything in Tokyo and promote the shift of people to the rural areas where the birth rate is relatively high.

## 2 Total Fertility Rate and Women's Employment

#### (1) Current State/Tendency of Total Fertility Rate

Looking at the TFR Note 6 for 2013 by prefecture, it is high in Okinawa, Minami Kyushu and Sanin while being lowest in Minami Kanto, Kinki and Hokkaido (Figure 1-1-12).

Comparing the birth rate with the rate of unmarried people between ages 20 and 49 in the prefecture shows that areas with low birth rates tend to have high rates of unmarried people (Figure 1-1-13) Note 7.





Note 6 As defined in "1. (1)" of this section, within the text of "2.", Total Fertility Rate is listed as Birth Rate.

Note 7 In this section, the solid line (pink) indicates the national numbers.

Also, for the average age for the first marriage, nationally the husband is one or two years older than the wife, with the distribution showing the same tendency for both the husband and wife, and in regions with a low birth rate such as Minami Kanto area, and Kyoto, Osaka prefectures the age for getting married for the first time tends to be higher (Figure 1-1-14).



#### (2) Relationship of Total Fertility Rate and Women's Employment

Within the progressing population decline and the expected decrease in the population of the child bearing age group, women hold the greatest potential, and that social participation by women is thought to be effective even for building up rural societies that are maintainable. Recognizing that it is vital to improve the birth rate in this social environment, we will analyze the relationship between birth rates and the employment of women using the data from each prefecture as the base.

#### (Comparisons of Male/Female and Married/Unmarried)

First, if we compare the rate of employment Note 8 for men and women between the ages of 20 and 49 with whether they are married or not, for unmarried people, whether men or women, the employment rate exceeds 70%, and there is no difference in the national employment rate of unmarried men and women (Figure 1-1-15).

However, in the married person category, the employment rate for men is over 96%, even in Okinawa where the employment rate for men is lowest, while for women there is a large gap between the lowest employment rate of 55.3% in Hyogo Prefecture, to the highest rate of 80.2% in Yamagata Prefecture, and there is a tendency for women's employment rate to be low in areas where the birth rate is low (Figure 1-1-16).

Note 8 Where the chart is compiled from "Employment Structure Basic Survey" by MIC, "Employed Rate" is listed as "Employment Rate" in the title of the text and chart.



Hereafter, while following the birth rate and its related factors, we will conduct the analysis with a focus on the employment rate of women with spouse.

#### (Tendencies of Each Area)

In order to look at the birth rate and employment tendencies of each area, we will plot only the employment rate of women with spouse from Figure 1-1-16 to at it closely (Figure 1-1-17). Looking at this figure, there is an obvious distribution tendency that many of the Metropolitan Area prefectures such as Tokyo are in the lower left where both the birth rate and the employment rate of women with spouse are lower than the national average, while many of the Rural Area prefectures such as Chugoku Area tend to be in the upper right, where both rates are higher than the national average. In other words, it is evident that while the birth rate and employment rate of women with spouse are low in the Metropolitan Area prefectures, the birth rate and employment rate of women with spouse both tend to be higher in the Rural Area prefectures.



#### (Relationship with a Woman's Life Stage)

Next, under the assumption that a woman's lifestyle changes greatly between the "marriage" phase and "childbirth, child-rearing" phase, we will consider the relationship between these factors and employment rate/birth rate.

First, by combining only the data on women from Figure 1-1-15 and Figure 1-1-16, it becomes clear that areas with lower birth rates have a greater difference between the employment rates of women without spouse and women with spouse (Figure 1-1-18).

Next, looking at the average working hours Note ⁹ of employed people over the age of 15 on a weekday by men and women, and by different life stages, the working hours for men becomes longer in the "child-rearing stage Note 10" than in the "single stage Note 11" but there is no significant difference in the tendencies of the average working hours by regions.

On the other hand, the average working time for women becomes shorter in the "child-rearing stage" than in the "single stage" and, along with the large decrease of working hours in the regions with low birth rates, the distribution tendencies change a great deal (Figure 1-1-19). When analyzed in conjunction with Figure 1-1-18, regions with a lower birth rate not only have lower employment rate in general for women, but also an added factor that even the employed women have shorter working hours.

In other words, we can infer that in regions with a lower birth rate there is a large possibility that many women quit working or change to jobs with shorter working hours after getting married or giving birth.





Furthermore, in order to take a more detailed look at the relationship between the birth rate and the employed rate of women with spouse (hereafter referred simply as "employment rate" in the text of this section), we will take examples from the Metropolitan Areas and the Rural Areas, Tokyo/Osaka and Shimane/Fukui prefecture respectively, for comparison and analysis.

First, looking at the birth rate of each age range ^{Note 12} and the employment rate of women, in areas where the birth rate and employment rate are both low, the graph shows a tendency towards a "M-shaped" curve because the employment rate becomes extremely low for the last half of the 20s to the 30s which are seen to be related to child-bearing and child-rearing. In the areas where both the birth rate and employment rate are high, this "M-shaped" curve is not seen (Figure 1-1-20).

Note 9 Average Working Hours of Workers is the average number of working hours per worker for one day.

Note 10 Child-Rearing Stage means having a spouse and an unemployed child under the age of 30.

Note 11 Single Stage means having no spouse or child.

Note 12 The birth rate referred to here is the numbers of birth for 1,000 women in each age range.



Further, in looking at the employment conditions (ratio of regular employment to non-regular employment), areas with the higher birth rates have a higher rate of regular employment for both men and women. Also, in areas where the birth rate is low, in the age range of the latter half of 30s—age at which women are assumed to be in their child-rearing years—there is a reversal of the ratio between regular and non-regular employment, while in areas with high birth rates, women with regular employment maintain a level around 50% up to their early 50s (Figure 1-1-21). The context for the increase in those with non-regular employment with the increase in one's age in the former areas (where the birth rate is low), is that when the women re-enter the work force after full-time child-rearing has ended, there seems to be a tendency to choose jobs with shorter working hours, or that there is a tendency that only non-regular jobs available.



From the above information, it can be inferred that in the prefectures with a high employment rate, the rate of leaving jobs for childbirth and child-rearing is low, and due to having an environment where women can continue in regular employment, results in lowering the opportunity cost incurred for childbirth and child-rearing. On the other hand, in the prefectures with a low employment rate, it can be inferred that for some reason, there are obstacles to pursuing both "childbirth and child-rearing" and "work" so that women are compelled to make a choice between the two.

#### (Causal Analysis ~ "Childbirth/Child-rearing" or "Work"~)

What then are the factors that make it possible for women to give birth and raise children without quitting their jobs? In general, the main reasons suggested are things like the rate of multi-generational families and the rate of available childcare facilities Note 13. These two factors are thought to directly influence the rate of employment for women (Figure 1-1-22).

Another consideration is that the birth rate and employment rate are low in places like Kanagawa, Nara, Tokyo, and Osaka, all prefectures that require longer time for commuting to work, while the employment rate and birth rate are both higher in prefectures like Shimane, Fukui and Miyazaki with shorter commute times. (Figure 1-1-23). In Miyazaki and Kagoshima prefectures, although the rate of multi-generational families and available childcare facilities are not high, the average commute time is shorter, making it clear that the proximity of workplace and home also affects the employment rate for women.



Note 13 The Potential Acceptance Rate of Fixed Number of Children by Childcare Facilities is the fixed number of children to be accepted by childcare facilities divided by the population of women ages 20 to 39. Potential Acceptance Rate of Fixed Number of Children by Childcare Facilities = Fixed Number of Children to be accepted by childcare facilities/Population of Women Ages 20 to 39.

Π

To add an explanation to the scatter diagram in Figure 1-1-17 based on the above factors, areas with a birth rate and employment rate for women that are lower than the national average—showing in the bottom left quadrant of the chart—are areas where combining child-rearing and working is difficult. In the same way, we can infer that areas showing in the upper right quadrant of the chart with birth rate and employment rate for women that are higher than the national average are areas where combining child-rearing with working is easier. (Figure 1-1-24) Note 14.



#### (Conclusion)

As seen above, factors such as the rate of multi-generational families and acceptance rate of fixed number of children by childcare facilities and the proximity of work to the home seem to be related to whether women can continue working while having and raising children.

In the Rural Areas where this kind of environment seems relatively obtainable, it is important to build an attractive community that will make it easy for young people and women to come from the city by enhancing these attractive qualities and securing the employment environment.

On the other hand, in the Metropolitan Areas, in view of combining child-rearing and work, it is important to improve the above factors, for example by building urban communities that make it possible to have work and home in closer proximity.

Either way, as the population decline progresses in the future, if there is a demand for work opportunities for women, it will be important to build an environment that both women and men are able to combine work and child-rearing by promoting various flexible ways of working to further improve work-life balance, and one which does not force women to choose between "childbirth/child-rearing" and "work".

Note 14 The data for the TFR and Employment Rate of Married Women Ages 20 to 49 in the 47 prefectures for 2012 (Figure 1-1-24) indicates a positive linear slope on the chart, but no real correlation can be seen in the coefficients. For reference, if the coefficients are calculated by excluding Okinawa Prefecture, which has a TFR much higher than the national average, a weak correlation can be detected. However, a correlation does not necessarily mean a causal relationship exists. The TFR for Okinawa Prefecture is 3 times the standard deviation value of the national average.

#### [Reference] Regarding the Total Fertility Rate

The Total Fertility Rate Note 15 focuses on the birth conditions of a certain period of time (one year), limited to the women of each age (age 15 to 49) during that year and adds up the birth rate for each age. It projects the number of children a woman will have over her lifetime (Figure 1-1-25). This shows the "birth rate of that year", excluding the difference in age range construct of the female population, and is used to make comparisons on a yearly, international, and regional basis.

Figure 1-1-25	Calculation of Total Fertility Rate for the Period
otal Fertility Bate=	Total of (Number of births by mother's age/

Total Fertility Rate=Total of (Number of births by mother's age/ population of Japanese women of that age on October 1st to present) for those ages 15 through 49

Sector Age	Population of Women A	Number of Births B	Rate of Births C=B / A		
15	39,344	5	0.000127		
16	40,106	36	0.000898		
17	40,676	87	0.002139		
18	41,811	17	0.000407		
19	46,389	435	0.009377		
46	51,558	9	0.000175		
47	53,871	2	0.000037		
48	59,589	2	0.000034		
49	67,541	0	0		
Total			1.240455		

## **Section 2** The Affect of Population Decline on the Cities and Life in the Rural Areas

#### The Awareness of Citizens Regarding Population Decline

As seen in the previous section, it is predicted that the population is going to rapidly decrease in Japan. Under such conditions, there is a rising sense of crisis regarding population decline among the citizens, and according to the public opinion survey conducted by the Cabinet Office in August 2014, over 90% of the citizens responded that "population decline is not desirable" (Figure 1-2-1).

On the other hand, especially in the Urban Areas, there seem to be relatively few instances in the daily life and cities where people live where citizens actually feel the effects of population decline, in comparison to the large number of people responding that "population decline is not desirable". According to the questionnaire conducted by MLIT (hereafter "Public Awareness Survey") ^{Note 16}, the ratio of those responding that they "have" or "have somewhat" felt the effects of



Note 15 The Total Fertility Rate explained here is "term" total fertility rate. Other than this, there is the "cohort" total fertility rate but, in general, in referring to Total Fertility Rate, the "term" total fertility rate is used, therefore the "cohort" total fertility rate is not explained here. For details, refer to MHLW's website (http://www.mhlw.go.jp/toukei/list/81-1a.html).

Note 16 Conducted using internet in February 2015 with target population of all individuals in Japan. (3,000 responses).

population decline was only 32.1% in the Urban Areas, while in the Rural Areas ^{Note 17} it was up to 49.5%, almost half the respondents, showing there is a discrepancy between the Urban Areas and the Rural Areas with how the effects of the population decline are actually experienced (Figure 1-2-2). However, for both the Urban Areas and the Rural Areas, there seems to be a gap between the sense of crisis as seen in Figure 1-2-1 and having an actual sense of experiencing the effects.

# 2 The Effects of Population Decline on the Cities and Daily Life in Rural Areas

The following are some of the main areas that are expected to be specifically affected in the cities and daily life of rural areas if the population decline continues to progress.

#### (1) Reduction of Services Related to Daily Life (Stores, Restaurants, Recreation, Medical Facilities, etc.)

The various services necessary for conducting our daily lives are provided based on a certain population size. The necessary population size varies depending on the type of service, and Figure 1-2-3 shows the distribution condition of these services. For example, for a general hospital with over 80% placement probability to be placed in a city, the population size has to exceed 27,500 people (population of over 5,500 people necessary for over 50% probability of placement). When the population decline cuts into the population base necessary to establish daily life-related services, the service industries will progressively withdraw from the district, causing daily life to become more inconvenient by making it difficult to get the products and services necessary for daily living.



Note 17 In the "Public Awareness Survey", the 3 Major Metropolitan Areas are called Urban Areas and all areas outside of the 3 Major Metropolitan Areas are called the Rural Areas.

In addition, the tertiary industries such as service industries make up over 60% of employment in the Rural Areas. The withdrawal of these service industries will lead to a decrease in employment opportunities in the region, which could lead to further Population Decline (Figure 1-2-4).



#### (2) Falling Standard of Administrative Services Due to Decrease in Tax Income

A decline in population also has a major impact on the finances of the local government. With population decline and its resulting shrinkage of economic/industrial activities, the tax income of the local public entities will decrease. Meanwhile, social security expenses are expected to rise because of the growing elderly population, so that condition are expected to become even tougher on local governments. Should these conditions continue, it is projected that social services that had been previously provided will be abolished or more fees charged, making daily life more inconvenient as a result.

In addition, under these difficult financial conditions of local governments, the issue of aging infrastructures, such as the public facilities, roads, bridges and sewage systems built in the high economic growth period, will also need to be addressed.

#### (3) Down-Sizing, Withdrawal of the Local Public Transportation

Until now, local public transportation has mostly been supported by private businesses. However, if the decrease in the population of children, students and working-aged people progresses because of the population decline, the number of commuters will decrease. This will make it difficult for private businesses to offer transportation services based on profit performance, and it is predicted that the unprofitable routes of local railways and bus lines will either be shutdown or decrease the frequency of service. In Rural Areas, with the growth of the aging population, there is a growing need for public transportation as the means of mobility for the elderly people who cannot drive cars. Therefore, the deterioration of local public transportation services has an even greater effect on daily life than in the past.

#### (4) Increase in Vacant Houses, Vacant Stores, Old Factory Sites, Deserted Arable Land

While on one hand the population is decreasing, by contrast the total number of housing is increasing, and the number of vacant housing units continues to grow consistently across the country. In particular, the number of units categorized as "Other Housing", which includes housing that have not been inhabited for long periods for lack of renter or buyers, has been growing. "Other Housing" also includes units without clear plans for maintenance or disposal, and tend to be poorly maintained compared to the vacant housing units in other categories (Figure 1-2-5).

In addition, due to the shrinkage in local economic and industrial activities, as well as lack of successors, there is an increase in vacant stores, old factory sites and deserted arable land. This, along with the increase in vacant housing, leads to the regional landscape becoming unsightly, public safety hazards, increase in accidents such as building collapses and fires, and serves to lower the overall attractiveness of the district.



#### (5) Functional Decline of Local Communities

Population decline has a major impact on the functional decline of the local communities. Not only will the cooperative capabilities of citizens' organizations such as the neighborhood and residents associations suffer for the lack of leaders, the decrease in the numbers of local volunteers for the community firefighting squad threatens to reduce the district's capability to handle emergency situations.

Also, as the decrease in numbers of children and students progress, the number of classes will decrease, classroom sizes will shrink, and may eventually lead to the elimination and consolidation of schools. This decline in the youth population will make it difficult to pass on the local history and traditional culture, and could cause a problem in carrying on traditional events such as local festivals.

In this way, the decline in residents engaging in local activities will decrease the number of opportunities for interaction among the residents, and the enthusiasm and affection for the area will be lost.

As evident from above, population decline can have various effects on the cities and the daily life in the Rural Areas, some that have already manifested and others that yet to become apparent. Of those in Figure 1-2-2 who responded that "have" "have somewhat" they or experienced the effects of population decline, when asked in what situations they experienced the decrease in population, a high percentage answered "the number of stores with closed shutters has increased in the shopping district" and "often see vacant houses", and an especially high percentage in the Rural Areas answered that "the frequency of buses and trains running has decreased, the route was cancelled" (Figure 1-2-6).



The various effects of population decline on the cities and daily life of the Rural Areas may lead to a vicious cycle of further reducing the population of these regions, due to the diminishing quality of life and attractiveness. Figure 1-2-7 is an illustration of this cycle.



Since the effects and the degree of said effects will depend on the characteristics of the locale, the process depicted in the illustration will not apply to all districts. However, it is important to not just have a vague sense of crisis regarding population decline, but to share an awareness that this is an imminent problem that may occur in one's own resident district. Then, based on that shared awareness, work on facing the problems caused by population decline as a unified district.

As outlined in the following chapters, Ministry of Land, Infrastructure, Transport and Tourism understands the importance of realizing prosperous living that extends to future generations, and will work to promote the building of attractive districts by making cities more compact to consolidate administrative functions, and securing local daily life services by strengthening the transportation network.

# Column

The Current Conditions of Vacant Housing and the Establishment of the "Act on Special Measures concerning the Promotion of Measures for Vacant Buildings, etc."

In recent years, the number of vacant housing units is increasing all over the country, and countermeasures are becoming necessary due to the possibility of various problems arising (external diseconomy) such as the collapse of buildings due to poor management or dilapidation, the riotous growth of weeds causing local landscape to be ruined and creating hygiene issues from illegal dumping, as well as the endangering public safety due to trespassing and arson.

The vacant housing units that create these kinds of issues are mainly "Other Housing" that have been left vacant for long periods due to job transfers or hospitalization of the residents, or have been scheduled for demolition or rebuilding. These vacant housing units would not be problematic if they are being taken care of properly, however if they are abandoned and insufficiently maintained, there is the possibility of incurring external diseconomy.

In 2013, the ratio of vacant housing to the total number of housing by prefecture (Vacant Housing Rate), Yamanashi had the highest rate at 22.0% followed by Nagano at 19.8%. However, this Vacant Housing Rate includes "Secondary Housing" and "Housing for Rent or Sale". When looking at the "Other Housing" rate (hereafter "Rate of Vacant Other Housing"), Yamanashi and Nagano prefectures — despite having the highest Vacant Housing Rate—are not even in the top 10 prefectures for the Rate of Vacant Other Housing. These statistics are most likely due to a large number of vacation homes being located in these two prefectures, as both are easily accessible from the Tokyo Area. In looking at the Composition Ratio of Vacant Housing, the percentage of "Secondary Housing" is extremely high compared to other prefectures. The percentage of actual "Other Housing" in Yamanashi was 36.2% and 38.4% in Nagano, both which are lower than the national average of 38.8%.



Figure1-2-8 Composition Ratio of Vacant Housing and the Rate of Vacant Other Housing

Source) Developed by MLIT from "2013 Housing and Land Survey" by MIC

Looking at the relationship between the "Rate of Vacant Other Housing" and the "Rate of Population Increase-Decrease" by prefecture, it is evident that the prefectures with a high "Rate of Population Decline" have the tendency to also have a high "Rate of Vacant Other Housing". Also, looking at the relationship between the "Rate of Vacant Other Housing" and the "Aging Population Rate", it is evident that the prefectures with a high "Aging Population Rate" tend to also have a high "Rate of Vacant Other Housing". Based on this correlation, it is predicted that with the expected acceleration of decrease in the overall population and increase in the aging population in the Rural Areas, the number of vacant housing will rise even more.

For the vacant houses that are likely to incur external diseconomy, until recently rural public organizations have individually formulated ordinances regarding the appropriate management of vacant houses to deal with the issue. However, due to (1) difficulty in identifying the owner or manager, (2) reluctance in taking forcible measures against private property such as giving orders based on ordinances, the national government had been appealed to, to provide legislation that dealt with vacant housing that incurred external diseconomy.

In response to this, the "Act on Special Measures concerning the Promotion of Measures for Vacant Buildings, etc." was enacted by House Members on November 19, 2014, and went into partial enforcement on February 26, 2015, then full enforcement from May 26, 2015. Furthermore, based on Article 5 Paragraph 1, the "Basic Guidelines to Comprehensively and Systematically Enforce the Ordinances Regarding Vacant Housing" was established.

This ordinance, after defining "Vacant Housing" as a building and/or attached structure as well as its premises that are not ordinarily being used as a residence or for other purposes (Article 2 Paragraph 1), states that municipalities can decide on a countermeasure plan for vacant housing based on the above Basic Guidelines (Article 6). This countermeasure plan includes the basic guidelines regarding vacant housing, a planning period, an investigation of vacant housing, the promotion of appropriate management and use, measures for "Special Vacant Housing", how to handle inquiries from citizens, and an implementation system for ordinances, so that it not only provides measures for poorly managed vacant housing, it also provides preventative measures.

"Vacant Housing" that is identified as fulfilling the 4 conditions of: (1) in a condition that, if left as is, may become a serious threat to public safety in ways such as collapsing, (2) in a condition that, if left as is, may become a serious hygiene hazard, (3) in a condition that is seriously damaging the local scenery due to lack of adequate maintenance, (4) in any other condition where neglect would be inappropriated in light of conserving the living environment of the vicinity, are defined as "Special Vacant Housing" (Article 2 Paragraph 2).

For "Special Vacant Housing", the mayor of the city has been given the right to handle the process from providing advice and guidance, giving warning, to giving orders and execution by proxy in taking necessary steps such as disposal, repair and cutting of standing trees (Article 14). If action is not taken after advice and guidance has been given, then the procedures of issuing a warning and then further giving an order will be followed, but first steps are taken to encourage the property owner to handle the issue. Also, if a person who has been given an order does not implement improvements without good reason, the mayor of the city can enforce the law by proxy.

MLIT supports the efforts of the local public organizations in promoting the use or removal of vacant Housing. An example of this is the adding of an Actual Conditions Investigation of Vacant Housing—needed by municipalities for formulating an Vacant Housing Countermeasure Plan—as a subject to support the Vacant Housing Reclamation Promotion Project. Furthermore, due to the partial revision of the "Rural Tax Law" which was enacted on March 31, 2015, it has been ruled that in cases where the city mayor took the necessary steps according to this law in giving warning to the owner of "Special Vacant Housing" and the owner does not make the required adjustment by January 1st of the following year, the land that is used as the premises of the Special Vacant Housing will be excluded from being eligible as an exceptional residential land for the purpose of fixed property tax. By combining and making use of these systems, we expect that the municipalities will work even harder to promote the Vacant Housing Countermeasures.



Source) Developed by MLIT from "Population Projections (as of October 1, 2013)", "2013 Housing and Land Survey" by MIC



Source) Developed by MLIT using "Population Projections (as of October 1, 2013)", "2013 Housing and Land Survey" by MIC

# Chapter 2 Building up the Country and Regions in a Society Amidst a Serious Population Decline

Chapter 2 will be divided into the two sections: the flow of people and goods that contribute to the vitalization of the community (Activity), and the regional structure (Structure) that provides support to that Activity. In the first section "The Flow of People, Goods, Money and Information", we will analyze the causes and tendencies of Relocation to the Rural Areas and attempt to quantify the attractiveness of a region. We will also introduce the efforts being made towards community vitalization through tourism, distribution of goods and regional economic circulation.

In the section 2 "Structured Community Development Tailord to the Needs of the Times", we will expound on how "compact" and "networked" is an important aspect in thinking about regional structure (Structure) for working towards the creation of a country generating diverse synergies among regions by introducing the effects and actual efforts of "compact" and "networked"—the basic concept of "Grand Design of National Spatial Development towards 2050".

### Section 1 The Flow of People, Goods, Money and Information

In Section 1, we will focus on the flow that vitalizes the district (Activity). We will start by looking at and analyzing the current "Flow of People (residential population) to the Rural Areas" situation, such as Relocation to Rural Areas, an important aspect in thinking about how to remedy the concentration of everything in Tokyo. Next, as part of the flow of "People (interacting population), Goods, Money and Information" which supports the district, we will introduce the effects on regional economy and actual cases of efforts involving these factors for each of the following categories: tourism, distribution of goods, information and district economic circulation.

First, in "1. The Flow of People (Residential Population) to Rural Areas such as Relocation to Rural Areas", "(1) The Current State of Rural Relocation and Rural Return" will clarify the current situation regarding Rural Relocation and Rural Return based on survey results that show a recent increase in awareness of "Rural Return" among residents of metropolitan areas. And, in "(2) Analysis of Public Awareness Based on Survey Results", the causes and background will be analyzed using MLIT's own survey results.

Next, while keeping in mind that aspects of "non-monetary values" such as a rich natural environment has a significant influence on Rural Migration, in "(3) Analysis of "The District Attractiveness" that Creates the Flow of Rural Migration" we will compare the cost of living and the income level in the Metropolitan Areas to those in the Rural Areas, and try to quantitatively rate which factors provide what level of attraction in the "attractiveness of a district" that triggers relocation.

Further, in "(4) Movement Towards Living in Two Districts", we will introduce the "Two District Residence" which, although may not result in relocation, could become the catalyst to relocation through a proactive involvement in a district, and will be important in promoting the flow of people to the rural areas.

## The Flow of People to Rural Areas (Residential Population) such as Migration to Rural Areas

#### (1) The Current State of Rural Migration and Rural Return

#### (Statistical View of the Rural Return)

1

As seen in Chapter 1, in recent years the tendency for population drain from the Rural Areas ^{Note 18} to the Metropolitan Areas is on the rise again ^{Note 19}. The information from Basic Resident Register Demographic Shift ^{Note 20} for the five-year period from 2010 to 2014 shows that the demographic shift to the urban areas is continuing (Figure 2-1-1, Figure 2-1-2). Shifting the focus a little to compare the municipalities of the Depopulated Areas ^{Note 21} and the municipalities of the other areas, the tendency towards population shift to the Metropolitan Areas is unchanged (Figure 2-1-3). However, looking at the ratio of municipalities that have achieved a population increase by social factor, it can be interpreted that there is a slightly increasing trend of municipalities that have achieved a population increase by social factor in the Depopulated Areas (Figure 2-1-4).



Note 18 In this section, the 3 Major Metropolitan Areas will be referred to as Metropolitan Areas and the other areas will be referred to as Rural Areas.

- Note 19 Refer to Figure 1-1-5 in Chapter 1, Section 1 (1).
- Note 20 Yamatsuri-machi (Fukushima Prefecture) is not connected to the Basic Resident Registration Network System so there are no numbers of Out-migrants and Excess In-migrants that are listed in the Basic Resident Register Demographic Shift Report but for this summary, the numbers listed as In-migrants were applied to Excess In-migrant numbers.
  - Kunitachi City (Tokyo) is not connected to the Basic Resident Registration Network System so there are no numbers of Outmigrants and Excess In-migrants that are listed in the Basic Resident Register Demographic Shift Report (2010 and 2011) but for this summary, the numbers listed as In-migrants were applied to Excess In-migrants numbers.
  - Kunitachi City (Tokyo) has been connected to the Basic Resident Registration Network System since February, 2012. Therefore, the number of In-migrants are the results from February 1, 2012 to December 31, 2012. The number of Excess In-migrants is not listed because the periods for In-migrants and Out-migrants are different, but in this summary, the above-mentioned In-migrants and Out-migrants were included in the Excess In-migrants numbers (2012).
- Note 21 Depopulated Areas refers to the municipal regions that are considered depopulated areas as defined in Article 2 Paragraph 1 and Article 33 Paragraph 1 of Act on Special Measures for Promotion for Independence for Underpopulated Areas.

#### (Rural Return in Immediate Vicinity)

It is difficult to determine the tendency of the flow of people to the Rural Areas on a national level by looking at statistical data. However, it has been pointed out that there is an increasing number of young people who aspire to and value rural areas from a desire for a lifestyle that values interaction with the regional community and nature, called "Return to the Countryside", rather than seeking only economic prosperity.

In the public opinion survey conducted by the Cabinet Office, it is clear that there is a higher level of awareness among young people about the "Return to the Countryside". Comparing the 2005 and the 2014 surveys regarding the metropolitan residents' desire to settle in rural areas, this desire increased from 17.0% to 32.7% for those in their 30s and from 15.9% to 35.0% for those in their 40s (Figure 2-1-5). However, in said 2014 survey, of those who responded that they "have" or "tend to have" a desire to settle in rural districts, although there is a high number of those in their 60s and over 70s who want to move to rural areas almost immediately, only 4.0% in their 30s and 1.3% in their 40s want to move to rural areas within 5 years, the numbers are 10.0% and 5.3% respectively, which indicates that it is not a pressing desire (Figure 2-1-6).



Authorized NPO Furusato Kaiki (Hometown Return) Center ^{Note 22} matches metropolitan residents who wish to live in rural areas with approximately 800 municipalities that support interaction and relocation. This Center conducts a survey of the number of inquiries and the age of their users. Looking at the user records for 2014, it is evident that the number of visitors was approximately 1.4 times that of 2013 (Figure 2-1-7). Although the heightened visibility of the Center must be taken into consideration for the increase in inquiries, considering the services of this Center, it can be inferred that there is a certain population of those who are seriously thinking about or beginning to think about relocating to a rural area and are using this Center. Also, here again the increase in users of the younger generation up to their 40s is notable (Figure 2-1-8) and matches the public survey results mentioned before.

Note 22 Official name is "Approved Specified Nonprofit Corporation Hyakuman-nin no Furusato Kaiki/Jyunkan-undo Suishin/Shien Center" (Hometown Return/ Circulation Movement for 1,000,000 People Support Center)



#### The Case of Hokuto City, Yamanashi Prefecture

There are specific examples such as Hokuto City in Yamanashi Prefecture (Figure 2-1-9) that have achieved a continuous population increase by social factor (Figure 2-1-10). 70% of those moving into Hokuto City come from outside of Yamanashi Prefecture, with the commonality that many are coming from metropolitan areas, attracted by the rich local resources like the beautiful mountains such as Mount Yatsugatake, and the longest daylight hours in Japan. The background for this trend, in addition to being relatively close to the metropolitan area with easy access such as Chuo Interchange, is that there is a successful system in place that works to do things like secure employment opportunities through the attraction of enterprises and eliminate deserted arable land, in order to support those wanting to live in rural areas.


#### Countryside Return Happening in the Hilly and Mountainous Area of Shimane Prefecture

According to the research by Shimane Prefecture Mountainous Region Research Center, in looking at the hilly and mountainous area of Shimane Prefecture ^{Note 23} more closely by checking the basic community unit (primary living area equivalent, average of 1,370 people) such as elementary school district or community centers, rather than the municipal unit of the Basic Residents Register, there are notable districts that show an increase in the number of children and of women in their 30s (Figure 2-1-11, Figure 2-1-12). Dividing the hilly and mountainous areas of Shimane Prefecture into 227 areas and comparing 2009 to 2014, it is evident that there is an increase in the number of children under age 4 in 69 areas (approximately 30% of the areas) and the number of women in their 30s in 96 areas (approximately 42% of the areas). The Center has been conducting interviews in the communities and has concluded that many of those moving into the hilly and mountainous areas are not looking for convenience or financial gain but rather an environment to raise children and to connect with traditions, people, and nature.



#### (2) Analysis of Awareness of Rural Return Based on Questionnaire

As is known, there are the U-Turners that move back to their hometown and the I/J-Turners ^{Note 24}, those that move to an area different from their hometown. According to the "Market Intelligence & Forecast" ^{Note 25} conducted by Mitsubishi Research Institute, Inc. using citizen monitors in annual surveys, approximately 36% of those moving to the metropolitan areas and approximately 21% of those moving to rural areas are people coming from other prefectures, indicating that it is a relatively larger ratio for the metropolitan areas (Figure 2-1-13). Additionally, in the survey conducted by MLIT (hereafter "Public Awareness Survey") ^{Note 26}, a more detailed breakdown has been done for the residents of Rural Areas, which showed that approximately 23% were permanent residents, approximately 55% were U-Turners and approximately 14% were I/J-Turners ^{Note 27}, making it evident that there are very few people who have never lived in another place (Figure 2-1-14).

Note 23	The Hilly and Mountainous Area is the combination of the Hilly Agricultural Area and the Mountainous Agricultural Area
	classifications used for agricultural statistics.
	Of this area, the ratio of forest for the hilly agricultural area is mainly 50 to 80% with cultivated fields indicating municipalities with a
	lot of sloped land, while mountainous agricultural area is over 80% forest where municipalities are less than 10% cultivated land.
Note 24	I/J-Turner: I-Turner is a person born and raised in a Metropolitan Areas migrating to a Rural Area, J-Turner is a person born and
	raised in a Rural Area that moves to a Metropolitan Area and then migrates to a rural area different than where he/she grew up.
Note 25	An internet survey conducted annually since 2011 by Mitsubishi Research Institute, Inc. (Number of responses in 2011was
	30,000 for ages 20 to 69, and in 2014 was 34,183 responses including responses from people over age 70. Moreover, for the
	inter-annual comparison, 2014 is also shown as 30,000 for ages 20 to 69)
Note 26	In February 2015, conducted by internet with all individuals in Japan as target population (3,000 responses).
Note 27	"Public Awareness Survey" uses the following definitions.
	- Rural Area Permanent Resident: A person currently residing outside the 3 Major Metropolitan Areas and is living in the same
	prefecture as their prefecture of origin and has never resided elsewhere.
	- U-Turner: A person currently residing outside the 3 Major Metropolitan Areas and is living in the same prefecture as their
	prefecture of origin but has lived in other municipalities in the past.

- I/J-Turner: A person currently residing outside the 3 Major Metropolitan Areas and living in a prefecture that is not their prefecture of origin.
- Furthermore, intra-prefectural migrants moving within municipalities of the same prefecture are included in the U-Turners.



Next, we would like to analyze the awareness of citizens by attributes such as permanent resident or migrant, generation, and region.

(Those "with" connections to rural areas have more desire to move to rural areas than those "without".)

In studying the desire to move to rural areas in the "Public Awareness Survey", it became clear that of the people living in metropolitan areas, those with a connection to the rural areas have more of a desire to move to rural areas than those without a connection to rural areas. Specifically, people who came from rural areas to live in the metropolitan areas, and people who came from the metropolitan areas and are currently temporarily living in rural areas for reasons like job transfers, caring for family members, further education, etc. show a greater tendency to want to move to rural areas (Figure 2-1-15, Figure 2-1-16). Furthermore, it is clear that the residents of metropolitan areas who originally came from rural areas have the most pride in their place of origin (Figure 2-1-17).

It can be inferred from this that there is a certain number of people who find the rural areas more attractive than the metropolitan areas, based on their experience of living (or temporarily living) in the rural areas.

These factors indicate that the an expansion of the interacting population—those that have experience of living in more than one area—can be a catalyst for moving to rural areas.

Further, though there are less people who want to live where they were born and raised compared to three years ago (Figure 2-1-18), there is a relatively high number of those who do have that desire across the various age groups, especially among those living in rural areas (Figure 2-1-19).





### (Most often the people who want to migrate to the Rural Areas want to move to the cities within the rural areas)

Those of the younger generation with a desire to migrate to the rural areas have a strong tendency to want to move to the cities of the rural areas. Also, although many of the people aged 60 and over wish to move to the rural cities, compared to the younger generation, more of them wish to migrate to the rural districts or villages (Figure 2-1-20). When speaking

of "return to rural areas", key phrases such as "return to the countryside" and "living the slow life" are often used, but of those who seek to relocate there seems to be two major currents of people: those who seek to migrate to rural cities and those who seek to migrate to rural districts or villages, with a tendency of there being a greater ratio of the former.

Further, when asked the reason for living in the area they are currently located, there is a higher ratio of U-Turners who respond that they are there to take over family homes or business compared to other reasons, whereas the most frequent answer from I/J-Turners is that there is work there that they want to do (Figure 2-1-21). From this we can conjecture that I/J Turners tend to choose working in rural areas of their own volition. Either way it shows that there is





#### a very close connection between "migration to rural areas" and work.

#### (Biggest Attraction for Living in Rural Areas is the Abundance of Natural Environment)

When asked in the Public Awareness Survey about the attractiveness of living in rural areas, it became clear that for almost all items, people wishing to migrate to rural areas feel a stronger attraction to the rural areas than the permanent residents of the rural areas (Figure 2-1-22). It can be inferred that there is a sort of "longing" for rural areas by those who wish to migrate. Also, the thing that most attracts the people wanting to migrate is the abundance of the natural environment.

At over 80%, the primary attraction chosen is the abundance of natural environment, followed by the attractions of low cost of living, having more free time, spacious living environment, etc.

Based on the fact that many of the people wanting to migrate to rural areas actually want to move to the cities within rural areas, we can infer that the ease of access to nature which is possible from the rural cities is considered 'abundance of natural environment', rather than it being limited to the rural districts or villages. Those who aspire to living in rural cities seem to be seeking a good balance of a relaxed lifestyle, with the convenience of city living combined with excellent accessibility to nature. This is the flip-side



of those living in rural districts or villages who, for example, go to visit a rural city that is about an hour away by car to enjoy city life.

(I/J-Turners are attracted to Rural Areas that are not too distant from the Metropolitan Areas)

In choosing an area for relocation, close proximity to the Metropolitan Areas seems to be a point of attraction for I/J-Turners (Figure 2-1-23). We can infer that they plan on regularly visiting the area where they lived before migrating, especially if they have family and friends in that area, and so they can conveniently enjoy city life.

#### (For migrants, the lower risk of natural disasters is an attraction of Rural Areas)

People who actually migrated by U-Turning or I/J-Turning indicate that the lower risk of natural disasters is a point of attraction of their current area of residence (Figure 2-1-23). Although the consciousness of safety seems to have lessened a little as over four years have passed since the Great East Japan Earthquake, even in 2014 over 80% have the desire to live in a safe areas with fewer earthquakes and tsunamis (Figure 2-1-24). The underlying need to be safe and secure still runs high and can be a specific reason for actually migrating to Rural Areas.





#### (Infrastructure is considered important by all groups)

All groups place value on infrastructure, such as a good shopping environment and transportation system, as well as proximity to hospitals (Figure 2-1-25). It seems that those who live in the rural cities as well as those who want to migrate to rural cities are both groups that consider infrastructure to be very important. Many of those wanting to migrate to Rural Areas especially value the shopping environment for daily necessities and following that, they value a well-developed transportation system. The fact that, compared to permanent residents and U-Turners, those wanting to migrate to Rural Areas and I/J-Turners place more value on good transportation may be because in choosing between multiple candidate areas for migration, most people want the benefits of convenience.

# (Those wanting to migrate to Rural Areas value income but those who have actually migrated do not value it as much)

Of those wanting to migrate to Rural Areas, a very large number of people emphasize income level (Figure 2-1-25), and we can infer that there is a concern that quitting their current job to migrate to a rural area will result in lower their income level. As seen in Figure 2-1-6, this concern regarding income level seems to be the reason behind the low numbers of people who want to migrate immediately or within 5 years.



Next we will analyze the value system regarding work, as it seems to have a very close relationship to migrating to rural areas.

#### (The sense of excitement towards work is decreasing for the younger generation)

Compared to 3 years ago, along with a slight decrease in those who say they have time to spend with their families on weekdays (Figure 2-1-26, Figure 2-1-27), there is also a decrease in those who say they find satisfaction or fulfillment in their work, especially among the younger generation in their 20s (Figure 22-1-28, Figure 2-1-20). In concert with this, the ratio of those who think they want to continually work for improvement (promotion) is decreasing (Figure 2-1-30). In particular, among the younger generation in their 20s, those who "want to do so" or "May like to do so" exceeded the total of those who "Rather not to so" or "Do not want to do so at all" (29.9% : 27.6%) in 2011. By contrast, in 2014 the results were reversed (24.4% Note 28 : 31.7%) (Figure 2-1-31). This decrease in a sense of expectancy regarding work could be interpreted as a sign of the diversification in values, and may be serving as one of the triggers for migrating to rural areas.

Note 28 Due to number of digits after decimal point, does not match the total number in chart.











Source) "Market Intelligence & Forecast" by Mitsubishi Research Institute, Inc.



(Many people wanting to migrate to Rural Areas would like to earn a living by having a primary occupation along with an avocation such as farming)

Many of the working generation who actually live in Rural Areas earn their income from one occupation, and many of those wanting to migrate to the Rural Areas would like to earn their income from one occupation. However, it has become clear that compared to those who actually live in Rural Areas, there are more of those wanting to migrate to Rural Areas who want to earn an income by having an avocation such as farming along with their main occupation (Figure 2-1-32). This seems to be proof that there are a certain number of people who are seeking the so-called "slow life". Although it is true that compared to the permanent residents, there are more U- and I/J-Turners who earn a living by having an avocation like farming along with their main vocation, it is not as large a ratio as hoped for by those who want to migrate to Rural Areas. In order to bridge this gap, it may become necessary to prepare many small employment opportunities so that people can juggle multiple jobs (such as farming in a neighboring village, temporary jobs in welfare, sixth industry, etc.) in Rural Areas.



Next, by looking at the differences experienced before and after migration by the people who migrated, we would like to find the issues involved in their continuing to live in the new area.

#### (Many people experience positive differences in the living environment after their Migration)

While many people experienced more positive differences than expected in the shopping environment, proximity of hospitals and the housing environment, in terms of the educational environment and level of medical and welfare services, most—particularly the younger generation—replied that they were as expected (Figure 2-1-33). The convenience in shopping and proximity to hospitals are things that become clear after actually trying it out, while education systems, medical and welfare services that are not used by every person. Therefore, it is to be expected that those who need the services will do some advance research before migrating, which accounts for the fact that for those services there are less differences in what is experienced from what was expected.

On the other hand, there were more people who experienced negative differences in the transportation infrastructure (ages 40 to 59) and the support systems (ages 40 to 59, over 60) after their migration than the number of people who experienced positive differences. These services are issues that need to be looked at in order for people to continue to live in the areas to which they migrate.

Furthermore, there are more people in the higher age groups than in the younger generation who experienced positive differences.



(Many people experience positive differences after migrating in the local characteristics of the areas to which they migrated)

Many people felt that the attractiveness of the area as well as the safety level of public security and disaster prevention was better than expected (Figure 2-1-34). The fact that there are many people who said that there was an increased level of understanding from their partner or family after migration means that there was an increased satisfaction level among those who migrated as a dependent of a partner or family member, and that they were able to experience the attractiveness of the new location by actually living there.

On the other hand, on whether it seemed possible to become friends with the local people (ages 40 to 59), there are more who experienced a negative difference rather than a positive difference than what was expected, making it clear that there is room for improvement in the preparation of the people migrating, as well as the acceptance framework of the local areas.

Here again, many of the older age groups experienced positive differences.



(Many of the younger generation experienced a negative difference in the economic environment after migration)

It is clear that there are many among the U-Turners and I/J-Turners of the younger generation who have experienced negative differences in the economic environment (Figure 2-1-35). Many of them especially felt that their income level was worse than expected and expenses had not decreased as much as anticipated. On the other hand, they have not felt much of a difference in overall living conditions, and the differences can be considered to be within expectations. However if, for example, their children pursue higher education elsewhere, school expenses and allowances would be incurred, which could lead to an increase in living expenses. As mentioned before, many people have a mostly good impression of the living environment and the local characteristics overall. Therefore, we can see that making improvements in the income and expense factors will be key in getting the younger generation to continue living in the rural areas.

Furthermore, here again it is clear that the older age groups feel the positive differences more than the younger generation ,and the satisfaction level for migration is higher overall for the older generation.



As stated before, since there are various reasons and motivations for migrating to rural areas, it is necessary to construct attractive qualities for various rural areas for various groups. Not all the younger generation want to migrate to the rural cities that offer a high degree of convenience, nor do all the older generation want to move to rural districts for the slow life. In actuality, there are some young people who want to live in rural districts(agricultural, mountain and fishing villages), while there are some older people who want to live in rural cities.

For example, in the "Working in the Countryside Troop" system which the MAFF has been conducting since 2009, 1,100 of mainly young people aged 20 to 30 have been sent to rural districts. More than half of these people have stayed to live in the local areas after their service term ended and are involved in activities such as agriculture, forestry, fishery and building up the local community. Approximately 80% of the members of the "Local Community Building Troop" system operated by the MIC since 2009 are aged 20 to 30, and 3,865 people have been dispatched to under-populated regions up through 2014. Of those members, approximately 60% (according to June 2013 survey) have settled in the same areas after their term of service was completed.

In Tottori Prefecture, a questionnaire survey for people known to have migrated to the area has been conducted since 2011, with the cooperation of the municipalities. Looking at the situation in 2013, many of those between the ages of 20 to 40 have migrated for reasons of employment, marriage and child-rearing, and those over 50 mainly migrated to return to their hometowns after retirement or because they wanted to live in the countryside. However, it is evident that there are a certain number of the younger generation who migrate because they aspire to country living (Figure 2-1-36).

In order to reverse the flow of people who left for Metropolitan Areas to return to the Rural Areas, fulfilling the widest possible range of aspirations of those wanting to migrate to rural cities can be effective, as seen in Figure 2-1-20. In other words, providing a level of urban



convenience such as more places for employment, improving the shopping environment and the transportation infrastructure may possibly increase the flow of people wanting to U-Turn back to the Rural Areas. Now that we know many of the people wanting to migrate to Rural Areas are attracted by the abundance of nature while also being attracted by the rural cities, there may be a certain effectiveness in increasing the access to nature from the urban districts of the Rural Areas by building networks between the rural cities and the rural districts.

Building up the attractiveness of the Rural Areas to match the various groups' aspirations and increasing the interacting population to publicize this attractiveness will be vital in promoting the return to Rural Areas.

#### (3) Analysis of "Attractiveness of Region" to Create the Flow of Migration to Rural Areas

As can be seen from Figure 2-1-25 of Section 1, while people wanting to migrate place importance on the financial aspects such as securing income and employment, they also greatly value convenience and natural environment, aspects that cannot be evaluated in monetary terms. Here we will look at the monetary changes that result from migration, and the "attractiveness of a region" experienced by individuals.

#### (Comparison of Consumer Spending between Large Cities and Small Municipalities)

Looking at the changes in the average monthly consumer spending as found in the "Household Budget Survey" of MIC, after 2000, consumer spending showed a decreasing tendency in various sized cities, but after 2011 each one shows a unique trend. In the major cities, consumer spending started to increase, then more recently has been decreasing, while on the national level there is a continued increasing trend, with a gradual decreasing trend in the small B cities (cities with a population of less than 50,000 people) as well as the towns and villages. The consumer spending in the small B cities as well as the towns and villages continues to be about JPY 15,000 to 30,000 less than larger cities (Figure 2-1-37).



Next, we will look at an itemized breakdown of the average monthly consumer spending per household by the ratio of major cities and small B cities/towns/villages where the national average is considered to be 100. In the large cities, food, housing, education, entertainment and clothing costs are above average, while in small B cities/towns/villages, energy, water, transportation and communications are all above average (Figure 2-1-38). In comparing the consumer spending for the small scale municipalities to the major cities, it becomes evident that although the total expenditure—starting with food, housing and clothing items—is low, spending for utilities/water—starting with electricity and heating fuel—as well as automobile related expenses (purchase cost, maintenance expense, fuel expense) included in transportation/ communication expenses tend to be high (Figure 2-1-39).





#### (Daily Life Experience of People Living in Small-scale Municipalities)

In the previous paragraph, the consumer spending of major cities and small-scale municipalities were compared, but what is the evaluation of the qualitative factors that cannot be given monetary value in the daily life of small-scale municipalities? According to the "Survey of the Causes and Living Conditions for Migration and Settlement in Small-scale Municipalities" ^{Note 29} conducted by NTT Data Institute of Management Consulting, Inc. and NTT Com Research, the satisfaction level of life in small-scale municipalities is high in "Meals", "Residence Environment" and "Sleep Time" categories, followed by "Shopping" and "Broadband Environment", which were also rated high.

On the other hand, dissatisfaction is high in financial aspects such as "income" and "economic affluence", as well as transportation aspects such as "transportation to neighboring cities" and "transportation within district" (Figure 2-1-40). In regards to income, according to the "Household Budget Survey" by MIC, compared to the average annual income ^{Note 30} of JPY6,440,000 in Major Cities, for Small B Cities/Towns/Villages it is JPY5,710,000 which is shows a tendency of approximately 10% less.

**Note 29** Survey conducted in July 2014 targetting residents of municipalities with a population of less than 40,000 people (n=1050). **Note 30** 2014 survey of the annual income of households with 2 or more members.

According to the "Awareness Survey of the Richness of 'Stock of Local Traits'" ^{Note 31} which studied the actual change in income before and after migration for 350 people who migrated to Rural Areas ^{Note 32}, approximately 76% of the total answered that their income remained unchanged or decreased. Also, in terms of after-tax income, approximately 73% of the total responded that it remained unchanged or decreased. Therefore it can be said that comparatively few people improve their income or after-tax income by migration (Figure 2-1-41, Figure 2-1-42).



As seen above, since it is difficult to say that the financial aspect is favorable to the residents or people migrating to Rural Areas, it is supposed that there are "Attractive Traits of the Region" which cannot be evaluated by monetary measures that influence relocation to Rural Areas. Here we want to mention living off the land and sharing as examples of "Attractive Traits of the Region" which cannot be evaluated by monetary measures that indirectly affect the cost of daily living. Looking at the monthly monetary amount that equates to the value of living off the land and sharing, the ratio of those actually living off the land or sharing at the rate of approximately JPY10,000 a month is about 20% for all income levels, showing that in small-scale municipalities, there is an aspect of living off the land and sharing which supplements the food expense (Figure 2-1-43).

**Note 31** Conducted via internet in April 2015, targeting all individuals living in Japan.

Note 32 People who moved away from the 3 Major Metropolitan Areas to areas outside of the 3 Major Metropolitan Areas of their own accord.



#### (Monetary Valuation of "District Attractions")

Here, in order to quantify the "Attractive Traits of the Region" which has a major influence on the flow of people migrating to rural areas, we will study the assessed value people place on the "Attractive Traits of Region" ^{Note 33} by conducting the "Awareness Survey of the Richness of 'Stock of Local Traits'" to make monetary valuations.

If we establish two imaginary district models ("Very Convenient City Life", "Rich in Nature Country Life") and study which district model people would want to live in, there is a difference in tendency between the responses from general residents and from those who migrated to Rural Areas. Many of those who migrated to Rural Areas chose "Rich in Nature Country Life (hereafter "Country Life")" while many of the general residents chose "Very Convenient City Life (hereafter "City Life")" (Figure 2-1-44). However, if you think of the general residents as a microcosm of the population distribution in Japan, we can surmise that approximately 40% of the citizens aspire to "Country Life".

Next, in order to analyze the "Attractive Traits of the Region" underlying the motivation to migrate to Rural Areas



Source) "Awareness Survey of the Richness of 'Stock of Local Traits'" by  $\ensuremath{\mathsf{MLIT}}$ 

Region" underlying the motivation to migrate to Rural Areas, we will focus on how much value is placed on which factors

* Under premise that things such as the cost of moving, daily living expenses, housing maintenance costs, the quality and accessibility of neighboring medical facilities will not change by migrating.

* Monetary value by factor for the "Attractive Traits of the District" will be calculated by cross tabulating (2) and (3) above.

Note 33 Subjects: 350 general residents (selected from nation-wide sample, according to population distribution), 350 people who migrated to Rural Areas

Question: (1) Which of the two imaginary district models: "Very Convenient City Life" or "Rich in Nature Country Life" would you choose for a place to live? (2) What is the permissible amount of decrease in annual income when moving from a lifestyle not of your choice to a lifestyle of your choice (JPY250,000 intervals for less than JPY1,000,000 and JPY500,000 intervals for over JPY1,000,000)? (3) What is the reason for choosing the lifestyle selected in (1) (Respond so that the total of the 5 factors equals 100%)?

by people who selected "Country Life".

Π

Chapter 2 Building up the Country and Regions in a Society Amidst a Serious Population Decline

In studying the "Awareness Survey of the Richness of 'Stock of Local Traits'" by considering the permissible amount of decrease in annual income due to migration (Permissible Decrease Amount) as the monetary valuation of a district, of those who chose "Country Life", approximately 43% of the people migrating to Rural Areas and approximately 31% of the general residents would give a valuation of over JPY750,000/year (approximately JPY60,000/month). Further, of the people migrating to Rural Areas, when the Permissible Decrease Amount reached JPY1,500,000, there is a sudden drop in the number of people who want a "Country Life", while for general residents there is a sudden drop in numbers at JPY750,000, indicating that the people migrating to Rural Areas place a higher valuation on the attractiveness of a district. However, it is evident that although small in numbers, there are general residents who place a high monetary value on "Country Life" (Figure 2-1-45).

Figure 2-1-46 and Figure 2-1-47 show the average monetary value according to factors, and both those migrating to Rural Areas and general residents value "Country Life" and "Rich in Nature" most highly, followed by "spacious living quarters". From the fact that "Rich in Nature" was valued higher by general residents rather than the people migrating to Rural Areas, we can infer that there are some among the general residents who place a high value on "Country Life" based on their "longing" for nature.





In this way, for people who place a high value on "Rich in Nature Country Life", there is a greater possibility that they will find more value in living in the country rather than living in the city. For example, general residents who aspire to

"Rich in Nature Country Life" place the monetary value of such a lifestyle at JPY740,000 (average of 150 people), which means that its value is approximately 13% of the average annual income of the 150 general residents who participated in the questionnaire. In other words, for people who find greater value in Country Life, choosing to live in the country seems reasonable, even in an economic sense.

This means that there is a variety in the value people place on the local traits, so it is not necessarily appropriate to come up with city and district policies with only certain individuals of a particular set of values in mind.

For example, if collective economy is the presupposition, living in a certain size of city would be more rational, but there are both people who value the countryside for its stock of local traits and people who value the city, and should the economic conditions change for some reason such as a decrease in income, for some people it may be more reasonable to choose the countryside based on their own value system. In this situation, it seems that what becomes important is the flexibility and variety of choices in places to live.

In order to achieve this, it would be effective to raise the level of freedom in changing residence by things like revitalizing the circulation of existing houses for Japan—which is at a lower level than the countries of Europe and America—as well as the smooth circulation and matching of available housing, so that existing housing of good quality can be bought and sold with confidence.

Furthermore, it is important to increase the mobility of people who place high value on the "Attractive Traits of the Region" which the Rural Areas have to offer that are currently still living in cities. For example, for people who are feeling a vague attraction to the Rural Areas, it is important to provide information regarding migration, promote matching services with Rural Areas, and create opportunities for them to experience the attractive traits of the local districts through activities like trial migration. Then to extend that even further by working on revitalizing the local economy itself by things like creating employment opportunities to minimize the changes in economical environment due to migration.

## Column Women Who Migrate

In the past, the reason women migrated was mainly due to getting married. However, in recent years, there is an increasing number of single women who decide to migrate as a result of being attracted by a local district and its residents after participating in various programs in the area such as volunteer work, internships, and tours to experience nature.

Young women are relocating to districts other than the place where they grew up or became familiar with during their student years. What was their parents' reaction when these young women started talking to them about migrating to another district? They probably advised the young women to rethink this plan at least once.

These are the "Women Who Migrate", women who make the decision to migrate with a strong "conviction" in their hearts. They are from different hometowns, moving at diverse times and to various places. They did not know of each other's existence and they overcame their fear and anxiety with their own "conviction" and with the help of those who supported them. It is not hard to imagine that wherever they move to, the conditions each one faced were much the same.

Four of these "Women Who Migrate" who had moved to the hilly and mountainous areas around Niigata Prefecture and shared the desire to "let others know about the life in the hilly and mountainous areas", made use of the "FAAVO" District Support Ground Founding Site to publish the booklet "ChuClu" ^{Note} in August, 2013.

This booklet provides information on various things including the actual daily life of "Women Who Migrate", a comparison of how they spend money before and after migration, love-life conditions, and things they know only after having lived in that area, the good things and the challenges, all from a very "womanly" point of view.

Last year, Kanako Sakashita, one of the four women, married a man she met at Ikeya Village to where she had migrated. From the 'Chapter One' in which this "Woman Who Migrated" came to the hilly and mountainous areas, now a 'Chapter Two' is beginning as they start a family.

Figure 2-1-48 The "Women Who Migrate" Who Edit and Publish "ChuClu"



Source) ChuClu Editors Office

Quarterly Publication Free Paper "ChuClu"



Source) ChuClu Editors Office

#### (4) The Move Towards Living in Two Districts

Amidst a decline in the total population of Japan, it is not possible to increase the "residential population" of all areas. Even for people who have an interest in living in Rural Areas, when thinking about the risk of finding actual conditions to be quite different from what they are looking for, it is not an easy thing to "migrate" in one quick step.

Even if it does not end up in "migration", it is important to promote the flow of people to Rural Areas by getting the existing interacting population in community building, in order to expand the "cooperative population" and spread the lifestyle of being proactively involved in the community.

In this sense, it is important to promote the lifestyle of "Living in Two Districts" which has been promoted from before.

#### (The Lifestyle of Living in Two Districts)

With an increase in the population of people living in two districts, the consumer demands and housing demand will increase and the creation of new employment opportunities can be expected. Also, as shown in the awareness survey results in Section 1, since people with a connection to the Rural Areas have a greater desire to migrate, a certain ratio of the city residents who are living in two districts can be expected to become part of the regular residential population by actually experiencing the attractive traits of local districts. Furthermore, living in two districts serves to act as having a safety net against natural disasters and can be one of the choices for emergency evacuation, especially in disasters such as earthquakes.

In recent years, with the shortening of time and distance through the development of public transportation and highway

networks. the sophistication and diversification of communication methods with the development of ICT (Information Communication Technology) equipment such as the wide spread use of social media and smart phones as well as the installation of high speed cable/wireless communication networks, the limitations of time, distance, and location are lessening.



On the other hand, the cost of things like transportation and lodging are incurred in actually living in two districts, such that there are people who give up due to the extra expense, even though they have a desire to live in two districts. In looking at the survey regarding living in two districts ^{Note 34}, people who wish to live in two districts mention the obstacle of "funds" more often than the people who actually live in two districts (Figure 2-1-49). For this reason, it is important to promote various programs to lighten the burden of cost, such as making use of empty housing and public rental housing as well as the promotion of participation in LCC.

Also, from now on, it is important to expand the "Living and Working in Two Districts" lifestyle which deals with not only housing, but connects two districts in a more proactive way of living and working.

#### (Trial Living)

As mentioned before, actually living in two districts involves a certain cost. Because of this, even if the actual situation differs from the environment and conditions that had originally been sought, it is not easy to move to a new place.

In order to migrate or live in two districts, it is necessary to first look for the migration site or living area. Especially for people who have no connection to the countryside such as those born and raised in cities, in order for them to look for migration sites and housing without obstacles, it is necessary to actively distribute necessary information by cooperation among various entities, not only the public administration but also public and non-profit organizations. And then, in order to make it easier to look for migration sites and housing in the actual district, it would be necessary to promote extended stay type tourism by the proactive use of long vacations.

Therefore, as a step towards making migration and living in two districts actually happen, several local public organizations have "Trial Living" programs where people can actually stay in a district for a certain amount of time to try residing there.

#### Hokkaido Migration Experience "Living a Little While"

In Hokkaido, there is a program in place to promote various migration/interaction in cooperation with the municipalities and non-profit organizations which is called "Hokkaido Migration Experience 'Living a Little While' (Hereafter "Living a Little While")".

With "Living a Little While", people who want to migrate to Hokkaido or live in two districts live for a period of time in housing fitted with furniture and appliances necessary for daily living in order to experience daily life in that district. The housing provided uses existing housing such as empty houses, staff housing no longer in use due to the local school being closed.

In 2013, 2,264 people used "Living a Little While", which was an increase of 14.6% over the previous year and set the highest record of over 2,000 people for the first time since tallying began in 2006. There are many people who use this program for extended periods, so that the average length of stay continues to exceed 20 days, making it clear that an interacting population—people building more connections to the local community rather than just visiting for tourism purposes—is increasing (Figure 2-1-50).

Looking at the number of users by the ratio of their residence location, 42% are from the Capitol Area, 28% from the Kinki Area and 10% are from the Chukyo Area, which shows that people from the 3 Major Metropolitan Areas make up 80% of the total, indicating the high level of interest which the metropolitan area residents have a high interest toward life in Hokkaido (Figure 2-1-51).

Looking the results of the user survey, approximately half of the total give seasonal stay as their purpose, but there are many users who cite looking for candidate sites for migration or two district living as their purpose (Figure 2-1-52). It is hoped that the use of "Live a Little While" to actually experience life in the local area will connect to actual migration or living in two districts in Hokkaido in the near future.

Note 34 Conducted by MLIT in January 2013. In this questionnaire, "living in two districts" is defined as "establishing a base for living (including hotels), other than the current base for daily life, in a specified district where one spends a period of about one month or more over the course of one year, aside from temporary stays such as travel, business trips, and hometown visits during new years holidays."







## Column

### Regional Development Through Interaction Between Urban and Rural Areas ~ Connection Agreement Between Kawaba Village in Gunma and Setagaya Ward in Tokyo ~

Kawaba Village in the Gunma Prefecture is located in the northern area of the prefecture on the southern base of Mount Hotaka and is a mountain village rich in nature with approximately 80% of the village's total area being forest. It has a total population of 3,445 people (as of February, 2015) with agriculture and forestry being the main industries. However, since 1975, due to the aging of people working in agriculture and an increase in the ratio of part-time farmers, the amount of idle farmland has been increasing and there were concerns regarding the deterioration of the beautiful scenery.

On the other hand, in the Setagaya Ward of Tokyo, there was a search for a "second hometown" in order to strengthen the interaction between the city and the mountain villages by mutual cooperation with people in the Rural Areas while experiencing the riches of abundant nature which could no longer be found in the city. From these conditions, in 1981 the "Agreement of Mutual Cooperation for Ward Citizens Health Village (Connection Agreement)" was formed based on the concept of partnering with Kawaba Village, which had been working to revitalize the village based on the concept of "agriculture plus tourism" to take advantage of its rich natural environment and beautiful scenery.

In 1986, Kawaba Village established two Ward Citizens Health Villages (Nakano Village, Fujiyama Village) and started accepting visiting classes from each elementary school of Setagaya Ward every year, organizing events like village tours and mountain climbing for experiential learning about nature and activities of the village. Further, with the activity base of the Ward Citizens Health Villages, many Setagaya Ward citizens visit to participate in the forest conservation activities and farming experiences at the local farms such as "RentApple" Note, and currently about 50,000 people a year are making use of the Ward Citizens Health Villages.

Furthermore, villagers from Kawaba Village have visited Setagaya Ward as well, like taiko drum performance groups from Kawaba Village participating in festivals or events in Setagaya Ward, holding a farmer's market with produce from Kawaba Village, and other such activities.



In addition, at "Kawaba Denen Plaza", the roadside station-the construction of which was inspired by the interaction with Setagaya Ward-efforts are being made to use local resources to provide interaction opportunities for the villages and visitors, such as farmer's markets selling local produce, fruit picking, pottery, and other such events and experiences.

With such "agriculture plus tourism" programs, the number of tourists visiting Kawaba Village shows a rising trend, and with the "Kawaba Denen Plaza" gaining recognition in 2013, the number of tourists that have visited has reached approximately 1.5 million people. The success of the Denen Plaza has lead to an expansion in sale of agricultural products, as well as the revitalization of the village through things such as stable farm management, expansion of employment opportunities, etc.



A system of renting a tree from an apple farm in Kawaba Village to become its owner for one year. Note

#### 2 The Flow of People (Interacting Population), Goods, Money and Information to Support the Local Districts

In Subsection 2 of Section 1, as part of the flow of people-other than the "residential population" discussed in Subsection1-, people, goods, money and information for each of the following categories: tourism (interacting population), logistics, information, and district economic circulation, we will discuss the effects on the local districts'

economy and introduce actual cases of efforts involving these factors.

First, for "(1) Tourism (Interacting Population)", we will introduce and analyze the effects of visiting foreigners and Japanese tourists on the local economy, with factors like the change in the number of consumption-tax free shops in Rural Areas, as well as the income and expenses of consumption amounts for domestic travel and lodging by district. We will then introduce examples like the "Akita Marugoto Market", which for the first time obtained permission as a consumption tax-free shop with capital from within the prefecture to sell mainly local products, and Aomori Harbor, which is getting results as a port of call for cruise ships.

Next, in "(2) Logistics and Information", we will review the spread of internet usage and its influence on the logistics. Then as examples of how logistics is contributing to the local society, we will introduce how locating a large-scale logistics center in Ishikawa Prefecture resulted in creating jobs, and how establishing a logistics business operation base at a roadside station in Yamaguchi Prefecture resulted in supporting the local district. We will also introduce an example of the spread of telework and satellite offices (Kamiyama-cho) as a new way of working made possible by the spread of ICT (Information Communication Technology).

Finally, in "(3) Circulation of the Local Economy and Community Building", we will introduce the concept and structure of circulation of the local economy as community building from the "flow of funds", and consider measures for improvement from the four aspects of: "acquiring funds from outside the local district", "containing consumption drain to outside of the local district", "diversifying investment methods inside the local district", and "investing by using real estate in the local district". We will also introduce the local district revitalization program going on in Minamata City in Kumamoto Prefecture as a program based on analysis of the economic circulation of the local district.

#### (1) Tourism (Foreign Visitors to Japan)

#### (Trend of Foreign Visitors to Japan)

The yearly number of foreign visitors to Japan in 2014 increased by 29.4% from the previous year, with a total of 13.41 million visitors, which is the highest total recorded thus far (Figure 2-1-56). Looking at the visitors by their country/region of origin, there were approximately 2.83 million visitors from Taiwan, followed by approximately 2.76 million visitors from Korea, and approximately 2.41 visitors from China, in that order. There was also an all time high of approximately 1.6 million visitors coming from the six Southeast Asian countries ^{Note 35}. The ratio of the total number of foreign visitors to Japan was as follows: 66.5% from East Asia and 11.9% from Southeast Asia, with 79.1% of the total being from Asia (Figure 2-1-57).



Note 35 Tha iland, Singapore, Malaysia, Indonesia, Philippines, Vietnam

Next, looking at the consumption amounts by foreign visitors to Japan in 2014, there was a 43.1% increase over the previous year, amounting to JPY2.0278 trillion, with each foreign visitor to Japan's consumption amount increasing by 10.6% over the previous year, amounting to JPY151,174 per visitor, the highest record thus far (Figure 2-1-58). Furthermore, the travel income and expense—which shows the difference in the amount of money spent by foreign visitors to Japan and the amount of money spent by Japanese visiting other countries—has shown a recovery trend, with the travel income and expenses for April 2014 recording a positive balance for the first time since July 1970 during the Osaka Expo (Figure 2-1-59).



This increase in the number of foreign visitors to Japan and the travel consumption amount is caused by—in addition to traveling to and shopping in Japan becoming cheaper due to the weakening of the JPY exchange rate improving the consumption tax free system for foreign visitors, easing the issuing requirements for visas, expanding the arrival and departure slots at the airports in the Tokyo metropolitan area, as well as increasing the number of flights. In particular, for the LCC international flights, the number of flights to countries and regions of East Asia and Southeast Asia have increased rapidly since 2010.

Looking at the change in the total number of foreign visitor lodgers, the number of lodgers has been increasing





Source) "Statistical Survey of Travel with Lodging" by Japan Tourism Agency

in both the 3 Major Metropolitan Areas and the Rural Areas since 2011 (Figure 2-1-60). Looking at the total number of foreigner lodgers in 2014 by prefecture, although the lodgers tend to be mainly concentrated in the metropolitan areas of Tokyo, Aichi, and Osaka, and also Hokkaido, in the growth rate comparison with the previous year of the number of foreigner lodgers by prefecture, the Rural Areas are showing some increase (Figure 2-1-61, Figure 2-1-62). In particular, Yamanashi Prefecture had an increase of 91.3%, and Shiga Prefecture had an increase of 77.0%, showing major growth compared to the other regions.



(The Effect of Increase in Foreign Visitors to Japan on the Local Economy)

a. The Effect of Improving the Consumption Tax Exemption System for Foreign Visitors on the Local Economy

From October 1, 2014, the product categories subject to tax exemption were expanded so that food products, beverages, prescription drugs, and consumable goods such as cosmetics that had previously been excluded from tax exemption status became subject to tax exemption, with the prerequisite of having certain fraud prevention measures being put in place (Figure 2-1-63). Due to this change, the number of point of sales locations for export products in Japan became 9,361 stores (as of October 1, 2014), an increase of 3,584 stores within half a year as compared to April 1 of the same year (Figure 2-1-67).

Out of the total consumption amount of travel by the foreign visitors to Japan,



shopping costs are approximately one-third of the total (Figure 2-1-64) and—in looking at the items purchased in Japan by the foreign visitors to Japan—the purchase ratio is growing for items which have become tax exempt for the first time, such as "confectionary", "other food products, beverages, alcohol, cigarettes" and "cosmetics, perfumes" (Figure 2-1-65). Additionally, there seems to be a tendency that people who used the tax exemption procedures made higher priced unit purchases than people who did not use the tax exemption procedures (Figure 2-1-66).



Looking at the regional ratio of the number of duty-free shops, approximately 70% are in the 3 Major Metropolitan Areas (Figure 2-1-67). From now on, proactively increasing the number of duty-free shops in the shopping districts of the Rural Areas will be necessary in order to induce the travel consumption of the foreign visitors. From April 1, 2015, it has become possible to consign the tax exemption procedure to a third party, so that places like local shopping districts and local product sale centers can set up Tax Exemption Processing Counters where the duty-free sales can be handled collectively (Figure 2-1-68). This will eliminate the worries about having to deal with foreign languages and the cumbersome tax exemption procedures,





so that it is anticipated that there will be an increase in duty-free shops in the local shopping malls of the Rural Areas. It is hoped that the travel consumption amount will also increase, as the troublesome tax exemption procedures will be made easier for the foreign visitors, allowing them to be able to judge the purchase limit on the duty-free sales by combining their purchases from various stores at the tax exemption processing counter.

In addition, a notification system dealing with the export product sales points in the harbors that are ports of call for ocean-going cruise ships has been established. As a result, it has become easier to set up a temporary duty-free shop at the cruise pier (such as the docking pier of cruise ships and passenger ship terminals). This promotes the selling of local specialty products to foreign travellers at the cruise ship's pier, where the duty-free items can be taken onboard straight after purchase.

Furthermore, in March 2015 the common logo was decided for indicating service points for "Hands-Free Travel", a service available to foreign visitors to have items they purchased at duty-free shops to be temporarily held or be shipped. From now on, by promoting the displaying of the common logo at a places like the one-step counter to spread the recognition rate of "Hands-Free Travel" among the foreign travellers visiting Japan, it is expected that a further demand for shopping will be stimulated.



#### Example of Duty Free Shop in Rural Area ~Akita Marugoto (whole) Market~

"Akita Marugoto Market" in Oroshimachi, Akita City, Akita Prefecture (Figure 2-1-69) received the permit to be a duty-free shop in December 2014 and started duty-free sales from late January of 2015. On October 1, 2014, when the tax exemption system was revised and exempt items were greatly increased, there were only 7 duty-free shops in Akita, in places like the international terminal at Akita Airport, department stores in Akita City, and large-scale discount stores, all of which were owned by businesses funded from outside the prefecture. "Akita Marugoto Market" became the first duty-free shop to be funded by a business within Akita Prefecture.

"Akita Marugoto Market" is located close to Akita Airport and Akita Harbor, with easy access from the express highway (Figure 2-1-70). It has a large parking lot where large buses can park, and a food court, so that in the past over 1,000 foreign tourists have visited each year from places such as Taiwan, China and Korea. While consumer spending is sluggish within Akita Prefecture, due to the influence of the JPY becoming cheaper, the number of foreign tourists visiting Akita Prefecture has been increasing. "Akita Marugo Market" sells local products from the prefecture, such as famous Akita confectionery, local specialty products, and fresh produce. Since many visiting foreign travellers buy fruit and food products, it is expected that the consumer spending on such regional products by foreign tourists will increase further with the newly obtained duty-free shop permit.

In addition, in 2015, it was included in the optional tour for cruise ships, so even further positive results are anticipated.





#### b. The Effect of Cruise Ships Coming to Port on the Local Economy

Cruise ships call at over 100 ports including the Rural Areas and of those, foreign cruise ships call at over 50 ports. The number of times that cruise ships call at ports in Japan has increased in recent years, with an all time record of 1,204 times in 2014 (Figure 2-1-71), and the number of foreign travellers entering the country from a cruise ship reached 416,000 people (Figure 2-1-72). According to a study conducted by Fukuoka City and Kobe City, the economic effect for a port of call of large-scale cruise ships is JPY30,000 to JPY40,000 per person, and for one ship's visit has been calculated at around JPY100 to 200 million and for the home port (arrival and departure port) especially, the effect is even greater.





#### The Effect of Cruise Ships Calling at Aomori Port

The number of times cruise ships called at Aomori Port in 2014 is the highest in the Tohoku Area with 20 ships calling, and the number of times a foreign shipping company's vessel calls at port is rapidly increasing, especially in recent years (Figure 2-1-73). In 2014, the number of ship passengers was 26,617 people, with 11,039 foreign passengers and 15,578 Japanese passengers.

According to the survey of cruise ship tourists conducted in 2014 by Aomori City, the amount of consumer spending was JPY6,840 per person for Japanese tourists and JPY8,100 per person for foreign tourists, showing that foreign tourist spent more than the Japanese tourists.

Looking at the ratio of items purchased according to each category, 36.6% of purchases by foreigner tourists was traditional craftwork, making it the largest percentage, while for Japanese tourists, 31.0% was products related to apples and 28.8% was seafood. As the percentage of purchases were highest for Aomori Prefecture's regional specialties for both foreign and Japanese tourists, it seems that a certain level of contribution is being made to the local economy (Figure 2-1-74).





Although not included in the amount of consumer spending in the aforementioned survey conducted by Aomori City, optional tours (local tourism) are provided when cruise ships call at port, taking advantage of the tourism resources in Aomori Prefecture such as Lake Towada and Shirokami-sanchi. Therefore it is supposed that the actual amount of consumer spending is higher, and that if the indirect effect of consumer spending on the tours is counted, the economic effects of a cruise ship coming into port is suspected to be even greater.

In this way, with the port at the center of activity, cruise ships contribute to the vitalization of the local district because of the large number of tourists visiting the area.

In order to accelerate the revitalization of the region even more through the promotion of cruises while making good use of the currently available facilities, MLIT is working on things like enhancing the functionality of passenger ship terminals, improving websites to send out harbor facilities and sightseeing information regarding the area around the port to people within and outside Japan, and using "Minato (harbor) Oasis" as a place to provide foreign cruise passengers with sightseeing information of the region.

While continuing to work on attaining the "Age of 1 Million Cruise Ship Passengers" in 2020, MLIT will continue to promote proactive programs from both non-structural and structural aspects to build up the Rural Areas through the promotion of cruises.

#### (The Effect of Japanese Tourists on the Local Economy)

Of the JPY4.5 trillion domestic consumer spending on travel in 2014, which included spending by foreigners, consumer spending by Japanese on domestic travel with overnight stays was JPY14.3 trillion, and consumer spending by Japanese on domestic day travel was JPY4.5 trillion, which means over 80% of consumer spending on domestic travel was accounted for by Japanese tourists (Figure 2-1-75).

In looking at the changes in the number of overnight stays in Japan, though the total number of overnight stays for both Japanese and foreigner travellers shows a growing trend, the number of nights lodged by Japanese tourists is still the greater share than the number of nights lodged by foreigners (Figure 2-1-76). Therefore, for the local economy, it is

important to continue to attract not only foreign tourists but also Japanese tourists.

In 2014, the number of domestic sightseeing trips that included lodging per person was 1.29 times, with the number of nights stayed on these trips per person at 2.12 nights (Figure 2-1-77). The total number of people taking day trips decreased 7.2% from the year before to 191.58 million people/times, and the total number of people taking trips with overnight stays was down from the previous year by 7.0% to 164.05 million people/times. Both types of trips shows a recovery from the lowest point in 2011, but in 2014 there was a down turn (Figure 2-1-78).



Figure 2-1-79 shows the income and expense of the consumer spending on domestic trips with overnight stays by region. However if, for example, a person living in Hokkaido spends a night in Tokyo for the purpose of sightseeing and spends JPY10,000, for the category of "Sightseeing/Recreation", the consumer spending of JPY10,000 would be allocated both to the residential location of Hokkaido and to the destination location of Kanto ("All Domestic Travel" is a total of "Sightseeing/Recreation", "Visit to Hometown/Visit Friends", "Business Trip/Work" and the regional income and expense has been shown as a bar graph). In light of this, it is evident that there is a tendency for the money to flow from Kanto, Chubu, and Kinki—the so-called 3 Major Metropolitan Areas—to the Rural Areas.

Domestic travel with overnight stays—which is the bulk of consumer spending on travel—has a major influence on regional economy, but the three districts of Hokkaido, Hokuriku-Shinetsu, and Okinawa have an especially large amount of overnight stays for the purpose of "Sightseeing/Recreation", which skews the overall income and expenses of travel with overnight stays to show a surplus.

Figure 2-1-79



Income and Expense of Consumer Spending on Domestic Travel with Overnight Stays by Region (2014)

Source) "Consumption Trend Survey for Travel/Sightseeing" by Japan Tourism Agency

#### (Creating Tourism Regions by Developing the Sightseeing Zones in the Rural Areas)

Based on the "Act on Promotion of Tourists' Visit and Stay Through Development of Tourism Areas (Sightseeing Zone Development Law)", the Japan Tourism Agency is promoting the development of "Sightseeing Zones" as districts that can handle interactive stay-type tourism. Through this, the Agency plans to use tourism to revitalize districts—particularly districts other than those in the Golden Route—by creating tourism regions with distinctive attractions with specific themes to appeal to both domestic and international travellers.

The "Niseko Sightseeing Zone,"—made up of the three towns of Rankoshi, Niseko and Kucchancho in Hokkaido which received certification from the Sightseeing Zone Development Implementation Project in 2014, has not only domestic visitors but tourists from all over the world because of its world-leading powder snow and safety assurance activities for skiers/snow boarders, providing a growing trend for the total number of nights lodged by both Japanese and foreigners, with approximately 1.53 million people staying overnight in 2013 (Figure 2-1-80). Furthermore, the seven municipalities of Uonuma City, Minami-Uonuma City, Yuzawamachi, Tokamachi and Tsunanmachi of Niigata Prefecture, Minakamimachi of Gunma Prefecture, and Sakaemura of Nagano Prefecture that have been certified as "Snowy Coutry Sightseeing Zone" under this same plan are all serviced by high speed transportation networks such as the JR Joetsu Shinkansen (with 2 stations for boarding) and the Kanetsu Express Way. With Echigo-Yuzawa Station as the center, this area is connected to the Tokyo Metropolitan Area by a travel time of little less than 2 hours, making day trips possible.

Working with the key principles of: "Development of International Tourism Through Snow", "Formation of a New Tourism Industry Suited to the Snow Country", "Promotion of Extended Stay Tourism" and "Promotion of People Building and Community Building", the municipalities in this regional zone have shown a growing trend in the total number of overnight stays (Figure 2-1-81).





## Column

### The Expectations for the Opening of the Hokuriku Shinkansen (Bullet Train)

The building of the Hokuriku Shinkansen (connecting Nagano and Kanazawa) began with the authorization of the construction execution plan for connecting Nagano and Joetsu on March 12, 1998. Since then, construction has been moving forward to open a line that reaches Kanazawa, with authorization for the construction execution plan being given on April 25, 2001 for connecting Joetsu and Toyama, and on April 27, 2005 for connecting Toyama and Kanazawa.

As a result, on May 24, 2014, a Rail Connection Ceremony was held in the Toyama Station building, and the railway Figure 2-1-82 New Train Car W7/E7 of the Hokuriku Shinkansen



lines between Nagano and Kanazawa was connected into one line. Then, finally on March 14, 2015, the Hokuriku Shinkansen was opened for operation all the way to Kanazawa. On the opening day, Rail Line Opening Commemoration Ceremonies were held in various prefectures on the railway line, along with Train

Departure Ceremonies being held at every station on the line from Nagano Station to Kanazawa Station as well as at Tokyo Station. Along with Minister Ota of the MLIT attending the Train Departure Ceremony at Kanazawa Station and the Rail Line Opening Commemoration Ceremony in Toyama City, MLIT senior officials such as Vice Minister Kitagawa and Parliamentary Secretary Suzuki were present at each of the ceremonies. Every one of the ceremonies were attended by numerous officials connected to the project, and the opening of operations for the Hokuriku Shinkansen was lavishly celebrated.

With the opening of the Hokuriku Shinkansen line (connecting Nagano and Kanazawa), the travel time between Tokyo and Kanazawa has been shortened from the previous travel time of 3 hours 47 minutes to 2 hours 28 minutes, bringing the Hokuriku Area much closer to the Tokyo Metropolitan Area.

Along with the expectations that this will lead to the acceleration of business establishment and activity along the train line, as well as the promotion of local regions and the vitalization of its economy through the expansion of the living spheres along the line, it is anticipated that the region will be revitalized by more tourists visiting the Hokuriku Area through the formation of more sightseeing routes and the discovery of new resources for tourism.

Furthermore, the actual use of the line from March 14th to 16th—the first 3 days of operation—was 185% compared to the previous year for the line between Takasaki and Kanazawa, and 306% compared to the previous year for the line between Joetsu-Myoko and Itoigawa, showing that the Hokuriku Shinkansen line is off to a good start. Along with this, it seems more tourists are actually visiting the Hokuriku Area now, with the number of people entering the Kanazawajo Park being 4 times the number of people that visited in March of past years within the 2 days after the opening of the train line.

City development has also been progressing from the expectations placed on the operation of the Shinkansen, with the number of empty stores in Kanazawa City being cut to half in the last 5 years and some places recording a commercial property appreciation rate that is highest in the nation in the 2015 official land value. In addition, there have been cases of businesses moving their main office to Ishikawa Prefecture and Toyama Prefecture.

#### (2) Logistics and Information

#### (The Internet Mail Order and Logistics)

With the development of ICT (Internet Communication Technology), it has become possible to connect with people all over the world regardless of time, distance and location. In recent years, the spread of information and communication electronic equipment has progressed, and looking at the changes in the permeation conditions of such electronic equipment, it is evident that the use of personal computers and cell phones/PHS spread in the latter half of 1990s to the early 2000s, and that use of smartphones and tablet-type terminals have suddenly become widespread since 2010 (Figure 2-1-83).



With the spread of information and communication electronic equipment, internet usage has also grown. Looking at the internet usage rate by age groups, at 2013 year-end, the internet usage rate for people aged 13 to 59 was over 90%, and even in the age group of people over age 60, the internet usage rate is on a growing trend (Figure 2-1-84).



Source) "FY2013 Trend Survey of Communication Use" by MIC

With this spread of ICT and increased internet usage, the daily life of consumers has changed so they can shop without being limited by time and location. For this reason, the use of the internet for business transaction has also increased.

The market size of Japan's electronic business targeting consumers is growing steadily to approximately JPY11.2trillion in 2013, with an approximately 3.7% EC use rate ^{Note 36}, which is the indicator for the infiltration rate of the electronic commerce (Figure 2-1-85).



This kind of growth in the electronic commerce market and the diversification of consumer needs has influenced the field of logistics. Looking at the changes in the flow of cargo, the cargo weight of each transport has decreased but the number of transports has increased. Also, in looking at changes in the number of items handled by "Takuhaibin" (package delivery services) ^{Note 37}, from the fact that the number of items handled is increasing, it is evident that the units being transported are becoming smaller but increasing in frequency (Figure 2-1-86, Figure 2-1-87).

Note 36 The ratio of the electronic business market size against the total of all business transactions (size of business transactions market). The EC use rate of electronic business targeting consumers indicated the number in the retail/service business.
Note 37 Indicates the special combined freight transport of the general motor truck transportation business or the transport of freight and use of transport businesses by one or a combination of railroad freight transport, coastal shipping, truck transport or air cargo which transports cargo of 30kg or less per item with a special name attached.





Along with the above-mentioned changes, there has been an increase in redeliveries due to the receiver not being home. In order to improve the efficiency of cargo distribution by reducing redeliveries, package delivery companies, together with mail order companies, formed a "Committee to Promote the Diversification of Methods to Receive Package Deliveries to Reduce Redeliveries". This Committee is working on understanding the current situation, analyzing the causes, investigating the various issues, and looking for solutions to reduce the number of redeliveries through things like promoting the diversification of methods for receiving packages.

In order to further streamline the cargo distribution work in light of these conditions, in recent years a reorganization and consolidation of logistics facilities has been taking place. Currently there is a trend of establishing large-scale logistics facilities which combine the various functions of not only storage but disposal of goods, distribution processing, and advanced information processing, in closer proximity to cities, close to the areas where the consumers live. As a result of the growing demand for these logistics facilities, their attraction as an investment target is also growing. Looking at assets



acquired according to J-REIT ^{Note 38}, offices, houses, and businesses/stores used to be the main targets, but in recent years investment into logistics facilities has been showing some growth (Figure 2-1-88).

#### (The Contribution of Logistics to the Local Society)

a. Local Employment from Establishment of a Logistics Facility

In the past, logistics facilities were mainly a one level warehouse just for storing merchandise but, as mentioned before, the more recent logistics facilities handle processes like sorting and packing the cargo, as well as inventory management.

Note 38 J-REIT: An abbreviation of Japan Real Estate Investment Trust. A product where multiple real estate properties such as office buildings, commercial facilities and apartment buildings are purchased with funds collected from many investors, then distributes the rent income and sale profits from those properties to the investors. (Cited from the website of the Investment Trust Association, Japan)

In recent years, such multifunctional, large-scale logistics facilities are being built quite frequently and are contributing to the creation of employment opportunities in the Rural Areas.

Being Holdings, Inc. "Hakusan No.3 SCM Center" ~Hakusan City, Ishikawa Prefecture~

In November 2014, Being Holdings, Inc.—a general logistics and transportation company in Kanazawa City, Ishikawa Prefecture—established Hakusan No.3 SCM (Supply Chain Management) Center, a large-scale logistics center with a 2,992 Tsubo (9,890.91m²) site area with a total floor space of approximately 3,940 Tsubo (13,024.79m²), in Hakusan City of Ishikawa prefecture.

Hakusan No.3 SCM Center has created many more employment opportunities than the conventional types of logistics facilities, and below is a comparison with the existing facilities owned by Being Holdings, Inc.

- Hakusan No.3 SCM Center ~ Inventory Stock-type Logistics Facility (2014)
- → This is a facility where the merchandize is stored temporarily to do the distributing processing, such as the unpacking, wrapping, and inspection, as well as the actual delivery. For this reason, compared to other logistics facilities, both the floor space and number of employees is greater in scale. 135 people are employed at Hakusan No.3 SCM Center, and of those employees 100 people were hired locally, thus contributing to the creation of employment opportunities in a Rural Area.

	Figure 2-1-89		Summary of Logistics Facilities Owned by Being Holdings, Inc.				
	Name of Facility	ne of Hakusan No.3 SMC cility Center		Kanazawa Case Center	Nagaoka Aoki TC		
	Uses	Storage, Distribution Processing, Cargo Handling, Delivery		Storage, Inventory Management	Cargo Handling, Delivery		
	Total Floor Space (Tsubo)	3,940		250	421		
	Employees (People)	135		1	10		
	of which Local Hires (People)	100		0	9		
Source) Being Holdings, Inc.							

- Kanazawa Case Center ~ Conventional-type Warehouse (2010  $\rightarrow$  move to new location in 2013)  $\rightarrow$  1 employee based on the functions of storage and inventory management.
- Temployee based on the functions of storage and inventory management.
- Nagaoka Aoki TC (Transfer Center) ~ Transit-type Logistics Facility (2012)
- $\rightarrow$  A warehouse that holds no inventory but emphasises sorting functions. With 10 employees, there are more people employed than at the conventional-type warehouse.

In this way, the large-scale logistics facilities being built in recent years have been contributing to the creation of jobs in Rural Areas. With the expansion of internet mail order businesses and the increase in frequent small-lot deliveries, it is believed that the demand for large-scale logistics facilities will continue to increase, and there is a growing expectation of more jobs being created in Rural Areas by the building of such logistics facilities.




#### b. Local Support Efforts by Logistics Businesses

With the regional structure changing due to the aging population and the decrease in population and birth rate, it is becoming necessary to respond to the needs of people left in difficult situations. In Rural Areas especially, even shopping for groceries and other daily necessities is becoming difficult, and the maintenance of transportation networks is a concern. To deal with these issues, efforts are being made towards the maintenance and revitalization of these districts through cooperation between local public organizations—especially in districts with a large number of elderly people—by things like checking in and assisting the elderly with shopping, and creating sales opportunities for farmers and producers. Through such efforts, the flow of goods through new logistics channels is expected. For example, farm produce that did not get distributed to the market in the past—such as vegetables grown by elderly people in their garden—being sold at the "*Michi-no-Eki* (roadside stations)" or "outside the local area". Even in a society with a serious population decline, if these new logistics channels open up in various places across the country, it could lead to the revitalization of local districts through the flow of goods and become the source of Japan's vitality.

"Solene Shunan", the Roadside Station that Cooperates with a Package Delivery Business. ~ Shunan City, Yamaguchi Prefecture

Shunan City of Yamaguchi Prefecture has a large area of farmland in the hilly and mountainous sections that cover approximately 68% of its district. In recent years, with the progressing depopulation and aging of its citizens, this city faced many of the problems common to various areas in Japan, such as an increase in deserted arable land, loss of sales opportunities and income due to the reduced production of agricultural products, and difficulty in mobility and shopping due to the decline in transportation infrastructure.

Under these conditions, with the opening of "Solene Shunan" on May 17, 2014, a roadside station along Route 2, efforts are being made to find solutions to the district's problems based on the concept of "All of Shunan Publicizing the Shunan Brand 24/7" so that—in addition to the "Tourism Type" function of many other roadside stations—this station also provides "Welfare Type" functions to support the local citizens' "reason for living" by making the roadside station a place of interaction/communication.

Furthermore, on November 17 of the same year, the three parties of Shonan City, Shonan Tourism Council—the company that manages "Solene Shonan"—and Yamato Transport Co., Ltd. entered into the "Comprehensive Cooperation Agreement for the Vitalization of the Local District" with the aim to vitalize the district and improve services for citizens, and to support the local residents "reason for living" as well as publicize the Shunan brand with the government and people working as one.



The first of the "Comprehensive Cooperation Agreement for the Vitalization of the Local District" efforts is providing a place for elderly people to price and exhibit/sell—even if it is just one bag—vegetables and local agricultural product/ processed goods produced on their own property which they were unable to put on the market in the past because of the small quantity. There is also a process in place for those that find it difficult to deliver their goods—such as famers in the

hilly and mountainous areas without transport and food processing plants that want to concentrate on production—where a salesperson/driver of Yamato Transport Co., Ltd. goes out for collection, and by putting the merchandise for exhibit/sale directly into a collapsible container, the goods will be delivered to "Solene Shunan".

The second effort planned is the support system for checking in and handling the shopping for elderly and handicapped people. Shopping support is provided for elderly and handicapped people who cannot get to the roadside station by making use of catalog mail order and internet supermarkets. Orders are received and merchandise is picked up/packed at "Solene Shonan", then a saleperson/driver of Yamato Transport Co., Ltd. delivers the order to the people's homes. It is planned that the check in support will be done at the same time, by confirming the safety of customers when making deliveries and communicating with the contact person for the city if there are any irregularities or problems.

The third effort planned is the selling of local products outside the region, publicizing and expanding the market channel of the Shunan brand, and supporting the efforts to become a sixth industry. Rather than limiting the sales of the specialty products, processed goods, and farm produce grown by elderly people to local people and tourist that come to the roadside station, plans are being made to construct a system for selling to consumers and restaurants all over the country, as well as creating a distinctive letter of transmittal (package delivery invoice) displaying the characteristics of Shunan City, in order to gain national publicity. In addition, Yamato Group will provide support for not only domestic transport but also for overseas transport, to strengthen the publicizing of the Shunan brand both within Japan and overseas.

As discussed above, logistics businesses are taking action in many ways to support and revitalize the local districts. Particularly in the Rural Areas where it is said that the decline and aging of the population will progress, such efforts to maintain and revitalize the local district is necessary. For this reason, in October 2014 MLIT held the "Council for Determining Ways of Having a Maintainable Logistics System to Support the Local District" with concerned parties, including academic experts, logistics businesses, local public agencies and non-profit organizations. The needs related to distribution of goods and other daily life support services in depopulated areas, current situation of transport, the state of new efforts being tried in different places, issues and the direction to take with solutions were considered at this council. By March 2015, the information and points discussed were organized into the "Report by the Council for Determining Ways of Having a Maintainable Logistics System to Support the Local District". Also, based on the deliberations by this council, there are plans to start a model business to construct a maintainable logistics network in 2015.

#### Column "Takuhai [Parckage Delivery] Mate (Sagawa Mama)" ~Work While Raising your Children!~

A new way of working is gaining attention where it is possible to set your work hours according to your convenience, with no commute necessary.

With the spread of internet shopping in recent years, the number of items to be delivered has increased markedly, but the packages themselves have become smaller and lighter, making it necessary to have more people who will handle the deliveries.

Sagawa Express, having made it their goal to increase the efficiency of deliveries in the morning hours, started recruiting delivery people in the district under the jurisdiction of the Chiba North Office (Chiba Prefecture, Hanamigawa Ward, Inage Ward and Yotsukaido City) in March 2012. In response, there were many applications from housewives who applied as, "Can only work in the morning hours" ~I can only work during the time my children are in kindergarten or school~. Based on these recruitment results, the delivery offices in Chiba Prefecture began operating with housewives as the main source of delivery personnel on a trial basis. This was received so well by not only workers but also by customers that from April 2014 this policy was launched all over the country as "Takuhai Mate", and the goal now is to expand up to 5,000 people.

Not only can this type of work be done for "a small number of hours" and "in the vicinity of home", it "allows for possibility of unplanned absences" that arise sudden sickness of a small child.

Furthermore, Takuhai Mate uses the employment method of "outsourcing contract to a sole proprietor",

and once hired the employee learns the necessary information through training, and by actually going along with a salesperson/ driver to understand the delivery flow. Follow up is also provided so that deliveries can be made alone without any apprehension.

The future development of this program will continue garner attention as a flexible way of working. Figure 2-1-93 Job Description of "Takuhai Mate"

 In the morning, a driver brings the packages for delivery that day to the Takuhai Mate's home →Mainly small, light packages. Delivery address is within a 2 to 3 km radius from home.
 Delivery to destination address on foot or by bicycle.



# Orakuhai Mate

Source) Sagawa Express Co., Ltd.

# Column

#### "Tora Girl" (Truck Girl) ~Towards More Active Participation by Women Truck Drivers~

The entrance of women into the truck transport industry has been slower than in other lines of business, but in recent years the good work of women truck drivers is gaining attention for revitalizing the industry through the use of skills that women drivers provide, such as attentive service, good communication, and careful driving.

The Road Transport Bureau of MLIT has given women truck drivers the nickname "Tora Girl (Truck Girl)", and is working on various plans to promote the active participation of women in the truck transport industry.

#### The Necessity of Efforts for the Promoting the Active Participation of Tora Girls

Currently, the ratio of women truck drivers remains at just about 2.4% (approximately 20,000 women) of the total number of truck drivers, but the number of women who have a license to drive large vehicles is over 134,000 women, so it seems there is a certain number of women who are potentially considering driving a truck as a career option. However, there have been complaints from the women truck drivers currently working that they have been refused employment for being a woman, and that there was no bathroom for women at the delivery destination. Changing management's attitude towards hiring women, reforming the work environment to make it positive for women, and improving the image of the industry have all become pressing issues.

For this reason, MLIT has designated 2014 as the "First Year for Personnel Procurement/Development" for truck drivers, and started proactively putting out information and working with managers to promote the active participation of women in the truck transport industry.

#### Creating the "Tora Girl Promotion Project Website"

In September 2014, The "Tora Girl Promotion Project Website" ^{Note} was created within MLIT's Road Transport Bureau website to proactively send out information to improve the image of the industry. On this site, along with information about how to get a drivers licenses of various types and introducing events related to recruitment activities, there are postings of comments from currently working women drivers from all over the country and messages of encouragement from related business circles.

#### Towards the Promotion of Active Participation by Women Truck Drivers

At the courtesy visit of the Tora Girls to the prime minister, Prime Minister Abe commented that he "wants the women to use their unique skills to work hard". MLIT continues to work towards the promotion of active participation by women truck drivers for the revitalization of the industry through the use of skills unique to women.

Figure 2-1-94 Tora Girls Courtesy Visit to the Prime Minister (September 2014)



Source) MLIT

Figure 2-1-96 State of Women's Participation





Figure 2-1-95 Tora Girls Logo



Source) MLIT



#### (Various Ways of Working Due to the Spread of ICT) a. Promotion/Spread of Telework

Telework which is a flexible way of working without being limited by a work location with the use of ICT (Information Communication Technology), and is expected to have many positive effects such as securing a workforce by making it possible to balance work and home life, promoting employment of people responsible for child-rearing and caring for elderly/handicapped people, increasing employment opportunities in local districts to revitalize Rural Areas, increasing fulfillment in personal life due to the increase in leisure time, and reducing commuter congestion.

MLIT is working on the following plans for the spread/promotion of telework with the aim to "Resolve the Adverse Effects of Centralizing Population/Function in the Metropolitan Areas" and "Revitalize the Local Districts".

#### Status Survey of Telework Population

A survey for the purpose of getting a grasp on the quantitative status of the rate of teleworking and the teleworking population, and publicizing the results for use in edification and dissemination.



#### Setting Up Telework Centers

As a facility for promoting telework, consideration is being given to setting up "Telework Centers" (shared usetype offices) that would provide an alternative space for people working from home or a base for mobile work. Until recently, the locations being considered for setting up these centers were mainly in large metropolitan cities. However, amidst the decreases in population and birth rates and the aging of the population, there is a need to create workplaces in rural cities and for stimulating activity in such cities by effectively using empty stores in the center of town. Therefore there are plans to continue expanding the efforts for spreading/promoting telework—with consideration

Figure 2-1-99		Overview of Telework Center Social Experiment			
	FY2007Location of Experiment2 Locations (KohokuNT, Tsurugashima City)Period of ExperimentApproximately 3 monthsTotal Number of Users330 people		FY2008	FY2011	
Location of Experiment			1 Locations (Yokohama Azamino)	6 Locations in City Center (Shinagawa, Yaesu, Kasumigaseki), City Suburbs (Kannai, Tama, Makuhari)	
Period of Experiment			Approximately 3 months	Approximately 2 months 897 people	
Total Number of Users			660 people		

being given to conducting a model demonstration experiment related to building up cities—for the purpose of revitalizing rural cities.

#### b. Satellite Office

When migrating to a Rural Area, it is normal to think you need to find work in the place to which you are migrating. However, now that use of ICT has spread, even if the main office is located in a place like a metropolitan city center, by calling the workplace in a district that is distant from the main office a satellite office, it has become possible to live without being limited by the location of the workplace.

In Kamiyamacho, a town with a population of about 6,000 people located in the hilly and mountainous areas approximately one hour's drive from the center of Tokushima City in Tokushima Prefecture, the government and Green Valley—a local specified non-profit organization—are leading efforts to revitalize the district. In 2004 a fiber-optic network was laid for the entire town and, in spite of the town being in a hilly and mountainous area, a broadband

environment was established. When a migration interaction support center was to be established in 2007, Kamiyamacho consigned the work involved in migration interaction to Green Valley. Green Valley did not use the methods other municipalities were using to choose people to migrate, such as lottery and first-come-first-served method. Instead, they used a far-sighted strategy of having the people wanting to migrate propose what they would do in Kamiyamacho after migrating, and chose the people to migrate based on the content of their proposals. Also, in recent years, more than a dozen IT-related businesses have moved in to the area, making use of satellite offices.

Out of these offices, some have renovated old traditional houses that are about 90 years old with floor to ceiling windows. In spite of being offices for imaging companies, these "Engawa (patio) Offices" that have been modishly regenerated have become a place that attracts the gathering of various people, including local residents and visitors, and is a rare example of creating a bustling atmosphere.

Also, with the increase in satellite offices in recent years, the local region has been revitalized, with employment opportunities being created in the surrounding areas.

Going forward, the use of satellite offices for revitalizing a district is expected in other Rural Areas also.



Due to the broadband environment in place, working in this relaxed manner has become possible



Source) Green Valley, a Specified Non-Profit Organization

Source) Hour Tokushima, Prefectural Government Newspaper (November 2012 issue)

### Column Co-Working, the New Way of Working

"Co-Working", differs from previous shared offices where merely the work space is shared, and has been developing in various places in recent years as a new way of working. Co-working is a way of working where individuals gather to share information and wisdom through communicating and cooperating depending on the situation, to create value.

"Co-Working Spaces" – places to conduct Co-Working – are currently located mostly in the Tokyo City Center but there are some established in various Rural Areas, and as of July 2014, it is projected that 365 spaces are in operation.

By having Co-Working spaces in rural cities instead of only in the large metropolitan cities, it is expected that this new way of working will lead to the revitalization of the economy in Rural Areas through co-workers of a district getting together to share their knowledge, to work together and to even start a community in the district.



Source) Website of Hitsuji Incubation Square Inc. (Shibuya Ward, Tokyo: PoRTAL)

Source) Kamiyama Valley Satellite Office Complex (Kamiyamacho, Tokushima Prefecture

KVSOC)

Reference Materials: Tomokazu Abe, Tadashi Uda, Kenta Hiramoto (2015) "State of Co-Working Space: 2014 Research Summary Report" Kenta Hiramoto, Tomokazu Abe, Tadashi Uda (2014) "Work Style and Vision for Local Community: Looking at Co-Working"

#### (3) Regional Economic Circulation and Building Up the Local District

#### (A Way to Think About Regional Economic Circulation)

Looking at the local economy from the "flow of funds", the local economy can be vitalized by acquiring funds from outside the district by supplying goods and services that use of the strengths of the district to areas outside of the district, then constructing an economic circulation structure by creating new demand in the district by circulating those funds within the district. To be more specific, first the funds acquired from outside the district by a business will be spent within the district as the income of the district residents who are employees of the business. Then that spending will become income for the retail and service businesses within the district, and in turn becomes the income of the district residents employed by those



businesses to be spent further to create a circulation. Additionally, funds that were not spent will be deposited into financial institutions, which will then be re-invested (loaned) within the district through those financial institutions to lead to further production (Figure 2-1-102). Through the working of such an economic circulation structure, employment and income will be created within the district and the district economy will be maintained.

However, many of the municipalities in the Rural Areas are in a state where this circulation is not operating well. The foundational industries of the district are stagnating and are not able to acquire funds from outside the district as they had in the past. Even funds that are acquired tend to be spent outside the district, at places like large-scale shopping centers outside the district and on internet mail order businesses. Even with funds deposited into financial institutions in the district, reinvestment inside the district is decreasing, and when comparing the loan-deposit ratio according to each prefecture between 2004 and 2014, it is evident that in many of the prefectures the loan-deposit ratio is deteriorating (Figure 2-1-103). This decrease in spending and investing within the district leads to a decrease in employment opportunities and income, which in turn becomes a cause for the district to lose its vitality.



#### (Improvement Strategy for the District Economic Circulation Structure)

In order to correct the economic circulation structure of local districts and reform it into an effective circulation, first a quantitative analysis of the economic circulation of the districts must done to make it "visible". Next, a start can be made by getting a grasp on the features that vary by district, such as which businesses are acquiring funds from outside the district, and which areas have a great drain of funds. At the same time, in addition to grasping the economic circulation structure from the flow aspect, it is important to look at the stock aspect of district resources, including the natural environment, the infrastructure, and the culture/tradition.

Based on this kind of analysis of the present conditions, strategies that match each district's actual situation will need to be implemented. Here we will discuss possible strategies for consideration from the four aspects of: "Acquisition of Funds from Outside the District", "Curtailing Spending Drains to Outside the District", "Diversification of Investment Methods Inside the District", and "Investment that Uses the District's Real Estate".

#### a. Acquisition of Funds from Outside the District

The first strategy to consider for acquiring funds from outside the district is promoting the sales outside the district of those products and merchandise that maximizes the unique resources of the district. With this in mind, various places are proactively promoting work on sixth industry ^{Note 39}. By selling merchandise outside the district that has been value-added by processing primary articles such as agricultural and fishery products, not only can more funds be acquired, by handling the processing and product development within the district, employment and capital investment is created inside the district, which also leads to increasing fund circulation.

Next, promoting spending within the district by attracting people outside the district can be another method to consider for acquiring funds from outside the district. Tourism is said to be an industry with a broad base, where not only the travel and hotel businesses benefit, but its economic affect can spread to agriculture, forestry and fishery industries, as well to the retail industry and the transportation industry. Many districts are therefore promoting tourism, even as they work on sixth industry. In order to maximize on the effects of tourism, it is necessary to think about devising ways of lengthening the tourists' duration of stays, instead of having merely daytrip/passing through-type tourism, as well as promoting gift items that have been made/processed in the district using materials from the district.

Furthermore, it is important to not only promote tourism, but to move forward in working to increase the interacting

Note 39 The effort to create new added-value that makes use of district resources by promoting the combination and unification of agriculture, forestry and fishery industries as the primary industries, the manufacturing industry as the secondary industry, and the retail industry as the tertiary industry.

population, including promoting the interaction between metropolitan cities and agricultural communities, as well people living in two districts.

#### b. Curtailing Spending Drains to Outside the District

Curtailing the spending drain to outside of the district means to have more district residents shop locally and buy things that were made in the district. To think about this, it is necessary to first get a grasp on the current situation of the "place" where the residents do their shopping and the "production site" of the items purchased, in order to see which of the items produced outside of the district have a high purchase rate and whether there are items that can be substituted by products from within the district.

First, in terms of the spending "place", it can be assumed that there is an increasing rate of shopping at the large-scale shopping centers in the suburbs and by Internet mail order. However, strategies can be planned to increase the number of shoppers coming into the district to expand consumer spending by improving access to the city center by concentrating the city functions and reconstructing the public transportation network (forming Compact Cities) to increase the convenience and attraction of the city center area.

Next, in terms of "production site" of the consumables, one of the strategies would be local production for local consumption, where agricultural, forestry and fishery products produced in the district is consumed within the district. Specifically, there are efforts such as local agricultural, forestry and fishery products being sold at produce stands and volume retailers, as well as using local agricultural, forestry and fishery products in school lunches and employee cafeterias. As a result, income opportunities are generated for the local producers which increases the fund circulation in the district, as well as having the merit of shrinking the distance between the producers and the consumer, which serves to bring down transportation cost, provide fresh quality produce and foster a fondness for local products.

Local production for local consumption should be considered not only for agricultural, forestry and fishery products but also for energy. Fossil fuel such as gasoline and heating fuel depend on imports, and has to be purchased from outside the district (overseas), making energy a leading item for the spending drain to outside of the district. However, if there are natural resources within the district that can be used as renewable energy, the energy supply within the district can be established by introducing renewable energy and the payments to the outside of the district for energy expenses will decrease, resulting in the circulation of funds within the district.

In addition, by promoting energy-saving efforts, the amount of energy consumption in the district will decrease and make it possible to curtail the drain of payments for energy (spending) to outside of the district. Some ideas for example are promotion of capital investment for energy conserving and decreasing the dependence on cars by forming compact cities.

#### c. Diversification of Investment Methods Inside the District

As mentioned above, the funds that do not get spent will be deposited to the financial institution as savings and be reinvested by said financial institutions. However, because investment decisions are entrusted to the financial institutions, even if there is a proposal that is necessary for the district or has business content that holds future possibilities, it may be difficult for the financial institution to take on certain investment opportunities due to problems like business performance and balance of income and expenditures.

In recent years, new investment methods which do not involve financial institutions are beginning to spread. Such methods make it possible to invest in, for example, social businesses ^{Note 40} which conventional financial institution had difficulty taking on, and has the possibility of contributing to stimulating reinvestment within the district by broadening the base for investment plans. Also, these methods take on the role of widely encouraging social investments by the private sector and donations from citizens to supplement portions that cannot be covered by public funds, for the sake of continued building up of the local community.

Note 40 Refers to efforts by various entities such as residents, non-profit organization and businesses cooperating to make use of business methods in finding solutions to the wide variety of issues facing the local society including everything from environment protection, care/welfare of elderly/handicapped people, child-rearing support, community building, to tourism.

The two methods of Crowd Funding and Social Impact Bond (SIB) will be introduced here as examples of recent movements.

Crowd Funding is a term coined from combining "Crowd" and "Funding" and is an investment method of individuals and companies wanting to start a business gathering funds from many unspecified individual investors by posting their business plan on the website (platform) created on the Internet for Crowd Funding. Crowd Funding can be divided into the following types by the manner of compensation/return promised to investors: donation type, purchase of products/

Figure 2-1-104	Types of C	rowd Funding			
Types	Relationship to the Financial Instruments and Exchange Act	Compensation for Investment	Amount of Investment per Person	Fund Raising Scale	
Donation Type	No compensation/ returns	None/Letter of Appreciation	From JPY1 per lot	Several tens of thousand yen to Several million yen	
Purchase of Products/Services Type	No compensation/ returns	Products/Services	From about JPY1,000 per lot	Several tens of thousand yen to Several million yen	
Loan Type Has compensation/returns	Has compensation/ returns	Profit Equivalent to Interest	From about JPY10,000 per lot	Several hundreds of thousand yen to Several tens of million yen	
Business Investment Type	Has compensation/ returns	Business Profit	From about JPY10,000 per lot	Several million yen to Several tens of million yen	

services type, loan type, and business investment type (Figure 2-1-104).

The general process flow for Crown Funding is as follows: posting a proposal on the website (platform), evaluation by the website management, creating an appeal for funds page, start of appeal for funds, project execution, compensation to investors (except for the donation type). Furthermore, in some cases there is a mechanism so that a target amount set for the appeal for funds, and if the target amount is not reached, the proposal is considered a failure and funds cannot be procured.

The compensation to the investors is not necessarily money, so that even for regional contribution activities which had a difficult time procuring funds from conventional financial services, it becomes possible to procure funds and gain support of investors if the business plan matches the needs of the district. As a result, new flows of reinvestment into the district are created and community contribution is facilitated. In addition, there are other resulting effects from announcing a the fund appeal, such as increasing the residents' interest in the district and getting a grasp on the needs and issues of the district through seeing the number of investors, the amount of funds being collected, and the length of time it takes to collect the necessary funds.

Social Impact Bond (SIB) is an investment method whereby entities such as NPOs conduct business to solve social

problems by receiving funding from private investors. If a business achieves a successful social performance (such as reducing government administration costs), a portion of the costs saved by the government will be paid as compensation to the investors. For businesses that were not able to achieve results, the government does not have an obligation to pay returns, which means invested funds will not be returned to the investors, making the invested amount a donation by default. SIB was implemented for the first time in the world in the U.K. in 2010, and since then this method has been used in places such as the United States and Australia to fund preventative programs such as repeat offense prevention for prisoners and child abuse prevention.

There has been no actual implementation



of SIB in Japan to date, but there is some movement towards implementation. In cooperation with the pilot business which the Japan Foundation (public finance) is starting in order to introduce SIB, Yokosuka City of Kanagawa Prefecture began a promotion program for special adoptions ^{Note 41} in April 2015.

The specific business plan is for an intermediary support organization (in this instance the Japan Foundation) receiving funding from the Japan Foundation will subcontract the business to a public organization, and the public organization which took on the consignment will cooperate with the city to implement a program to promote the successful conclusions of special adoption processes (Figure 2-1-105). The results of successfully concluding special adoptions include not only an improvement of a child's home care environment at early stages, but reduction in facility management costs are predicted from the decrease in the number of entrants into infant homes/orphanages within the city and these results will be evaluated. Yokosuka City will consider the results from this business and, if the business is evaluated as successful, plans to implement an SIB in FY2016 to establish the business as a city function.

In this way, because the compensation amount to the investors in a SIB—in other words, the amount of returns paid by the government—will be determined in alignment with the social performance of the business, it will be important to determine if the social performance can be calculated in a quantitative and objective way. If such an evaluation model can be established for the social businesses in various fields, new investment proposals for social businesses can be created, and it can be anticipated that even as the government's budget becomes more limited, solutions to social problems can be found and the financial burden can be lightened.

#### d. Investment that Use the District's Real Estate

Investments that make use of real estate in the district has been suggested as an improvement measure which focuses on the "Stock" aspect of the district for the economic circulation structure of the local district.

The general flow for reinvestment with regards to the local district economic circulation involves capital investment by businesses leading to production of new goods and services. On the other hand, with investments that maximizes on the real estate existing in the district, there is a possibility of creating a new fund circulation that differs from the one mentioned above.

Looking at the real estate held by the household category of Japan according to the National Accounts, land is approximately JPY 676 trillion, residence is up to



approximately JPY 303 trillion and—the major portion of household financial assets—cash/saving balance is at a level over approximately JPY 874 trillion (Figure 2-1-106).

In this way, Japan has large-scale real estate holdings, but for many properties the benefits that can be gained from them are decreasing as a result of declining use and dilapidation. There are also cases of real estate property with a certain economic value not being used effectively, which means its full value is not being realized.

Therefore, investments that make effective use of such real estate in the district can be one method of revitalizing the economic circulation of the district. The main examples of such investment can be divided into the following categories: those with the purpose of "Improving the Real Estate Value" and those with the purpose of "Converting Real Estate to Funds" (Figure 2-1-107). Currently the method of converting real estate to funds—such as reverse mortgage and real estate securitization—is mostly used in the Tokyo Metropolitan Area and has not spread to the Rural Areas, but efforts are being made to promote the use of this method in the rural cities.

Note 41 Special Adoption is an adoption system whereby, mainly for the welfare of children 6 years of age and under, the legal relationship of parents and their child is dissolved where there is the necessity, and the Court of Domestic Relations establishes a stable foster parent relationship that conforms to the real parent relationship.

In terms of the influence of effectively using such real estate on the economic circulation of the local district, as shown the flow chart in Figure 2-1-102, it can be seen that the flow is differs between the classifications of "Improving the Real Estate Value" and "Converting Real Estate to Funds". The methods classified as "Improving the Real Estate Value"—such as renovating houses/apartments—leads to an increase in production by generating rent income. On the other hand, because the method of "Converting Real Estate to

Figure 2-1-107		Examples	Examples of Investments that Use Real Estate Effectively				
Classification	1	Nethod	Overview				
Improvement	Renovating Empty Houses/Apartments		Renovate empty house and apartments so the property can be used to earn rent income.				
of the Real Estate	Use of Public Real Estate (PRE)		(Example) Construct a facility for combined public-private use and apply the rent income from the public division to the management and maintenance fee of the facility.				
Converting	Reverse Mortgage		Elderly people receive financing on the house they use as their residence and at the death of such an elderly person, the loan is paid off in one installment from the sale of the house.				
Real Estate to Funds	Real Estate Securitization		The method where one transfers real estate owned to a separate vehicle created for convenience sake that is independent in legal/accounting terms = Investment Vehicle (SPV) and obtain funds with that real estate as proof of economic value.				
Source) MLIT			·				

Funds"—such as reverse mortgage and real estate securitization—does not increase production, it creates a flow that is characterized by distribution (income) rather than production, from the conversion to funds (Figure 2-1-108).



By focusing on the Stock (resources) within the district and making investments that uses such resources, the value of the Stock will increase and the potential value will be realized, resulting in flow newly created by rent income and conversion to funds leading to an increase in spending and savings, thus activating the fund circulation within the district.

(Example of District Revitalization Based on an Analysis of the Regional Economic Circulation)

The project of Minamata City in Kumamoto Prefecture will be introduced as an example of a Rural Area Public Organization proposing strategies based on an analysis of the regional economic circulation that has been discussed thus far.

Minamata City has been working on innovative efforts towards "Environmental City Building" from the lessons

learned from the Minamata Disease as a starting point, but these efforts did not reach the point of revitalizing the local economy, and with the population decline and the economic slump of recent years, attrition of the local society was continuing. Therefore, in order to break through this situation and connect the environment-related strategies to the activation of the local economy, the "Minamata Environmental City Building Study Group" was started in 2010 to begin discussions regarding this matter. Based on the discussions of this study group, the strategy "2011 Minamata City Environmental City Building Promotion Project" was drawn up based on an analysis of the regional economic circulation. And, from 2012, "Environmental Capitol Minamata" was started as a business aiming to build a new form of district that will develop economically while reducing the environmental load.

By doing an analysis of the economic circulation of the local district, it became clear that for Minamata City, spending was draining out to the roadside stores in the suburbs mainly on the non-working days, with the amount of sales in the city center decreasing by approximately JPY5 billion in the last 10 years (1997 to 2007), and approximately JPY8.6 billion a year was draining out of the city for payment of energy costs. Also, on the investment side, against the amount of deposits within the city, the rate that went to loans inside the city (loan-deposit rate) was a low 20 to 30%, making it clear that funds deposited within the city were draining out of the city through investments outside the city and purchasing of government bonds (Figure 2-1-109).



Source) Material from the First Study Group "Study Group for Circulation-Coexistence Type Local District Development" by MOE

Based on the issues that became clear from this analysis, strategies are being carried out is each sector to increase consumer spending and investments inside the city.

#### a. Project to Revitalize the City Center

To prevent consumer spending from draining to outside the city, and to promote the use of public transportation facilities, as well as to revitalize the shopping areas, a demonstration experiment of giving Eco-points to people who come to the shopping areas using the community bus was conducted for approximately 6 months from August 21, 2012 to January 31, 2013 by the "Creation of Environment Capital Minamata" project (subsidized by MOE).

The Eco-points were given when a passenger showed the proof ticket (bus ticket) that was passed out at the bus stop

for riding the bus. Also, a system was put in place so that bus users with a large amount of shopping could have their shopping load delivered to their home for free. At first the project did not receive much publicity and the number of tickets distributed was rather low, but gradually, as people began to understand the merits of this system, the number of tickets being used increased and bus users started visiting stores they have never been to in the past, so this became an opportunity for the shopping areas to gain new customers. In the 17 stores in the shopping area for which store traffic was being tracked, the ratio of the number of ticket users to the number of people who came into the store was less than 1% at the beginning. However, by the sixth month, which was January, the ratio had increased to 39.0% (Figure 2-1-110).

The number of passengers for the Community Bus was on a declining trend in 2009 (October 2008 – September 2009), but a major review of the route was conducted in January 2012, and every bus route was changed to be routed through the center part (shopping area, medical center) of town. Since the change in routing, the drop in the number of bus passengers has stopped.

As a result of such projects, Minamata City's 2012 local area sales rate by product item, when compared to 2009, had increased for all items, showing that consumer spending within the city had been revitalized (Figure 2-1-111).





#### b. Promoting Tourism ~ Hisatsu Orange Railway "Orange Restaurant Express"

In the 10 years since the peak period of 1994 to 1999 which saw around 700,000 people, the number of tourist visiting Minamata City has decrease to almost half. Now, as a strategy to increase consumer spending in the city, efforts to increase the number of tourists have been implemented. One such attempt, from March 2013, the tourist train "Orange Restaurant Express" was introduced as part of the Hisatsu Orange Railway by the "Environmental Capital Minamata" creation project (subsidized by MOE).

"Orange Restaurant Express" is a 2 car, 43 seater train, made by remodeling existing train cars according to the design of world famous industrial designer Eiji Mitooka. With the concept of a "Train for enjoying food and the slow life", this train offers cuisine made from carefully selected seasonal foods that are locally produced for local consumption, all to be savoured while taking in the scenery from the train windows, and signature specialty products of the region are available for purchase at each stop. The train travels for 4 hours between Shin-Yatsushiro (Kumamoto Prefecture) and Sendai (Kagoshima Prefecture), a distance that takes about 30 minutes on the Shinkansen (bullet train) (Figure 2-1-112, Figure 2-1-113).



When it began operation, "Orange Restaurant Express" became a popular topic for television programs and magazines, and since it started running in 2004, the number of passengers on the Hisatsu Orange Railway—which had been declining fairly consistently —started growing in 2013, and along with that the sales numbers also started increasing (Figure 2-1-114). The increase in tourism income that maximizes on the natural resources and regional specialties of the local district seems to be an effective method for procuring funds from outside the city.





#### c. Introducing Renewable Energy

As a strategy to improve the balance of payment for energy within the city, there are plans to install woody biomass ^{Note 42} electricity generators and mega-watt solar panels.

The woody biomass electricity generator will generate electricity by burning fuel chips made by gathering forest trimmings from Minamata City and its surrounding districts, which are then are shredded and sorted. With this business, it is expected that many jobs will be created in the city from the operation of the biomass electricity generation plant, as well as other forestry and lumber related work.

In terms of the mega-watt solar panels, the plan is to install solar panels in several of the places in the city where there is idle land for large-scale solar energy generation. Part of this endeavor has already been made into a business by local small and medium businesses.

#### d. Introducing the Environmental Financial System

In order to promote investment within the city and apply low carbon emission standards, the "Minamata Green ^{Note 43}" an Environmental Financial System that has one of the highest levels of standards in the country—was initiated from

Note 42 "Biomass" is a word to describe the amount (mass) of biological resources (bio) and refers to "renewable organic resources of biological origin (excluding fossil fuels)", and within that, biomass that is made up of wood is called "woody biomass". Woody biomass is mainly forest surplus material such as branches and leaves from trimming trees and cutting lumber. Other types of woody biomass include tree bark and saw shavings from sawmills, materials from housing demolition, and clippings from pruning roadside trees.

Note 43 The commonly used name for the Minamata City "Kumamoto Green Guarantee System" Profit Promotion Subsidy System.

2013. This initiative will provide the full amount of loan insurance and the entire amount of interest for three years on environment related financing/loans for local small and medium businesses.

This is the system whereby when small and medium businesses within the city receive financing from financial institutions within the city. Utilizing the "Kumamoto Green Guarantee System" implemented by the Kumamoto Prefecture Credit Guarantee



Association, the city will subsidize the full amount of "credit guarantee cost" and the "amount equivalent to the contract interest" paid for the three years from the date the loan was made (Figure 2-1-115).

During FY2013, "Minamata Green" had an investment promotion effect of approximately JPY160 million from 10 cases of financing for solar power generator installation, low-emission gas company car, recycle facilities, high efficiency air conditioning and LED installation. This kind of effort towards environmental financing system not only promotes investment within the city, it also has the effect of containing the drain of funds to outside the city by decreasing the consumption of fossil fuels from becoming more energy efficient.

In this way, by quantifying and getting a grasp of the flow of funds for the local district, it becomes possible to use the information for proposing measures to revitalize the community, as well as for evaluating the results of such efforts. It is expected that the use of this process will continue to grow in the future, and it is hoped that this use will become widespread not only by the government but also among all entities such as by businesses and by residents of the local district.

In addition to the strategies mentioned above, the aforementioned "Investments that Use the District's Real Estate" is also considered effective. For example, the empty housing rate of Minamata City in 2013 was 17.1%, surpassing the national average of 13.5% and the Kumamoto Prefecture average of 14.3%. Based on this situation, by remodeling the empty houses within the city to increase their value then renting them to people who wish to migrate or change residence to the city, not only will rent income be generated, consumer spending within the local district will increase, and there would be the possibility of vitalizing the fund circulation.

In thinking about the fund circulation of the local district, when seeking to gain an understanding of the flow aspect it is also necessary to consider what sort of stock exists that can help create a new flow.

Money is not gone once it is spent; that money continues to circulate into someone else's pocket. The awareness that the money you spend goes to "someone in the local district", and continually acting on that awareness in the district as a whole will lead to protecting and prospering the local district in which you live.

#### Section 2 Structured Community Development Tailord to the Needs of the Times

Section 2 examines the directions in which Japan's national land and transport administration should head to achieve the goals of national land community development tailored to the needs of the times in a sheer depopulating society, by highlighting the benefits of "compact" and "networked", which is the basic concept of "Grand Design of National Spatial Development towards 2050", citing examples of typical efforts and so on.

Subsection 1, "Compact" and "Networked", reviews the present status and background of the issues and introduces the concept of "compact" and "networked", then proceeds to share quantitative insights into the benefits of its implementation in the fields of livelihood convenience and lifestyles, economy, administration and environment. Further, it organizes discussions of the favorable effects of the concept upon regional economic circulation.

Subsection 2, "Case Studies of "Compact" and "Networked"," and reviews ongoing approaches to building compact hubs and forging allied core metropolitan areas to illustrate how the concept of "compact" and "networked" can be implemented by regional characteristics.

Subsection 3, "Creation of a Country Generating Diverse Synergies among Regions," asserts the importance of the concept of "compact" and "networked" in a regional structure for the creation of a country generating diverse synergies

among regions, by citing case studies or the like in which the concept of "compact" and "networked" has possibly stirred the flow of people, goods and so on to lead to enhanced regional vitality and charms.

#### Benefits of "Compact" and "Networked"

As considered earlier (in Chapter 1), the nation's population continues to shrink and get aged, predicting growing difficulties sustaining essential urban facilities particularly in regional cities in the future. Comparisons of the changes in the population of large cities and provincial cities foresee continuing inflow of population into large cities while provincial cities are depopulated rapidly. Since population had already peaked in 2005 for prefectural capitals and in 2000 for cities inhabited on the order of 100,000, the pace of increase in the elderly population is forecast to slow down, with drastic reductions in the productive-age population (Figure 2-2-1). This means that urban activities and economies need to be sustained with less productive-age population in the future.



Analyses of the trends in the population of provincial cities for the last 40 years or so indicate that the urban areas have expanded rapidly into suburbs keeping pace with population increases. Prefectural capitals have increased their population about 20% from 1970 to 2010, while the DID ^{Note 44} areas have expanded by more than two times (Figure 2-2-2).

At the present pace of depopulation, urban areas would be increasingly thinned out to make it difficult to sustain the urban facilities relevant to their citizens' daily livelihood, which could result in a progressive decay of the cities.



Π

**Note 44** "DID" is short for Densely Inhabited District in a National Census. Specifically, a DID refers to a district that is composed of a group of adjoining basic unit districts each having a population density of 4,000/km² or more to form a total population of 5,000 or more. Municipal population densities are not good enough to determine to what extent the population of a particular area within a given municipality is concentrated. DID population densities come more fit to this end, because they focus on particularly densely inhabited municipal areas and compare them in terms of their population density.

According to a public awareness survey conducted by the MLIT, fewer respondents mentioned "urban centers readily accessible by car" and "suburban areas" as appropriate location of urban facilities, including public facilities and commercial installations, whereas more answered "urban centers readily accessible by public transportation" as such. This may be suggestive of growing public demand for the consolidation of urban facilities and for public transportation networks that link these facilities together (Figure 2-2-3).

The means of transport actually used by people shows sign of change accordingly. Comparative studies of the means of transport by purpose used in 2008 and 2014 show that a growing number of people chose to stroll for many reasons, such as commuting to and from work and school, shopping, visiting hospitals, banks, post offices and municipal offices, whereas fewer chose to drive cars (Figure 2-2-4).

However, the status of public transportation varies

greatly from one locality to another, with its significance declining relatively mainly in provincial cities. For example, passenger buses carried 35% fewer passengers in FY2010 than FY1990. Further, since a total bus line of approximately 6,463 km has closed over the past five years, the number of passengers carried continues to decline, with the service level lowering.

Under these circumstances, the concept of "compact" and "networked" has been set forth in the "Grand Design of National Spatial Development towards 2050." In this context, "compact" means a state of being cohesive with an enhanced spatial density, and "networked" means an alliance





with which localities are jointed together. Summing up, "compact" and "networked" means the act of concentrating a host of services needed for daily livelihood, such as public administration, medical and nursing care, commerce, banking and energy supply, into particular areas, which are linked together by traffic and information networking to provide coherent access to these services.

The progressively diminishing and aging population of Japan could give rise to a host of challenging tasks in the future, dictating responses from an urban structure's perspectives. These responses might call, for example, for reviewing the structure of a community to keep a given district of the community inhabited at a certain density level while assembling medical care, welfare and commercial facilities, homes and the like in clusters or maintaining public transportation to give citizens, including the elderly, access to medical care, welfare and commercial facilities, etc., so the citizens will feel the services in daily need, including administrative, close at hand. What looms into significance is the concept of "compact" and "networked".

A review of the benefits of "compact" and "networked" aided by data follows:

#### (1) Quantitative effects of "compact" and "networked"

First, making an urban structure compact should help keep the core area, or a hub of necessities for daily livelihood, and the surrounding areas inhabited at certain density levels, resulting in enhanced sustainability of those daily livelihood service facilities, including medical care, welfare and commerce, that require a certain ambient population to survive. Given ready access to these services, either on foot or by means of a network of public transportation facilities, people would not only enjoy enhanced conveniences of their living but might be motivated to go out as part of their lifestyle to improve their health.

Other expected benefits might be financial, that is, cutting fiscal spending, as by streamlining the flow of offering public services, such as snowplowing and nursing caring, and relocating public facilities and also environmental, that is, reducing  $CO_2$  emissions by encouraging a shift in the mode of transport from automobiles to public transportation.

Let us look at the relationship between the population densities in DIDs having a certain population density or higher and various indicators relevant to the urban facilities, based on the municipal data. Medical care, welfare and commercial facilities and public transportation facilities may be thought of as a minimum suite of functionalities needed for daily livelihood to enjoy the convenience of urban living. The ratio of the number of people living within their walking distances

from all these facilities to the total population is noted as a ratio of fulfillment of daily livelihood services within walking distances. Analyses of the relationship between the ratio of fulfillment of daily livelihood services within walking distances and the population density indicate that the higher the population density of a DID is, the higher its ratio of fulfillment of daily livelihood services within walking distances gets, meaning that a more compact city has more of its people having access to these services within their walking distances to add to the convenience of their livelihood (Figure 2-2-5).

People having various facilities located within their walking distances are considered more likely to go out as part of their lifestyles. This could do good to the health of elderly people among else, because they would be more motivated to walk out of their homes when many of the facilities relevant to their daily livelihood are accessible within their walking distance in a compact city. Actually, a certain correlation is observed between the outing ratio of elderly people and the population density; more densely inhabited cities tend to have a higher outing ratio for their elderly citizens (Figure 2-2-6).

A Tsukuba University study conducted on elderly people has calculated a saving of JPY 0.061 in medical bills per step walked. If people have more opportunities to go out in a compact city, their medical bills might be slashed.

The preceding pages have reviewed the effects the idea of compacting may have upon people's lifestyles. Its economic benefits are now considered.





Π

In a densely inhabited compact city, more customers could potentially visit shops and stores to significantly boost sales mainly in the retail and service businesses. Particularly, the services business is considered to depend on the number of visiting customers for its sales, because its services are difficult to ship and store, unlike goods. Increased sales in a compact urban structure should in turn improve sales efficiency. In fact, a positive correlation holds between the population density and the amount of sales per retailer floor space (Figure 2-2-7).

Nursing insurance-based home-visit nursing care services providers who serve users living in the same building as the providers (limited to special nursing homes for the aged, low-cost nursing homes for the aged, pay



nursing homes for the aged and serviced elderly housing) have their amounts of nursing-care rewards reduced, because they are relieved of labor, as for traveling, to provide their services. For example, if reduction-applied and reductionexempt home-visit nursing care offices are compared, differences are noticeable in the traveling time spent by nursing care helpers and the number of visits paid by them (Figure 2-2-8). If many services users come to live in the vicinity of a nursing care office in a compact urban structure, the cost of traveling incurred for welfare purposes might be trimmed accordingly.



A compact urban structure, along with a heightened population density, will make it possible to provide administrative services more efficiently than before, which might help trim administrative costs. Spending needed to maintain and manage public facilities and urban infrastructures could also be cut, as they are made more efficient to maintain and manage. Furthermore, many of the administrative services made available to citizens, such as snowplowing and garbage collection, vary in their cost depending from one urban structure to another. Actually, a negative correlation is noticed between the population density of a municipality and its administrative cost per capita (Figure 2-2-9).



Further, if a compact urban structure drives a shift in the mode of human transport from automobiles to public transportation, bicycles, walking and so on, .environmental benefits, such as reduced  $CO_2$  emissions and less contamination from exhaust gases, might be expected. In fact, a negative correlation is confirmed between the population density and the amount of automotive  $CO_2$  emissions (Figure 2-2-10).



#### (2) "Compact" and "Networked" and regional economic circulation

Figure 2-2-11 shows the diagram of circular economic flow (Figure 2-1-102) given in Section 1 of Chapter 2 superimposed with the effects that the concept of "compact" and "networked" may have upon the circular flow of regional economies.

First, compacting could come up with the following benefits:

• Maintaining the population density of a given district, such as a central zone, makes it possible to sustain livelihood service facilities, such as medical care, welfare and commercial facilities, which could otherwise be lost

- if left unattended (A), upholding regional economies through assurance of these facilities (1);
- Boosting retail spending, etc. downtown and elsewhere with primary impetus from increase population densities in the areas around the facilities and also from improved access from homes to these facilities, coupled with restructuring of public transportation networks (1); and (1)
- Curbing the extra-regional outflow of spending for purchasing of gasoline, etc., as dependence on automobiles lessens in a compact city. (1')

Improved transport networks might in turn encourage business location and make corporate activities, such as logistics (B), more productive for enhanced output.

Thus, "compact" and "networked" may work synergistically to stir the circular flow of regional economies by boosting retail and other sales and by augmenting output, respectively, so intra-regional employees will be earning more (2) to spurt spending, which could lead further to positive intra-regional economic circulation.



#### 2 Case Studies of "Compact" and "Networked"

Preceding discussions have outlined the benefits of "compact" and "networked". In a depopulating society, a certain size of in-sphere population can be maintained by consolidating essential livelihood facilities in each region in a compact manner and then linking the individual regions with one another on a network.

Because such facilities are diverse, ranging from those required for daily living to those that are used only on specific occasions, the size of the sphere needed to sustain them is determined accordingly. So, "compact" and "networked" is necessarily implemented in a multilayered structure (Figure 2-2-12).

This means that the implementation of the concept of "compact" and "networked" not only at the level of a single city but at a village level on a smaller scale or even at an interurban level on a larger scale takes on importance. Case studies in Toyama City, Toyama Prefecture and in Hachinohe City, Aomori Prefecture are cited below to demonstrate that the concept of "compact" and "networked"



practically will work even at any level other than that of a provincial city, as on villages in a hilly or moutainous area or on an urban area that is composed of multiple cities.

#### (1) Compact City ("Compact" and "networked" at an urban level)

#### (Toyama City)

Toyama City pioneered in tackling on a program to form a compact city ahead of other cities. The lifestyle of suburban residence has come to stay in Toyama on the support of a high ratio of road construction, a firm consumer propensity to seek detached housing and so on. Up until 2000, therefore, the DID area had expanded with population densities falling. In more recent years, however, the pace of suburbanization has stalled to some extent to move sideways (Figure 2-2-13).

Among existing public transportation networks in Toyama, all municipal railway tracks and transport routes in frequent service, such as fixed-route buses, have been designated public transportation axes. "Public Transport Line Residency Promotion Districts" have been marked off



along these axes, in addition to a central urban area (urban district) to encourage dwelling in these districts by offering incentives, such as housing subsidization (Figure 2-2-14).

A look into developments in the population growth(increase/decrease) by social factor (in-migrating population less out-migrating population) in the central urban area and the Public Transport Line Dwelling Promotion Districts resulting from these efforts suggests that the excess of out-migration in the past has gradually narrowed to turn for an excess of in-migration in recent years (Figure 2-2-15).



Focusing on housing locations, one should realize that major changes have taken place in the people's housing trends. Comparisons of the rate of change in the ratios of the number of homes by distance from public transportation facilities and child-care centers for the two periods of 2003 to 2008 and 2008 to 2013, some years on after commencement of the compact city initiative, reveal that the closer to facilities, the lower the rate of change falls in Toyama but the higher it gets nationwide. From 2008 to 2013, nationwide trends remained unchanged, while Toyama exhibited trends opposite to those from 2003 to 2008, with its rate of increase in the ratio of the number of homes located within 2 km from a station exceeding the nationwide average (Figure 2-2-16).



In addition to increased inhabitation around the means of public transportation, the number of passengers getting aboard Toyama Light Rail, an LRT ^{Note 45} system leveraging former JR railway facilities (Toyama-ko Line) has surged by about 2.1 times on weekdays and by about 3.5 times on holidays from its pre-LRT levels as a result of narrowing service intervals, opening new stations, installing barrier-free low-floor vehicles, improving the quality of train services and so on. By time zone, the number of passengers has expanded drastically during the daytime period of 9am to 5pm on weekdays, particularly among people aged 60 years or older. The number of younger passengers has also been rising (Figures 2-2-17, 2-2-18).

In addition to LRT, Toyama features a fixed-route bus network converging from various parts of the city into the central urban area. The city issues season tickets, called "Odekake Teikiken (Outing Season Tickets)," to the elderly people aged 65 years or older who use public transportation facilities, such as fixed-route buses and LRT. These tickets offer these elderly passengers a uniform fare of 100 yen for getting on and off in the central urban area (Figure 2-2-19). Given an Odekake Teikiken, seniors are more motivated to go out than before, as a survey conducted by the city revealed that elderly people who went out carrying the season ticket took more steps on the average than elderly people living in the prefecture and those nationwide and also that they took about 1,300 steps more on the average with an Odekake Teikiken in hand than without (Figure 2-2-20).

With the aforementioned saving in the medical bills resulting from more step taken by the elderly taken into account, a saving of 80 yen per capita per day is estimated, adding up to about a 75.60 million yen saving in the medical bills paid by all users a year.

Newly constructed networks or networks upgraded for convenience's sake can spur concentration around them. In Toyama City, Toyama tramway routes operated by Toyama Chihou Tetsudou Inc. used to stretch from Toyama Station to colleges and to southern Toyama to carry commuters to and from work and schools along the way. But no routes were available that looped within the central urban area. Therefore, city authorities extended part of a municipal tramway route and built it as "City Tram Loop Line." The result was enhanced ease of migration between Toyama Station and the central urban area, and animated private





Note 45 Short for Light Rail Transit, LRT is a new concept of streetcar system enhanced over its predecessors in terms of traveling space, vehicles and so on. It is a human- and environmentally-friendly urban public transportation system utilizing legacy infrastructures, such as road spaces and railbeds to combine speed, punctuality, transport capacity and so on.

LRVs (light-rail vehicles) deployed and slopes constructed at tram stop to level steps to make barrier-free so it can be used by both elderly and physically challenging individuals at ease.

investment along the new section of the City Tram Loop Line (opened on December 23, 2009), fueling redevelopment projects, such as constructing condominiums, office buildings and commercial facilities, such as cinema complexes.

Residential land prices continued to fall downtown but followed a firm tone in the new line sections of the loop lines, such that their pace of decline seemed to slow down in the central urban area other than the new line sections (Figure 2-2-21).

Land prices progressing stabilized in this way should make for greater stability of the municipal financial climate. Fixed property and city planning taxes account for 45.1% of the municipal tax revenues, 22.0% of which are collected from the central urban area (Figures 2-2-22, 2-2-23).

Intensive investment in the central urban area helps preserve property values while ensuring a stable supply of tax resources, tax revenues derived from which would finance the administrative spending required across the city, including other urban areas. A compact city implementation can thus lead to a more sustainable financial climate.







Figure 2-2-23	Breakdowns of Fixed Property and City Planning Taxes by Region (FY2014)					
	Area ratio	Fixed property tax + city planning tax breakdowns 74.0%				
Urbanization- designated area	5.8%					
Central urban area in the area above	0.4%	22.0%				
Else	94.2%	26.0%				
Source) Toyama City						

# Chapter 2 Building up the Country and Regions in a Society Amidst a Serious Population Decline

#### (Hachinohe City)

Hachinohe City is also promoting the movement of people to central urban areas by enhancing the convenience of bus networks.

A central city in the southeastern part of Aomori Prefecture, Hachinohe has Aoimori Railway and JR Hachinohe Line in service, but its urban public transportation network depends mostly on fixed-route bus services operated municipally by the Hachinohe City Transportation Bureau and privately by Nanbu Bus Co., Ltd. and Towada Kankou Dentetsu Co., Ltd. Bus services in the Hachinohe Station to central urban area section of the Hachinohe Station Line, a trunk line of the urban route bus services. are separately provided by the bus operators according to their own sales policies. As a result, the bus schedules were inconvenient to users, such that, for example, a Nanbu bus would arrive at a given bus stop immediately after a municipal bus had left there and no bus service followed for several tens of minutes thereafter. Discussions were iterated in 2007 with the participation of the bus operators to explore ways to improve the quality of services with emphasis on intelligibility and ease of use. Starting from 2008, a joint bus service schedule running buses at equal intervals of 10 minutes has been launched on the two routes of Hachinohe City and Nanbu bus services. The joint bus operation enabled both operators to cut the number of bus services while grabbing passengers than before, with the result of the bus routes run in joint service turning to profitability (Figure 2-2-24). On the basis of such results with the Hachinohe Station Line, a joint bus service running at equal intervals of 20 minutes has been launched in the section between Hattaro and the central urban area since 2010. Joint bus services running at equal intervals of 10 or 20 minutes have also been implemented on other trunks as well. Figure 2-2-24

Comparisons of the Number of Passengers at Hachinohe Station after Implementation of a Hachinohe Station Joint Service Operation

Category		Before joint operation service	After joint operation service	Difference	%
	Number of passengers	388	403	15	3.9%
Municipal	Number of services	75	56	-19	-25.3%
Duses	Average number of passengers per service	5.2	7.2	2.0	39.1%
	Number of passengers	206	282	76	36.9%
Nanbu	Number of services	55	46	-9	-16.4%
Duses	Average number of passengers per service	3.7	6.1	2.4	63.7%
	Number of passengers	594	685	91	15.3%
Total	Number of services	130	102	-28	-21.5%
	Average number of passengers per service	4.6	6.7	2.1	47.0%

Source) Hachinohe Passenger Survey Findings Summary, Hachinohe City Public Transportation Conference



In the meantime, the Hachinohe Self-Sustained Permanent Residence Region, which is made up of Hachinohe City, with seven surrounding municipalities, started an upper-limit route bus fare program in October 2011 to mark down fares in most sections of the bus services. As a consequence, the number of route bus users (number of fare-paying passengers per weekday)in the Hachinohe region advanced 14.0% from its pre-markdown period (September 2011) one year later and 17.0% two years later (according to the March 2015 issue of Koho Hachihone ("Hachinoho Journal"). Analyses of the breakdowns by route, however, reveal that, over the one-year period, the average passenger density has obviously increased on those routes carrying many services (generally 16 or more a day) but varied on routes carrying less traffic. Some routes had a drastically increased passenger traffic, while others suffered a sizable decline (Figure 2-2-25), which may suggest that the more services a route carries and, hence, the more convenient it is, the more stable the passenger traffic becomes.

Furthermore, the efforts to augment the conveniences of bus usage are considered instrumental in consolidating the urban structure to some extent, as well as improving the bus operators' profitability. In Hachinohe City, bus route network trunk axes have been set in accordance with its Hachinohe City Transport Rejuvenization Plan and Hachinohe City Regional Public Transport Total Coordination Plan. Individual bus routes were assessed with regard to their degree of access to medical institutions and mass-merchandising stores in Hachinohe City, on the basis of the floor area of each of these facilities and its distance from a trunk axis. Comparisons of the figures in 2005 before restructuring of the routes and those in 2013 thereafter indicate that accessibility has improved on many routes, though by a slight margin (Figure 2-2-26).

Figure 2-2-26		tions and commercial facilities						
	Name		Accessibility to medical services			Accessibility of commercial facilities		
			Year 2013 (1)	Year 2005 (2)	(1)/(2)	Year 2013 (1)	Year 2005 (2)	(1)/(2)
	(1)	Hachinohe Stn. trunk axis	-	-		-	-	
		(2) Tamonoki trunk axis	57.2	57.5	0.995	50.5	50.0	1.009
		(3) Nejo-Ohashi trunk axis	52.3	51.1	1.024	51.8	51.2	1.011
~		Common section) Shin-Ara-machi	55.2	55.1	1.002	61.7	62.0	0.994
lain		Common section) Hachinohe Stn.	43.5	43.0	1.014	43.5	42.5	1.022
line	(4)	Minato trunk axis	57.9	57.4	1.008	56.8	56.4	1.008
ö		(5) Same trunk axis	48.0	47.8	1.004	41.6	41.9	0.991
		(6) Misakidai trunk axis	55.7	55.1	1.010	42.2	42.5	0.991
	(7)	Nakaibayashi trunk axis	59.0	58.7	1.006	55.8	54.8	1.018
	(8)	Hattaro trunk axis	49.8	50.2	0.992	68.0	66.3	1.025
Semi-	(9)	New Town trunk axis	44.9	44.5	1.009	44.6	43.0	1.036
trunks	(1	0) Tagadai trunk axis	39.6	39.8	0.994	47.0	46.2	1.017
	Cer	itral zone trunk zone	57.1	56.9	1.005	75.1	78.4	0.958
	Other than trunk axis		43.1	43.1	1.002	43.3	43.2	1.002

Spatial accessibility to medical institu-

#### Routes with accessibility improved over alongside trunk axes

(Note) Spatial accessibility to the individual facilities is defined as follows:

$$= \sum_{i=1}^{N} \frac{V_{si}}{R_{si}^{a}} \qquad A_{h} = \sum_{j=1}^{M} \frac{B_{hj}}{R_{hj}^{b}}$$

 $A_{\rm S}$ : Spatial accessibility of the commercial facility( $0 \leq A_{\rm S} \leq V_{\rm s}$ )  $V_{\rm si}$ : Floor area space of commercial facility *i*(*i* = 1  $\sim$ *N*)

Rsi : Distance from commercial facility i to the region in que

An Spatial accessbility of the medical institution ( $0 \leq A_h \leq B_h$ ) Number of beds in meidcal institution  $j(j = 1 \sim M)$ R.

 $R_{hj}$ : Distance from medical institution *j* to the region in question

 $\alpha \cdot \beta$ : Parameters(  $\alpha$  =0.5,  $\beta$  =0.5)

As

Source) Positive Analyses of the Impact of Restructuring of Regional Public Transport Networks Upon Cities, Itsuki Yoshida, Makoto Chiba



#### (Conclusions)

"Compact" and "networked" can play complementary roles to augment their effectiveness synergistically. Compacting the various facilities that make up a city and consolidating them together spatially will help create a denser association of people. Such urban facilities and human activities combine to create a more attractive living environment that allures more people to join in a population of users needed to sustain local networks of public transportation facilities, assuring enhanced network quality, plus sustainable availability of services. As the population of urban dwellers grows through betterment of the living environment, a positive cycle of growth derives from "compact" and "networked".

Pursuing both "compact" and "networked" at the same time, instead of either, would be essential to realizing a sustainable city. The MLIT is also working to this end. In August 2014, the Act on Making Partial Amendments to the Act on Special Measures Concerning Urban Renaissance, etc. came into effect to drive the effort to form a compact city into which welfare and other livelihood service facilities and housing are concentrated and in which elderly people can live without anxiety. Efforts directed at forming a compact city require consensus among the stakeholders, including citizens, private entrepreneurs and administrators. From this standpoint, it would be necessary to give an objective and quantitative assessment to the significance of a compact city, why it is needed, what it brings about and so on, with reference to the "Handbook on the Assessment of Urban Structures" released in the same month.

In November 2014, the Act on Making Partial Amendments to the Act on Revitalization and Renewal of Regional Public Transportation was enacted to inaugurate a framework for formulating programs to form sustainable networks of regional public transportation at the initiative of local public entities in pursuit of coordinated community development. In addition, a framework of developing regional public transportation restructuring implementation programs for implementing these projects was also laid down to restructure region-wide public transportation networks in conjunction with coordinated community development. In connection with these measures, the Compact City Formation Support Team was set up by the ministries and agencies concerned, with the Ministry of Land, Infrastructure, Transport and Tourism acting as a secretariat, pursuant to Overcoming Population Decline and Vitalizing Local Economies: Comprehensive Strategy. The team is committed to reinforcing lateral ties among the ministries and agencies concerned, as by exploring coordinated support policies, to expedite municipal approaches to forming compact cities.

# **Column** Utilizing Public Facilities and Public Real Estate (PRE) and Public-Private Partnership

As discussed in Section 2-2, the "Effects of Population Decline on Cities and Daily Life in Rural Areas," Chapter 1, declining tax revenues caused by depopulation and the shrinking economic and industrial activities in its wake, and the increase in social security expenses from aging society predict increasingly tight local finances. Under such circumstances, the tasks of utilizing public real estate (PRE) and addressing the issues of aged infrastructures built back during the period of the nation's rapid economic growth, such as public facilities, roads, bridges and water supply and sewerage systems, looms into importance.

#### (Coordination of Community Development and Public Real Estate (PRE))

In proceeding with urban compacting and transport networking to form a compact city, it is necessary to take into consideration the consistency with the associated policies for maintaining medical care and welfare, revitalizing central urban areas and restructuring PRE. The compact formation support team mentioned earlier is committed to supporting municipalities in approaching these associated policies.

As social infrastructures continue to get aged, the status of aging of public facilities and infrastructural assets was surveyed from a viewpoint of their life expectencies. The survey revealed that about 43% of the public facilities surveyed have aged and more progressively than other infrastructures, such as bridges.

Because the cost of renewing public facilities, etc. is predicted to grow in the future, it will become extremely difficult to continue maintaining and renewing existing public facilities, etc. at the present pace.

For this reason, it is vital ti make effective use of the existing stocks of public facilities, and to coordinate

the restructure of PRE and urban plannning, which will also contribute to comparecommunity development. PRE accounts for a large portion of real estate in Japan. PRE owned by the national and local governments

accounts for approximately 25% (590 trillion yen) of Japan's total real estate, which amouts to approximately 2,400 trillion yen. Local governments own approximately 450 trillion of PRE, commanding 75% or more of the total volume of PRE (Figure 2-2-28).

Accordingly, promote the appropriate and efficient management and administration of PRE with a view to revitalizing economies and restoring financial integrity, without risking public benefits and interests.



FY2013) proportionally distributed in the local ratios. Source) MLIT

In June 2013, the MLIT organized the Committee on Studying Utilization of Public Real Estate for Urban Renovation (PRE Study Committee) to explore ways to aid local public entities in making effective use of their public real estate for community development. Findings from the deliberations by the PRE Study committee were released in April 2014 as "Guidelines for Utilizing Public Real Estate (PRE) for Community Development (Figure 2-2-29)."

Progressive municipalities have organized and consolidated information about the PRE owned by themselves and worked out plans to relocate public facilities to suit particular community characteristics, white papers on public facilities and so in their continuing endeavor to pursue their own perspectives of community development, as by appropriating public land to improve public livelihood service facilities.



[&]quot;The master plan for community development may include a description of Step 3. Source) MLIT

#### (Utilizing Private Resources for Utilizing Public Facilities and Public Real Estate (PRE)

To make the process of developing, maintaining and managing and renewing infrastructures that are truly needed and fiscal consolidation compatible with each other, utilizing private funds and know-how, or improving the efficiency of their development on PPPs ^{Note 1}/PFIs ^{Note 2} would also be important.

Since the Act on Private Finance Initiatives (PFI Act) was etablished in 1999, implementation policies has been announced for as many as 489 projects up until FY2014, amounting to a total cost of JPY 4 trillion 501.5 billion (Figure 2-2-30).

Of these, 139 PFI projects relate to the MLIT as of January 2015, including those to be implemented by local public entities. These projects are mostly concerned with municipal office buildings, pulbic housing and so on. By scheme, a greater proportion of these projects are service-purchase projects, whereby the costs incurred by private PFI operators building public facilities, etc. are paid in compensation (service fees) by public entities on a deferred payment basis (Figure 2-2-31).

The MLIT has been weighing the feasibilities of rebuilding the Tokyo Metropolitan Expressways on PPPs while promoting the use of concessions in the construction of airports, sewage systems and roads in accorance with the Action Plan for Drastically Reforming PPPs/PFIs (decided at the June 2013 Conference for Promoting Projects Financed by Private Funds, etc.), which calls upon the government to make a full commitment to utilize concessions (a system of rights to manage public facilities, etc.), build profit-earning facilities in the premises of public facilities, etc. and utilize them, make effective use of public real estate by leveraging private proposals and so on to drive the implementation of a JPY 12-trillion worth of PPP/PFI

Note 2 Short for Private Finance Initiative. It refers to a technique for leveraging private funds, management skills and technical capabilities in the conststruction, maintenance and management, administration and other aspects of public facilities, etc. to maintain and administer social infrastructures efficiently and effectively. Characteristically, the fund needed to finance a project is procured by a private sector, not at the initiative of a public entity.

Note 1 Short for Public Private Partnership. A broad concept of the schemes of encouraging private participation in the provision of public services in one form or another. It refers to a technique for leveraging private funds and know-how to improve the efficency of developing public facilities, etc. or to achieve a higher level of public services quality.

projects for the coming three years over a 10-year period from FY2013, and also with a governmental decision (June 2014) to give prioritized thrust to concessions for an intensive promotion period of three years (FY2014 to FY2016) to come.

Figure 2-2-30 Changes in the Number of PFI Projects and Project Costs Figure 2-2-31 Breakdowns of PFP Projects Relevant to the MLIT (as of January 1, 2015)





2 Indicates are known to a Cabinet Office survey and does not include those projects that were nullified or canceled during a period of service availability of their services.

- 3 The project cost is the sum total of the initial contract amounts of projects that the allotted amount in constructing public facilities has been decided upon operator selection among the projects announced to implement and that are known to the Cabinet Office survey.
  4 Project costs in the graph have fractions of 1 billion rounded off.
- 4 Project costs in the graph have fractions of 1 billion rounded off. Source) Developed by MLIT from Cabinet Office documents.



## Column

#### Rebuilding a Ward Office Building on PRE in a Government-Private Alliance (Toshima Ward, Tokyo)

Fifty or more years on since initial construction, the aged Tokyo Toshima ward office building had come to threaten safety and disaster preparedness, urging reconstruction, but the extremely tight finance of the ward did not justify its new construction.

The Toshima ward, therefore, decided to build a new ward office building on a Category 1 urban area redevelopment project. It secured the floor space of a new ward office by purchasing "right-converted floors" and "reserved floors" and to lease the former main ward office site and the branch office and assembly hall sites to a private operator on term leases and cover the cost of purchasing the reserved floor space with such rents. Consequently, the Toshima ward managed to renew its office building at virtually no financial burdens and opened the new office on May 7, 2015.

The building houses a new government office (part of the first floor, and the third to ninth floors of the building) and car and bicycle parking lots as public facilities, complex facilities, including commercial facilities and the like on the first and second floors of the building as private facilities and a condominium managed by a private business operator on the 11th to 49th floors.

Public and commercial facilities, collective housing and the like developed and constructed in a fully integrated fashion should help upgrade the living climate, adding to the charms of the community.

Such government-private alliances have been increasingly employed across the central metropolitan area. Local public entities, etc. may utilize the PRE they own to their profit, as it could offer a promising solution to improving their tough financial positions.



#### Figure 2-2-32 PRE Utilization Case Study: Developing a New Government Office Building on a Urban Redevelopment Project (Toshima ward, Tokyo)

#### (2) Compact Hubs

#### (Present status of hilly and mountainous areas)

Apart from the preceding review of the benefits of compacting an urban area, the trend towards a diminishing population gets more pronounced in a region with a smaller size of population. Among hilly and mountainous areas, mountainous farming regions had an aging population ratio of 34.9% in 2010, when compared with a nationwide ratio of 23.0%. Moreover, if the future population is estimated for an imaginary village inhabited by 1,000 on the basis of the average male-female ratio and age composition, mountainous regions are predicted to have an aging population ratio of 54.9% in 2050, 40 years from now, with their population declining by about 70%, against a nationwide ratio of 38.8% Figure 2-2-33).



Villages located in a depopulated region have already experienced degraded functionalities for providing daily livelihood services, or difficulties maintaining such functionalities as stores dealing in foodstuff and medical clinics close in the wake of a diminishing or aging population (Figure 2-2-34).



Therefore, villagers find it increasingly more difficult to sustain their livelihood service facilities than before. In addition, the difficulty of securing means of transportation to other regions mounts. According to a survey conducted on a village, the ratio of the number of households in which nobody drove a car to the total number of households rose as the heads of the households got aged. This ratio is marked in the households in which their heads are 75 years of age or older. These households account for more than half of the total (Figure 2-2-35).

Thus summarized, endangered village lives are feared to spread further across the nation from now on. In order to get residents' livelihood in a depopulated village stabilized, it would be essential to build a framework of sustaining the



fundamental livelihood services required for the villagers and providing these services efficiently. This section introduces a "compact hub" approach made to revitalize a locality.

#### (Compact Hubs)

The concept of "compact" and "networked" introduced so far applies to villages located in a hilly or mountainous area as well. A compact hub is an aggregation of daily livelihood facilities of vital importance, such as stores and clinics, consolidated within walking distances in a region consisting of multiple villages, such as elementary school district, and housed in existing facilities, such as elementary schoolhouses and former townhouse buildings, to ensure efficient delivery of the livelihood services to the villagers and provide them with a sphere of regional activity to stimulate human exchanges, by networking villages with community bus services, a home delivery service and so on if the villages are scattered.

Further, a compact hub could make a site of regional resources utilization; it may not only sell locally produced agricultural and marine products at a direct sales depot but may foster a sixth industry to develop, process and sell

commodities from these local products and might offer economic benefits by creating employment that focuses on regional agriculture, forestry and fishery and selling commodities outside the region.



#### (Typical Approaches to Forming Compact Hubs)

The following is a review of some pioneering approaches to forming a compact hub:

#### Yusuhara-machi, Kochi Prefecture (Shimagawa District)

Kochi Prefecture is among the most rapidly aging prefectures in Japan, with an aging population ratio of 28.8% in 2010. It also has the largest ratio of forest area space to the entire prefectural land, and because it is dominated by hills and mountains, more than half of its population is concentrated in the flatlands of Kochi City and Nangoku City. Other

municipalities are faced with an imminent need to combat village problems as their depopulated areas suffer a rapidly aging population with the villages having been downsized. Prefectural authorities dub places for locals to get together and solve community problems, using an abandoned schoolhouse, assembly hall or the like, "Community Action Centers," and are working to install one in each village in the prefecture to support community activities. Shimagawa District in Yusuhara-machi is among such villages.



Shimagawa District in Yusuhara-machi is inhabited by 583, with an aging population ratio of 49.9% (as of March 31, 2014). Since the only filling station in the district closed in January 2013, concerns loomed over difficulties maintaining a supply of heating oil in winter and securing living necessities. The Community Action Center Shimagawa Promotion Committee was then organized in a bid to diffuse these concerns. After a debate, the committee decided to incorporate a joint-stock company with resident investment. Upon incorporation, the company opened a filling station and launched a local products sales business, offering services of vital importance to the residents' living, such as fitting the residents' cars with snow tires in winter, as well as filling them up. A store located in the premises of the center sells agricultural produce grown by the local farmers, farm implements and tobacco to fill residents' needs. There is a privately run store in the neighborhood but is to close in the future. Plans are underway to let the Community Action Center take over the shop function of the store after it closes.

#### Miyama-cho, Nantan City, Kyoto Prefecture (Hiraya District)

The Miyama-cho is located at about the center of Kyoto Prefecture. Its Hiraya District is inhabited by 837 with an aging population ratio of 45% (as of March 31, 2015). Positioned at crossroads between a national highway and a prefectural highway, Hiraya had progressed as a center of the town housing a variety of facilities, public and private, including a JA (Japan Agricultural Cooperatives) store, a Health and Welfare Center and a medical clinic. With a larger-scale merger of branches of JA in 2000, the closure of the JA store was decided. The decision threatened that elderly people might experience inconvenience shopping foodstuffs and daily necessities. Talks among local residents were advanced in the initiative of a regional development association. As a result, the taking-over of the business of the JA store with joint capital investment from the locals in Hiraya was approved. In 2002, a shop managed by the locals themselves came into being as "Furatto Miyama." Because the store is located on a national highway that carries heavy traffic flowing from other regions, it comes



complete with a shop that sells local products directly to tourists. In 2005, Furatto Miyama was registered as a *Michi-no-Eki* to form a regional hub, along with existing neighboring facilities, such as General Agricultural Promotion Center, Elderly People Community Center and parking spaces.

The site is packed with a complete set of service facilities needed by the locals to live their day-to-day lives, from selling daily necessities at Furatto Miyama, a *Michi-no-Eki*, to providing weekday medical care services at Miyama Medical Clinic, which is a publicly built and privately run facility adjoining the *Michi-no-Eki*, and preventive inoculation, medical examinations and mini-day care services at Health and Welfare Center.

The *Michi-No-Eki* also serves as a compact hub supporting local resident's livelihood with a community bus stop adjoining and with a demand-responsive bus (taxi) in service to ensure accessibility from villages in the hinterland.

Further, since dairy farming has traditionally been promoted in the Miyama area, a regionally branded product labeled "Miyama Milk" is available. A dairy product processing facility makes integral part of the *Michi-no-Eki*. As dairy products are sold at a shop in the *Michi-no-Eki*, it serves as a tool of migration to a sixth industry leveraging specialty products.

#### (Conclusions)

A bill for the Act on Making Partial Amendments to the Act on the Local Revitalization Act that has been submitted for deliberation at the 189 session of the Diet extends special measures to those projects that are based on a regional revitalization plans that provides for voluntary, autonomous regional efforts, namely, it allows those projects that aim at forming forms of regional revitalization within a regional daily living area, such as a village, or at maintaining and using farmland to be included in the regional revitalization plan. Further, the law authorizes the transportation of small loads of cargoes by onerous passenger transporters aboard their private vehicles as a business to be promoted as integral part of these projects only to such extent that cargoes are collected and delivered within the village living area.

The law is expected to accelerate the formation of a "compact hub," or a cluster of livelihood and welfare services concentrated within a given area and that is connected to surrounding villages on a transport network or the like.

# **Column** Inauguration of the Priority "*Michi-no-Eki*" (roadside station) Program

Since its inauguration in 1993, the *Michi-no-Eki* Program has spawned 1,040 stations nationwide to date. They attract many visitors, create regional employment, revitalize the economy, and upgrade resident services by taking advantage of local specialties and tourism resources.

The Priority "*Michi-no-Eki*" program that was just launched singles out exceptionally outstanding efforts and gives





prioritized assistance to them in conjunction with the authorities concerned, who view the *Michi-no-Eki* program as a powerful tool of growth strategy to provide excellent economic circulation through to the localities.



#### (3) Allied core metropolitan area

As reviewed in Section 2 of Chapter 1, the urban facilities located in a provincial city are defined to some extent by the population of the city. Provincial cities inhabited by less than several hundreds of thousands of people are expected to provide residents in those metropolitan areas with certain facilities, such as large shopping centers and schools. Among all urban facilities, those that are more advanced, such as colleges and central community hospitals, need to be maintained by adjoining cities allying with one another to form a metropolitan area on networks of roads, public transportation, ICT and so on. The allied core metropolitan area concept has been set forth to brace for a metropolitan area that is complete with facilities designed to propel economic growth in order to sustain a buoyant socio-economy while maintaining a certain size of in-sphere population in a depopulating society with declining birthrates and an aging population (Overcoming Population Decline and Vitalizing Local Economies: Comprehensive Strategy (Cabinet Council Decision, 27.12.14)). The job of forming allied core metropolitan areas makes it imperative to form an alliance that focuses not only on
population, administrative services and livelihood infrastructures but also on economic employment and urban structures.

For example, if it is difficult for one city alone to provide a complete set of facilities required in the circumstances, the adjoining cities may link together to assume their respective shares of responsibility to deliver required facilities to every part of their community as they are joined by networks of roads, public transportation and so on.

The area along the regional railway line of KTR (Kitakinki Tango Railway Corporation) in the northern Kyoto region is introduced below as an example of an effort directed at forming an allied core metropolitan area.

#### (Northern Kyoto Region)

The northern Kyoto region is divided into the Tango area (Miyazu City, Kyo-Tango City, Ine-cho, Yosano-cho) and the Chutan area (Fukuchiyama City, Maizuru City, Ayabe City). The Tango area is rich tourist attractions including in . Amanohashiate, one of the most scenic spots in Japan. The Chutan area hosts a largest-scale integration of industries in Kyoto Prefecture. Many industrial parks are located in Fukuchiyama City and Ayabe City. Kyoto-Jukan Expressway and Maizuru-Wakasa Expressway cross each other at these two cities, giving them ready access to Kyoto City and Hanshin area. The northern Kyoto region is thus full of municipal features.

The shares of responsibility, and alliance, among the municipalities taking advantage of their respective characteristics are examined below.



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(Tourism)

Since ancient times, the northern region facing Japan Sea has flourished as a channel of exchange with continental cultures and technologies. Its history is closely linked to the sea such that it hosted a port of call for Kitamae-bune (coastal freight vessels) during the Edo period and served as a naval port during the Meiji period. Rich in natural heritage, the northern region includes the handsomely profiled Sanin Kaigan (Sanin Coast) featuring unique animals and plants.

The development of stay-type tourist resorts is underway in a concerted regional effort in the northern region. The exceptionally popular tourist resorts of Amanohashidate in Miyazu City and Yuhigaura in Kyo-Tango City have been designated a tourist stay promotion district each. In addition, coordination in terms of transportation has been reinforced with Fukuchiyama City and Ayabe City, which are nodal points of traffic to and from Kyoto, Osaka and Kobe. Individual cities



in the northern region have a defined role each according to their characteristics. Further, eleven locations, such as Ineura boathouse clusters and Ayabe eastern domestic woodlands, have been designated a tourist exchange district each in which hotel lodgers can stop by for sightseeing or enjoy a hands-on experience type of tourism. For the key stay promotion districts of Amanohashidate and Yuhigaura, six numeric goals have been set – visitor satisfaction, visitor spending, number of staying guests, hotel guest repeater ratio, number of stay program participants and stay program satisfaction – and the specific effects of the measures taken to achieve these goals are being followed up  $^{Note 46}$ .

#### (Economy)

Industrial integration is in progress in the northern region of Kyoto Prefecture, centering on industrial complexes in Fukuchiyama City and Ayabe City in the Chutan area, attract growing volumes of commutation to and from work. In the Tango area as well, industries leveraging tourism, agriculture, forestry and fisheries, textile manufacture, and engineering and metalworking are booming mainly in Kyo-tango City and Miyazu City to lure growing volumes of commutation in the Chutan and Tango areas (Figure 2-2-43). In the meantime, comparisons of the ratio of the number of commuters the total in the northern Kyoto region for 2005 to 2010 indicate that inter-city or inter-gun (county) commutation was on the rise in each city and county ^{Note 47}. In the Tango area and Fukuchiyama City in particular, the ratio of commutation across the Chutan and Tango areas tended to get higher than that of commutation within either of these areas (Figure 2-2-44). These findings may suggest that a new trend towards commutation beyond regional boundaries is coming into existence in the northern Kyoto region.

Note 46 Numeric goals (from 2013 to 2030): (Amanohashidate Stay Promotion District) Visitor satisfaction: 10% up, visitor spending: 4,700 million yen (2013) to 5,640 million yen (2028), staying guests: 175 thousand (2013) to 210 thousand (2028), hotel guest repeater ratio: 10% up, stay program participants: 673 to 860 (2028), stay program satisfaction : 10% up (Yuhigaura Stay Promotion District), visitor satisfaction : 10% up, visitor spending: 1,640 million yen to 1,968 million yen (2028), staying guests: 116 thousand to 140 thousand (2028), hotel guest repeater ratio: 10% up, stay program participants: 2,102 to 2,690 (2028), stay program satisfaction:10% up

Note 47 The Yosa-gun is organized of Yosano-cho and Ine-cho.



A planned section of the Kyoto-Jukan Expressway that penetrates Kyoto from north to right is scheduled to open for July 2015. When complete, the expressway is expected to stimulate tourist exchanges and tourism investment and spurt further industrial presence along the way. Moreover, Maizuru Port, designated a hub port on Japan Sea, aims to upgrade its port and harbor facilities. As the development of infrastructures moves on, industrial advances in and around Fukuchiyama City and Ayabe City are hoped for to provide impetus for propelling regional economies, because the flow of people, goods, money and information beyond regional or national boundaries is predicted to expand further in these two cities.

#### (Medical care)

In the medical field, a central community hospital exists in each of the two secondary medical care zones ^{Note 48} of the Tango area and the Chutan area, providing advanced medical care services ^{Note 49} to residents in the surrounding municipalities.

As Figure 2-2-46 shows, a survey into "Trends in the Number of Outpatients by City of Residence" conducted at the North Medical Center attached to the Kyoto Prefectural University of Medicine (Tango area regional medical care support hospital located in Yosano-cho, Kyoto Prefecture) indicates that the number of outpatients coming from the individual cities are on the rise for the past six years. The Tango area is the largest source of outpatients, but the adjoining Chutan area has a rapidly growing number of outpatients, suggesting that residents visit the hospital beyond the boundaries of regions, as well as municipalities.



**Note 48** An integral area that is set as a reasonable unit of inpatient medical treatment, with relevant natural conditions, such as geological conditions, and social conditions, such as traffic conditions, taken into consideration.

Note 49 As can be seen from Figure 1-2-3, a certain size of population is needed to justify the location of a central community hospital economically.



#### (Education)

According to a student commutation survey, inter-city commutation is dominated by inflow into Fukuchiyama City from other cities (Figure 2-2-47). Many governmental, prefectural and other research institutions and higher education facilities, such as four-year colleges, have been set up in Fukuchiyama.

The Community and University Alliance for Regeneration of Northern Kyoto Region has been formed in the northern region. Based on Seibi University, the alliance is composed of six universities in the Kyoto Prefecture, seven municipalities in the northern part, NPOs and so on. It is working to revitalize regional activities by taking advantage of the human resources and knowledge of these universities.

In addition, a move has taken shape for extra-regional universities to consider installing satellite campuses in



Fukuchiyama City. Among them, the Kyoto Institute of Technology, a state-run university, seeks to open a branch school using the schoolhouse of a senior high school that closed upon merger with other schools. Plans are underway to hold lectures on regional issues, start an internship program taking advantage of the location of manufacturing companies in the neighborhood and so on, promising the benefits of technological reforms resulting from joint research and development activities.

#### (Conclusions)

Although an alliance of core metropolitan areas is yet to come to stay in the northern Kyoto region, it still has potentials for driving the flow of people and goods beyond the boundaries of the individual cities and thus making for regional

vitality amid a diminishing and aging population, as the cities take their respective roles in maintaining and reinforcing the transport networks that link them together by exploiting their own characteristics. As such metropolitan areas are duplicated in many localities of Japan, they would help preserve the affluent livelihood of their residents.

## Column (Effort at Toyoshikidai Housing Development in Kashiwa City)

The sheer numbers of elderly people living mainly in the suburban areas of the 3 major metropolitan areas of Tokyo, Osaka and Nagoya are predicted to leap, which could paralyze service facilities as medical and welfare facilities run short.

Increases in aging population date back to the periods of rapid economic growth in which the construction of new towns in the suburban areas of large cities was promoted as a solution to the issues of the overcentralization of population in the



metropolitan areas. With the availability of housing of standardized structures in massive quantities, the same generation of people would seek homes in a new town simultaneously at the same timing. As a result, the population in a suburban new town now shows a lopsided age composition (Figure 2-2-48). In addition, since many homes have now been built for 30 years or longer, they have begun to pose problems with their buildings themselves, such as deteriorated facilities and inaccessibility.

#### (Public Rental Housing Complexes in the Suburban Areas of Large Cities)

As the pace of aging hastens in the future, the demand for medical and nursing care services at public rental housing complexes and elsewhere in the suburban areas of large cities is predicted to multiply, making it imperative to condition the environment needed to address these needs. Building a community in which seniors can live a healthy life and in which living is easy for multiple generations of people, including child-

rearing families, has become an imminent task. An approach taken at Toyoshikidai Housing Development in Kashiwa City in the suburbs of Tokyo is introduced below to illustrate the effort made to reorganize suburban housing complexes.

## Effort at Toyoshikidai Housing Complexes in Kashiwa City

Kashiwa City in Chiba Prefecture, like other suburban housing developments, has witnessed a bulging population triggered by the nation's high rates of economic growth. Consequently, the population of the baby boomers and that of their children are dominant (Figure 2-2-49). The city is faced with a rapidly growing population aged 75 years or older, as it predicts a more than twofold



(Note) Values as of April 1, 2012 based on "Population of Chiba Prefecture by Age and Municipality" by Chiba prefecture. Source) Kashiwa City increase in the population aged 75 years or older for 2025.

In particular, the Toyoshikidai Housing Complex, with its ratio of aging population already exceeding 40%, is symbolic of an aging population in an urban area of future Japan (Figure 2-2-50).

For this reason, Kashiwa City is teaming up with Tokyo University and the Urban Renaissance Agency (UR Agency) to carry on approaches to developing a community in which "people can get aged in their own ways and in a familiar place," which is Kashiwa is committed to driving the development of a community compatible with a society of longevity, in which "one can live a secure life in one's home for long" and in which "one can stay healthy and active for long." The city takes two approaches to achieve this goal: realizing a comprehensive regional care system and creating worth-living-for employment for elderly people. Projects evolving from these approaches are underway across the entire city centering on the Toyoshikidai area that encompasses the Toyoshikidai Housing Complex under reconstruction by the Urban Renaissance Agency (Figure 2-2-51).

	Entire Kashiwa City	Toyoshikidai Housing Complex		
Ratio of the population aged 65 years or older	20%	41%		
Ratio of the population aged 75 years or older	8%	18%		
Ratio of the number of persons aged 65 years or older and needing nursing care	12%	10%		

Figure 2-2-50 Ratios of Elderly Populations in Toyoshikidai (2010)

Source) Kashiwa City

Figure 2-2-51 Conceptual Image of the Future of the Toyoshikidai Area People can live with pease of mind for long in their homes, with ready access to

eir homes, with ready access to



Various scenes of activity in the region to keep seniors up and runnig for long Source) MLIT

The Comprehensive Regional Care System is a scheme of extending support necessary to realize a community in which elderly people can continue living in their homes in a familiar area. Its guiding principle is to provide the five facilities of nursing care, medicine, preventive medicine, livelihood support and dwelling within a "sphere of daily living" in which required services are essentially accessible within 30 minutes."

The Toyoshikidai Housing Complex aims to create an easy, secure living environment for multi-generation families to live in, for example, by encouraging the moving-in of child-rearing families and attracting community dining halls to cater for all generations of people, as well as ensure access to home medical care and nursing care services, for example, by attracting elderly housing that comes complete with services and regional medical care centers in the premises of the complex.

In August 2014, the MLIT released "Guidelines for Promoting Community Development for Health, Medical Care and Welfare" in its bid to drive community development in coordination with "Comprehensive Regional Care System," which is committed to delivering comprehensive support to elderly people from viewpoints of health, medical care and welfare so they can live a self-reliant life in their dear old homes.

## 3 Creation of a Country Generating Diverse Synergies among Regions

Apart from preceding discussions of the concept of "compact" and "networked", its benefits, approaches to its implementation and so on, this section considers the relationship between it and the creation of a "country generating"

diverse synergies among regions" ^{Note 50}, a key philosopy of spatial planning in a sheer depopulating society, by reviewing the flow of people, goods and so on stirred by "compact" and "networked" on the basis of the analyses, case studies and more given earlier.

In the convection of people, goods and so on, the most important asset that helps create new values through innovations is human resources. The convection of people should be of vital importance. Redirecting the flow of people would be essential to responding to the problems of over-centralization of population in the Japanese capital of Tokyo.

Obviously from a historical retrospective of the inter-regional migration of people given in Section 1 of Chapter 1, the postwar years have seen a continuing undertone towards the inflow of people into the three major metropolitan areas, particularly, Tokyo, in pursuit of better income and employment (see Figures 1-1-5, 1-1-8), suggesting that economic factors may have been the primary impetus for driving the movement of population between cities and localities. In the meantime, the lifestyle has diversified in line with the pace of social maturization, such that the urge for "return to countryside" to live a country life is said brewing among the urban residents. Creating an individualistic, attractive locality to respond to such trend is considered instrumental in encouraging the migration of people to localities (convection of people) and correcting the over-centralization of population in the Japanese capital of Tokyo.

As analyzed in Section 1, Chapter 2, some proportion of would-be migrants seeks the charms of the countryside, including natural landscape, and a certain degree of convenience. To appeal to these people, it would be essential to have conveniences (urban facilities) consolidated within their walking distances and also to maintain their access to provincial cities and metropolitan areas (roads, railways, etc.) pursuant to the concept of "compact" and "networked" to encourage their migration ^{Note 51}.

As already discussed in 2.(3) in Section 1 and 1.(2) in Section 2 of this chapter, moving ahead with the compact city initiative could rejuvenate the urban central zones and make them less energy-dependent as the urban facilities are concentrated and the conveniences of public transportation are augmented, promising further improvement in regional economic circulation. This could not only help create more local employment but also have a positive effect on the migration of younger people who are highly interested in employment and income.

Case studies of the implementation of the concept of "compact" and "networked" that has possibly stirred (or is expected to stir) the flow of people, goods and so on to lead to enhanced regional vitality and charms as cited by regional characteristics in 2. of this Section are reviewed below.

#### Central Urban Area in Toyama City (Compact City)

As seen in 2 of this section, in the city of Toyama pursuing the compact city initiative, increasngly more users choose to use public transportation facilities, such as LRT, than before as the conveniences of these transport facilities have been enhanced. For example, the introduction of LRT leveraging former JR railway facilities (Toyama-ko Line) has kept the number of passengers increasing centering on seniors (see Figure 2-2-18). Further, since "Odekake Teikiken" (Outing Season Tickets) was launched to entitle seniors riding the city's route buses to a uniform bus fare of 100 yen, elderly people who go out carrying the season ticket have been found to take more steps on the average than those who go out without it (see Figure 2-2-20). Thus, increased chances of elderly and other people to go out in this way might offer diverse benefits, such as increasing their chances to exchange with other people downtown, stimulating their spending and cutting their medical bills.

Note 50 Key Initiative for National Land Development in a Sheer Depopulating Society:

Convection which is an active state of two-way movement of people, goods, money, information and so on stemming from a mutual alliance of various regions possessing diversified individual characteristics is expected to set into motion nationwide to create a "Country Generating Diverse Synergies among Regions" dynamically. (from "Intermediate Report on New National Spatial Planning" (Planning Division, National Land Council, March 2015).

Note 51 Sakudaira City, Nagano Prefecture, for example, is a popular place to live in for those people who need to travel to and from the Tokyo metropolitan area after their migration, because the city not only commands a view of Mt. Asama and offers the joy of living a country life embraced in a rich natural environment but also is conveniently located for access to Tokyo, only about 70 minutes away by Shinkasen and about 110 minutes away by an expressway.

In addition, a loop line implementation of transport routes has also been constructed to augment the ease with which people can stroll from one place to another in the central urban area. Private investment has gained strength and the construction of commercial facilities, etc. progresses in the central urban area.

As an additional example, "Toyama Downtown Lab (Toyama Machinaka Kenkyushitsu)" has been set up in the central shopping mall as a student action center, which aims at luring students at Toyama University located in the suburbs of the city into downtown to exchange and collaborate with diverse entities, including businesses and local residents.

#### (Compact Hub in Nantan City, Kyoto Prefecture)

The resident-invested shop Furatto Miyama at the *Michi-no-Eki* "Miyama Fureai Hiroba (Miyama Communion Plaza)," introduced in 2 of this section as an example of a compact hub, is furnished with a direct sales depot for agricultural produce. The depot sells not only foodstuffs and daily necessities for locals but deals in local specialties for tourists. The voluntarily run yet profit-making shop carries on sustainable storekeeping with resident investment and enjoys growing sales since its opening ^{Note 52}. Most of the customers come from outside the town, with many reportedly repeating.

Further, a dairy product processing facility at the *Michi-no-Eki* is working to migrate to a sixth industry, as for processing dairy products, by taking advantage of the local brand of Miyama milk.

In this way, this local hub not only functions as a livelihood hub for locals but as a source of the flow of people, goods and money to and from locations outside the region, such as attracting tourists ^{Note 53} from outside the town and selling dairy products, to help revitalize the region.

#### (Northern Kyoto Region (Formation of Economic and Living Spheres through Inter-regional Alliance))

As reviewed in 2. of this section, seven municipalities in the northern Kyoto region (Tango area (Miyazu City, Kyo-Tango City, Ine-cho, Yosano-cho) and the Chutan area (Fukuchiyama City, Maizuru City, Ayabe City) ally and collaborate with one another to take their respective shares of responsibility for building up the functionalities of tourism, employment, medical care, education and so on and also to develop public transportation and other networks so as to turn the northern Kyoto region into, and revitalize it as, one economic and living zone.

In the field of tourism, for example, the "Kyoto Seaside Tourist Districts" development plan was accredited by the Japan Tourism Agency in FY2014, Efforts are in progress in the stay promotion districts, such as Amanohashidate, to near defined numeric goals, such as the amount of visiting tourist spending and the length of say ^{Note 54} (see Figure 2-2-42).

Since the northern Kyoto region externally declared to promote the formation of an allied metropolitan area back in April, it is expected to help revitalize the area as its member municipalities work to collaborate and ally.

Note 52 Furatto Miyama has annual sales of approximately160 million yen (about 1.6 times the initial sales at its opening in 2005), with about 120,000 people visiting it annually (both in 2014).

- Note 53 Miayma-cho contains tourist spots, such as "Kayabuki Shuraku (village of thatched-roofed houses)" (designated the nation's Important Preservation Districts for Groups of Historic Buildings), attracting a growing number of tourists from Kyoto, Osaka and Kobe in recent years.
- Note 54 As an example of the inter-city or inte-regional flow of people, the ratio of worker commutation across cities or guns (counties) or regions is relatively on the rise (see Figure 2-2-44). In the field of medical care, the rate of growth in hopital visits at the community healthcare support hospital in the Tango area (North Medical Center attached to the Kyoto Prefectural University of Medicine) from neighboring regions is found relatively high (see Figure 2-2-46).

So far, the flow of people, goods and so on by regional characteristics stirred by the concept of "compact" and "networked" has been reviewed. Compact cities and compact hubs are considered to encourage such intra-regional flow. "Convection" is defined as "an active state of two-way movement of people, money, information and so on stemming from a mutual alliance of various regions in possesion of diversified individual characteristics" as mentioned earilier.

Intra-regional interractions among various people, goods, money and information resulting from compact community development could help develop regional individual characteristics at a higher level of refinement or create a new value ^{Note 55}. Moreover, individualistic regions linked together on an inter-regional network might stir the flow of people, goods, money and information, or convection, creating a new value.

Let's look at the economic aspects as analyzed in 1. (2) of this section. Figure 2-2-52 shows how the diagram of relations among the effects of the "compact" and "networked" upon regional economic cycling (Figure 2-2-11) can be applied to the economies of multiple regions to multiply its effectiveness. What matters here is the idea of convection.

Compacting should not be confined to one region alone but should be stretched to multiple regions to let them work to develop their individual characteristics at a higher level of refinement and create goods and services that would not be available anywhere else. This will stir convection among the local consumers, creating a new trail of spending or cash flow.

If the spending that used to flow out from a region can be channeled back into the region, it will not only augment the sustainability of the regional economy but also create a new value or a new opportunity for spending, encouraging economic expansion as a whole.



#### (Conclusions)

As discussed so far, the concept of "compact" and "networked" is expected to stir the flow of people, goods and so on to lead to enhanced regional vitality and charms. If such flow is duplicated on a wider scale, it could help develop regional individual characteristics at a higher level of refinement or create dynamic "convection" nationwide on networks, proving a source of national rejuvenation in a sheer depopulating society. "Compact" and "networked" is thus considered vital to the creation of a country generating diverse synergies among regions from regional structure perspectives.

While the MLIT works on last year's amendments to the Act on Special Measures Concerning Urban Renaissance, etc. and to the Act on Revitalization and Rehabilitation of Local Public Transportation Systems and various approaches that build on these laws and moves ahead with cross-ministerial support provided from the Compact City Formation Support Team as outlined in 2. (1) of this section (Conclusions), it is committed to getting prepared for giving a further momentum to local public entities for "compact" and "networked" community development.

Note 55 As explained in Column "Coworking," in 2. (2), Section 1, Chapter 2, as various kinds of workers get together in some place and communicate with one another to share, or collaborate on, their information or wisdom, exchanges among diverse entities could lead to an innovation or to the creation of a new value.

## **Column** Examples of Enhanced Regional Vitality and Charms on Wide-Area Networking

Here are case studies of how the flow of people, goods and so on is stirred on wide-area networks, such as roads and railways to lead to enhanced regional vitality and charms.

#### (Businesses advancing along Nihonkai Engan Tohoku Expressway)

NIIGATA JAMCO Corporation is one of the world's largest aircraft interior manufacturers that command about 50% of the global market for aircraft toilets (lavatories) and about 20% of that of the kitchen equipment (galleys).

In anticipation of the construction and improvement of roads on Nihonkai Engan Tohoku Expressway, JAMCO advanced into Murakami City, Niigata Prefecture to expand its scale of business gradually by simplifying the logistic flow from parts procurement, through assembly, to product shipment on the support of road networks (Nihonkai Engan Tohoku Expressway) and port and harbor facilities.

In addition, massive local employment encouraged by excellent business showings and supply and demand outlooks keeps the job opening-toapplication ratio for high-school graduates progressing at a higher level than the prefectural standard.

Global businesses making inroads along expressways on the support of developing road networks, etc. may be stirring the flow of goods,

Figure 2-2-54 Niigata JAMCO Production Plant



[Upper] Niigata JAMCO production plant [Lower] Aircraft interior parts manufactured at Niigata JAMCO



Source) Niigata JAMCO Website

 Image: Constraint of the Ninous Engans Disposed Sequentially (2002, 2009, 2010).
 Image: Constraint of the Ninous Engans Disposed Sequentially (2002, 2009, 2010).

 Image: Constraint of the Ninous Engans Disposed Sequentially (2002, 2009, 2010).
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Figure 2-2-53 Production Activities by utilizing road network

Source) MLIT

Figure 2-2-55 Impact on Local Employment by Niigata JAMCO Moved into the Murakami City



Source) Employment statistics information, Hello Work (unemployment office) Murakami

money and so on to make for greater regional economic vitality by expanding the scale of operation, creating local employment and so on.

#### (Industrial Presence along the Hokuriku Shinkansen Line)

YKK Corp./YKK AP Inc. have sequentially moved part of their headquarters operations (about 230 employees) of their administrative divisions, such as personnel, accounting and international, to Kurobe City in Toyama Prefecture (around Kurobe-Unazukionsen Station on the Hokuriku Shinkansen Line).

The relocation of the YKK Group's headquarters operations in Kurobe, the "Mecca of technology" or the home ground of manufacture, is meant to augment the group's technical capability and marketability further, take advantage of the opening of the Hokuriku Shinkansen Line connecting Kurobe to Tokyo in a matter of 2 hours 30 minutes, concerns over possible earthquakes that might endanger the headquarters operations currently over-centralized in Tokyo and so on.

The group has also been working to develop low-energy communities and housing that take advantage of the natural environment of Kurobe. For example, it expects to craft a "Passive Town Kurobe Model" (rental housing combined with commercial facilities, nursery centers, etc.) on a conveniently located company housing site. As a token of its regional contribution, the group will make the rental housing open to people other than its employees and their families as well. The Passive Town Kurobe Model will also hopefully showcase environmentally friendly housing that leverages the building materials, etc. manufactured by YKK AP Inc.

As the flow of people and goods is stirred following partial relocation of the headquarter operations, it could lead to further betterment of regional charms, such as employment and living climates.

Figure 2-2-56 Schematic of the Passive Town Kurobe Model



Source) YKK website





Source) Developed by MLIT from Toyama City documents

# Part II

# **Trend in MLIT Policies**

## Chapter 1

## Initiatives towards Restoration and Reconstruction from the Great Eastern Japan Earthquake

#### **Section 1** The Current Status and Measures towards Restoration and Reconstruction

Accelerating the restoration from the Great East Japan Earthquake is one of the top priority tasks the MLIT faces. Although the number of refugees has decreased from the initial 470 thousand individuals at the time of the earthquake, around 225 thousand people ^{Note 1} currently lead lives in evacuation in approximately 1,160 municipalities ^{Note 2} throughout 47 prefectures. The MLIT is working on further expediting the restoration and reconstruction processes, making an all-out effort so that people from the affected areas can actually feel the restoration.

Attentive to voices from areas affected by disaster, the MLIT will work as a united body to swiftly respond to on-site needs of the Regional Development Bureau, the District Transport Bureau, the Japan Meteorological Agency, and the Japan Coastguard. In order to achieve this goal, in January 2013, we split the parliamentary secretaries into groups of three, and assigned a prefecture to each group as an "Affected Area Assistance Team" within the MLIT to respond sensitively to requests from each area affected by disaster.

The emergency restorations of basic infrastructures such as roads and ports are mostly complete, and full-scale reconstruction work advances steadily as well. We will continue to faithfully execute the work according to the infrastructure progress schedule. Meanwhile, due to the necessity of expediting housing reconstruction and post-disaster town development, we will implement measures in the housing reconstruction and post-disaster town development process that will help accelerate progress. Specifically, we will overcome each of the impediments based on the current conditions of the disaster-affected municipalities, by things such as the front-loaded revision of the public works construction design labor unit price and strengthening of the delivery system by the installation of a public concrete plant in order to secure personnel/materials, accelerate site purchasing, and set appropriate prices. We will also work to secure local public transportation and promote tourism in the affected areas.



Note 1 225,177 people as of March 12, 2015 based on study by Reconstruction Agency.Note 2 As of March 12, 2015, based on study by Reconstruction Agency.

## Section 2 The Steady Recovery and Reconstruction of Infrastructures and Transportation

#### (1) Outline

For the public infrastructures under the jurisdiction of the MLIT, we are steadily working towards transitioning from emergency restoration phase 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 the full recovery of north-eastern Japan as soon as possible, while staying mindful of requests from disaster stricken areas.

#### (2) Coastal Countermeasures

In terms of the full-scale restoration and reconstruction of the coastal levees and so on, of the shores of the 677 districts where restoration and reconstruction is to be done, construction has begun in 459 districts and has been completed in 106 districts as of the end of March 2015. Of these, a section of about 34km has been finished out of the approximately 41km of the national construction area (including the section for which the national government will cover disaster recovery), with the completion of its entirety aimed to be around the end of March 2018. Also, reconstruction of the bay mouth breakwaters will be continued systematically so that there will be as little hindrance as possible to the city building and industry activity, and is targeted to be completed around the end of March 2019.

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, Miyagi, we have established a model where 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

For areas on the state-managed embankments that had been damaged by the disaster, full-scale recovery to secure a safety level equivalent to before the disaster has been completed. While coordinating with the restoration plans formulated by the municipalities, we will continue to gradually build the embankments up to the necessary height, and also work step by step on countermeasures for earthquake and liquefaction, as well as automatic and remote control operation of the floodgates.

#### (4) Sewage System

Out of the 120 sewage treatment plants affected by the disaster (excluding the 9 plants within the evacuation order area in the Fukushima prefecture), 2 plants do not need to be in operation as there is no waste-water being generated, and for the 117 other plants—not including the Sendai Minami Gamo Purification Center where the damage was extensive—the recovery of normal processing levels were completed by the end of FY2012. Of the treatment plants located within Fukushima prefecture's "evacuation order cancellation ready area," 3 plants have already completed full-scale recovery. In regards to the 675km of sewer pipes affected by the disaster, 652km of it was fully recovered as of the end of FY2015 . We will continue to work in accordance with the reconstruction plan, and aim for earliest possible restoration and reconstruction, combined with the incorporation of earthquake- and tsunami-resistant structures.

#### (5) Countermeasures against Sediment-related Disasters

We are working on landslide countermeasures in water system areas like the Abukuma River, where there is a strong possibility that an intense seismic movement would cause unstable sediment to fluidize, which would lead to extensive damage to important transportation networks that are essential to the reconstruction work in the affected areas. Our goal is to complete these countermeasures by the end of FY2015.

#### (6) Roads

(1) In regard to expressways, of which there were already sections in the caution zones before the Joban Expressway zone review, the section between Joban Tomioka IC and Hirono IC was reopened on February 22, 2014 and the section between Minami-Soma IC and Namie IC, which had been under construction at the time of the disaster, was opened on December 6, 2014. The remaining section between Namie IC and Joban IC was opened on March 1, 2015, approximately

two months ahead of schedule. With the completion of this last section, the Joban Expressway in its entirety was opened to traffic. (2) In regard to the national highways that are under direct control of MLIT, the full-scale reconstructions were basically completed by the end of 2012. 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, the work on the main structures, such as bridges, has begun in earnest. The work is simultaneously being completed on all areas, including zones that have been newly privatized, and through the application of the Project Promotion Process (PPP), we are able to make use of the private sector's technological skills. Furthermore, in April 2014, the prospect of the roads being opened to traffic was confirmed for the first time in regard to reconstruction roads and reconstruction support roads that were added to the project after the disaster. There are 5 sections of roads (42km) that are expected to be opened for use within 6 to 7 years after the project's commencement, which is an unusually quick time frame. This has been confirmed after the opening of approximately 60% of the total area, including sections that were already opened for use.

#### (7) Railroads

Of the railways that were damaged in the Great East Japan Earthquake, reconstruction works started on the Sanriku Railway, by utilizing the new support system established using the FY2011 third supplementary budget, so that the railways of the South Riasu Line between Kamaishi and Yoshihama Stations and the North Riasu Line between Tanohata and Omoto Stations restarted operation on April 5 and 6, 2014, thereby the entire railways were restored. For the railway line between Tatsuta and Hirono Stations, taking into account the decision for the return date of the residents of Narahamachi, operation was resumed on June 1, 2014, and Ishinomaki Line for the stretch between Urashuku and Onagawa Stations resumed operation as of March 21, 2015, thereby the entire Ishinomaki line was fully restored. As a result, the only railway lines with zones where service is still suspended are five of Japan Railways East Japan lines (JR Yamada Line, Ofunato Line, Kesennuma Line, Senseki Line, Joban Line).

Senseki Line is expected to reopen for operation of the entire line on May 30, 2015, and reconstruction is moving forward on the Joban Line between Hamayoshida and Soma Stations with the goal of resuming operation in the spring of 2017. For the route between Haranomachi and Tatsuta Stations on the Joban Line, the decision was been made on March 10 to "resume operation for the entire line in the future", and as specific steps to achieve this goal, the timing of resuming operation for each zone was indicated by targets such as "the route between Haranomachi and Odaka Stations would be opened by spring of 2016". For the route between Namie and Tomioka Stations which includes a problematic recovery zone, it has been determined that "operations will be resumed after completing the combined decontamination and restoration work as well as confirmation of the emergency safety measures for the users of this line."

As for the Yamada Line, JR East Japan and the local government bodies agreed to transfer the management of the line from JR East Japan to Sanriku Railway in February 2015 and restoration work started on March 7.

Meanwhile, the MLIT Tohoku Department of Transportation has been appointed the secretariat for the Ofunato Line and the Kesennuma Line at the reconstruction coordination meetings comprised of municipalities along the railway lines, JR East, and restoration offices of each railway line, in order to move forward ideas for integrating the restoration of the railway lines with the city development. Furthermore, in order to secure public transportation for the immediate future, the BRT **Note** is being operated as a temporary restoration measure from December 22, 2012 for Kesennuma Line and from March 2, 2013 for Ofunato Line.

#### (8) Ports/Harbors

For the ports and harbors, the disaster restoration on the port/harbor facilities vital to industry and logistics was mostly completed in FY2014. The restoration of the baymouth breakwater will be continued according plan, while the port/harbor facilities that are foundational to the economic recovery, such as quay walls and breakwater, have been repaired.

Meanwhile, the sea area landfill sites of 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

**Note** Abbreviation for Bus Rapid Transit. Refers to a bus transportation system that is faster and more punctual than regular bus systems by using bus-only roads.

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 stability of residency, taking into account the "Residence Recovery Construction Time Table" which organizes prospects for the provision of building lots for private residences and the completion of disaster public housing based on reports from the 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 also by posting the "Reconstructive City Development INDEX," an online website for compiling support initiatives.

#### (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 the zones considered unsuitable for residence, and the "disaster urban area land recovery and readjustment project" which supports comprehensive town building by combining work on the public facilities such as building sites and roads with the site reconstruction work on tsunami disaster affected urban areas, as well as the preparation of building sites for relocation to higher grounds.

By the end of March 2015, the disaster prevention group relocation project had already secured the consent of the Minister—which is the legal procedure for undertaking projects—for projects such as the relocation of group to upland, and of all 331 districts scheduled to be relocated, construction works have already commenced on 326 districts based on the "Residence Recovery Construction Time Table." For the land readjustment project, project approval has been received and construction has begun on the 50 districts based on the "Residence Recovery Construction Time Table."

#### (2) Securing Stability of Residency

For victims who are able to build or obtain housing by their own means, interest rates were lowered for disaster recovery housing loans provided by the Japan Housing Finance Agency. Disaster recovery housing loans were also provided to victims who only suffered damages to their real estate. Pre-existing loans were given up to 5 year extensions on payments and payment deadlines, as well as interest rates being lowered for loans amid payment.

Victims who face difficulties in building or obtaining housing by their own means 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 the stability of residency for the refugees residing in evacuation order areas (evacuees) by providing them the same accommodations as the disaster victims, such as moving into disaster public housing.

Figure II-1-3-1

#### -3-1 Development Status of Disaster Public Housing (March 31, 2015)

Prefecture	Procuring of land	Construction commenced	Construction completed	Provision plan
Iwate prefecture	5,246 houses	3,678 houses	1,525 houses	5,921 houses
	160 districts	100 districts	54 districts	12 municipalities
Miyagi prefecture	15,004 houses	10,291 houses	5,289 houses	15,988 houses
	350 districts	223 districts	132 districts	21 municipalities
Fukushima prefecture ^(Note)	7,041 houses	3,577 houses	2,126 houses	7,592 houses
	127 districts	84 districts	48 districts	21 municipalities

(Note) Fukushima Prefecture has a district where the construction plans for disaster public housing for earthquake/tsunami victims are not formulated. Also, the distribution plans for the disaster public housing for nuclear disaster evacuees have not been confirmed due to the fact that current plans may need to be reviewed based on the results from the residents' intention survey. Source) MLIT

#### **Section 4** Securing Local Public Transportation and Promoting Tourism

#### (1) Securing Local Public Transportation

In regards to the local public transportation, which suffered damages from the Great East Japan Earthquake, we are taking exceptional measures such as mitigating the auxiliary requirements for the Regional Public Transportation Securement, Sustention and Improvement Projects to support the securing and maintaining of local public transportation systems such as buses and 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 newly built housing, hospitals, shops and public agencies. Furthermore, for bus transportation within the district, continued support is being offered by extending the support period for another 2 years to FY2015, making it possible to respond with careful consideration of the needs in the district, such as raising the aid provision limit according to the number of places with temporary housing.

#### (2) Reviving Tourism

To recover the major drop in the number of foreign tourists coming to the Tohoku area after the earthquake, we are working on dispelling harmful rumors in major overseas markets and engaging in PR work regarding the recovering of tourism in this area.

To be more specific, we posted accurate information regarding things like radiation doses on the Japan Government Tourist Office website for the benefit of overseas consumers, and we invited members of foreign media to the Tohoku region and also implemented the transmission of information about Tohoku through SNS to promote the appeal of the Tohoku as a tourist destination. In addition, we invited overseas travel companies to the Tohoku region, and communicated tourism information about the Tohoku region by supporting the development of travel products and having an overseas travel exposition.

We are also implementing different initiatives to recover national tourism. For the Pacific Ocean coastal areas in particular, we have supported efforts taken by both peaple in departing and arriving areas by developing public relations for the recovery and dispeling of harmful rumor, preventing the memories of earthquake from being forgotten, promoting rigonal systems for the recovery of turism, advancing the creation of travel products and recovery tours that are unique to the region. In addition, to facilitate the earliest possible recovery of tourism in Fukushima prefecture, we supported tourism-related businesses that contributed to the efforts for reputation damage control and disaster recovery. In addition, in order to contribute to increasing the satisfaction level of visitors and dispelling damaging rumours, a special exception has been made based on the Special Measures for Fukushima Restoration and Revitalization so that as of March 2012, Fukushima Prefecture is authorized to grant their own licensed guide qualifications. As of the end of March 2015, 85 people have been registered with this qualification.

According to the Overnight Travelers Statistical Survey by the Japan Tourism Agency, among the 6 Tohoku Prefectures ^{Note 1}, the total number of overnight guests was approximately 39 million people for FY2014 yearly rate ^{Note 2}, which is a 1.5%

Note 1The 6 prefectures in Tohoku region: Aomori, Iwate, Miyagi, Akita, Yamagata, Fukushima.Note 2Provisional value

increase compared to 2010 before the earthquake. However, if we look at the total number of overnight guests that stayed at facilities that are mainly for tourists ^{Note}, the number has decreased by 19.0% compared to 2010, showing that the major scars left by the earthquake disaster is preventing the national economic boom from reaching these areas.

## 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".

Although there have been some slumps and failures in bidding—mainly for construction projects with difficult conditions—by using ingenuity when re-commissioning, such as reviewing the planned price to reflect the actual condition of the market and commissioning on an appropriate scale, most projects have reached the point of getting a contract.

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 5 times since March 2013) and the "Council to Secure Execution of Reconstruction Projects" (held 8 times since December 2011). In these meetings, in order to set planned prices to reflect the current market price, the design work unit value for public works was pulled up to approximately 21% in April 2013, approximately 8% in February 2014, and approximately 6% in February 2015 for the three disaster-stricken prefectures. We also introduced the reconstruction coefficient related to the reconstruction productivity data based on the actual work conditions of the disaster affected areas and the indirect construction costs, and built public concrete plants financed by the country and/or prefecture.

Furthermore, as work on disaster public housing and the public building construction such as schools, governmental buildings and hospitals gets well underway with the progress in reconstruction, in order to reflect the current market price and the conditions of the construction sites in the planned price, the MLIT is moving forward with measures for smooth execution of reconstruction projects, such as raising the standard construction price of public disaster housing and promoting the use of the "cost management method", as well as providing thorough responses to the individual consultations at the public construction consultation service.

## Column

Public Construction Inquiry Desk

The Government Buildings Department, Regional Development Bureau Maintenance Department and Maintenance Office of the Government Buildings Department has set up a consultation service to respond to a variety of opinions/questions related to government buildings maintenance, starting with measures for public construction bidding slumps/failure, building maintenance operations and various standards. As a part of the consultant function of the government maintenance administration, this service is providing various types of information making use of the know-how developed while maintaining governmental facilities.

In FY2014, as a part of the smooth execution of construction measures and the measures to extend the life of infrastructures, we have proactively responded to questions such as how to set an appropriate planning price, quantity survey related queries, and conservation related consultations, along with other questions that have come in related to design, construction management and bid contract processes.

Over half of the consultations are from local goverments, and concrete results are being achieved, such as hospitals, government building and schools that had been struggling with bidding slump/failure for construction projects being able to reach successful acceptance of bids.

Inquiries to the consultation service can be made by using information found in "Public Construction Consultation Service" listing on MLIT's website to directly contact the various District Development Bureau's Maintenance Office, or by emailing eizen@mlit.go.jp.

Note Facilities mainly for tourists refers to facilities that answered that over 50% of all their overnight guests stay there for tourism purposes.



Breakdown of Contents using Consultation Service (April 2014 to March 2015)

Content of Consultation	Total Number of Consultations
Quantity survey, design and bidding process	1,270
Conservation	491
Construction Supervision	201
Other	297
Total	2,259

Source) MLIT

### Section 6 Reconstruction, Revitalization and Etc. of Fukushima

After the occurrence of Tokyo Electric Power Fukushima No.1 Nuclear Reactor accident, the number of refugees from the evacuation zones was approximately 79,000 individuals ^{Note 1}, while the total number of refugees in the Fukushima prefecture including self-imposed evacuees climbed to approximately 120,000 individuals ^{Note 2} (according to studies by the Reconstruction Agency). Taking into account the fact that the evacuation order was lifted for Tamura City on April 1, 2014 and for a part of Kawauchi Village on October 1 of the same year, the government needs to expand and strengthen the measures for early return support and new life support so that infrastructure and daily life related service can be restored and the citizens and local governments can start taking steps towards establishing a new future. The MLIT strives to actualize the soonest possible return of those in evacuation through efforts such as reconstructing infrastructures, implementing measures for the toll-free use of expressways for refugees, and overcoming harmful rumors, in accordance with the "Early Return and Resettlement Plan," established in March 2013, and the "Speeding Up of Recovering Fukushima from the Effects of the Nuclear Accident," which was approved by the cabinet in December of the same year. In accordance with the "Evacuation Lifted Districts Reconstruction and Revitalization Plan" formulated based on the "Act on Special Measure for the Rebirth of Fukushima" amended in June, 2014, the MLIT will make full efforts to realize the early return of evacuees by taking such initiatives as restoration of infrastructures based on the time table, expressway toll-free setting for evacuees, and dispelling of harmful rumor.

### 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 number one priority", and promotes building districts that are well-fortified against tsunami disasters with the concept of "multiple defenses" that combine structural and non-structural measures.

The MLIT is providing technical advice related to the enactment of the aforementioned law to support local governments in building communities resistant to tsunamis, and published guidance documents regarding the settings for tsunami flood measurement. We are also implementing establishment of consultation service for inquiries related to tsunami flood suppositions and exchanging opinions between municipalities. 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 held a "Study Commission of a Large Scale Earthquake in the Sea of Japan" and put together a report in September 2014.

Note 1As of January 13, 2015.Note 2As of October 1, 2014.

Tsunami flood suppositions for maximum level tsunami occurrences have been published for 22 prefectures (as of the end of March 2015). Also, since March 2014, Tokushima Prefecture and Yamaguchi Prefecture (Seto Inland Sea Coast) have been designated as a Tsunami Disaster Caution Zone, and plans (promotion plan) are being made to comprehensively promote tsunami disaster prevention district building in the 4 cities of Yaizu City and Hamamatsu City of Shizuoka Prefecture, Kushimoto City of Wakayama Prefecture, and Miyazaki City of Miyazaki Prefecture.

In the disaster affected areas, 24 districts are proceeding with recovery efforts using the "Law concerining 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 2015).

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 2Deploying Land, Infrastructure, Transport and<br/>Tourism Administration Tailored to Urges of the Times

## Section 1 Driving the Implementation of a National Land Policy Package

The implementation of a comprehensive national land policy package has been driven on the basis of a full package of measures designed to guide the work of national spatial land planning; namely, National Spatial Strategies (national plan) (2008 Cabinet decision), which envisions "the construction of a national land where diverse regional blocks develop autonomously and the creation of a beautiful national land where life is comfortable" as a new vision of national land, Global Regional Plans (2009 Minister decision), which summarize the regional strategies of the individual global blocks and the specific approaches they take to implement the strategies and the Fourth National Land Use Plan (national plan) (2008 Cabinet decision), which is committed to a key principle of sustainable land management. The implementation of these plans is being monitored from year to year to get them consolidated among the stakeholders concerned with National Spatial Strategies.

About seven years since the formulation of National Spatial Strategies (national plan), Japan is confronted with drastic changes, such as intensifying competition between nations and cities in pace with progressive globalization and imminent possible threats from huge natural disasters, such as the Nankai Trough Mega Earthquake and Tokyo Inland Earthquake, as well as a rapidly shrinking population in an aging society with falling birthrates, with the population predicted to halve in about 60% of all the regions in 2050 and elderly people accounting for about 40% of the total population. To address these changes, it is necessary to share the sense of crisis and then put together the wisdom of the public people to conceive national land policies from long-term perspectives.

In July 2014, the "Grand Design of National Spatial Development towards 2050" was compiled and released as a guide to land and community development from mid- to long-term perspectives (generally 2050), which aims to help develop varied regional individualities at a higher level of refinement by "compact" and "networked" to stir inter-regional convection, or develop a "convection-promoting national land".

A planning subcommittee was then organized under the National Land Council to update the National Spatial Strategies in September of the same year and summarized the key concepts of planning in an interim report in March 2015.

Further reviews will be carried on with a view to finaizing a National Plan by about the summer of 2015 while seeking views from broad quarters, including localities. As for Global Regional Plans, studies have just started to bring them to finalization by the end of FY2015.

## Section 2 Measures, etc. against Aging Social Infrastructures

#### (1) Formulating a MLIT's Action Plans for Life Extension of Infrastructure

In Japan, those infrastructures that have been built after the rapid-growth period of the nation's economy, including Tokyo Metropolitan Expressway Route 1 laid after the 1964 Tokyo Olympic Games, are forecast to get aged simultaneously in the future, with the proportion of facilities that will reach 50 years of age or older in 20 years to come expanding at an acceleerating pace. The ratio of the number of such highway bridges, for example, is predicted to surge from about 18% in 2013 to about 43% 10 years later and to about 67% 20 years later (Figure II-2-2-1). Simultaneously aging infrastructures should dictate strategic maintenance/management and renewal.

The MLIT defined the year 2013 as the "First Year of Social Infrastructures Maintenance" and inaugurated the Social Infrastructure Anti-Aging Conference headed by the Minister of Land, Infrastructure, Transport and Tourism in January of the same year in its full committeent to combat aging social infrastructures. After pursuing comphrensive, cross-section debates, the conference finalized a roadmap titled "Interim Measures to be Taken to Maintain, Manage and Renew Social Infrastructure" in March of the same year.

In October of the same year, the "Liaison Conference among Ministries and Agencies Concerned with the Promotion

of Measures Combat Aging to Infrastructures" was inaugurated. In November of the same year, it came up with "the Basic Plan for Life Extension of Infrastructure" to envision future approaches directed at infrastructures of all kinds to be taken by the state, local public entities and so on. The basic plan requires the manager or the like of each individual infrastructure to draw the Action Plans for Life Extension of Infrastructure to encourage steady implementation of measures to combat all aging infrastructures nationwide.

The MLIT responded by working out a MLIT's the Action Plans for Life Extension of Infrastructure in May 2014 ahead of all other ministers and agencies to finalize and visualize specific approaches based on the basic plan, declaring it as a maintenance guide to present a roadmap to the implementation of maintenance cycles (Figure II-2-2-2).

#### Figure II-2-2-1

#### Present Status of Aging Social Infrastructures

Among all infrastructures that have been 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 in 20 years to come will expand at an accelerating pace.

The status of aging of facilities is not uniformly determined by when they were initially built, but it 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 infrastructures that have been built for 50 years or longer>>

March 2013	March 2023	March 2033
Approx.	Approx.	Approx.
18%	43%	67%
Approx.	Approx.	Approx.
20%	34%	50%
Approx.	Approx.	Approx.
25%	43%	64%
Approx.	Approx.	Approx.
2%	9%	24%
Approx.	Approx.	Approx.
8%	32%	58%
	March 2013 Approx. 18% Approx. 20% Approx. 25% Approx. 2% Approx. 8%	March 2013         March 2023           Approx.         Approx.           18%         43%           Approx.         Approx.           20%         34%           Approx.         Approx.           25%         43%           Approx.         Approx.           2%         9%           Approx.         Approx.           2%         9%           Approx.         Approx.           8%         32%

Note 1) Approximately 300,000 bridges whose year of initial construction is unknown have been excluded from percentage calculations.

Note 2) Approximately 250 tunnels whose year of initial construction is unknown have been excluded from percentage calculations.

- Note 3) State-managed facilities only, including approximately 1,000 facilities whose year of initial construction is unknown. (Since records generally exist of those facilities that have been built within the last 50 years, those facilities whose year of initial construction is unknown have been sorted as being approximately 50 years of age or older.)
  Note 4) Including approximately 15,000 km of piping whose year of initial construction is unknown. (Since records
- Set of inducting uppoint response to point of point of the point of the point of the other of the other of the point of

Source) MLIT

Figure II-2-2-2 Summary of the MLIT's the Action Plans for Life Extension of Infrastructure and Approaches based on the Action Plan						
Compile an action plan based on the Basic Plan for Life Extension of Infrastructure on the basis of approaches taken in the First Year of Social Infrastructures Maintenance. Focus on building maintenance cycles, cutting and leveling total costs and supporting local public entities, etc. on the basis of the action plan. (relevant mainly to directions of approaches 1, 3) (relevant mainly to directions of approaches 5, 6)						
Summary of the MLIT's the	Summary of the MLIT's the Action Plans for Life Extension of Infrastructure (decided at May 21, 2014 meeting of the Social Infrastructure Anti-Aging Conference)					
1. MLIT's Roles	1. MLIT's Roles					
ORoles of the "competent aut	thority" to build	l schemes, systems, etc	c. relevant to infrast	truc	CRoles of Infrastructure	e Managers
2. Scope of Planning			3. Mid- and L	or	ng-Term Cost Prospects	
OTarget: All the facilities whose programs or the like are supervised by the MLIT.       ONeed to have more precise estimates of the mid- and long-term prospects of the costs of facility maintenance, management, renewal and so on by probing into the actual status of the facilities and by individual facility life extension programming.						
4. Directions and Descript	4. Directions and Descriptions of Approaches					
[Directions of approaches]						
1 Checkups/Diagnostics/Repairs, R	Renewals, etc.	2. Development of Sta	Indards	] [	3 Development and Utilization of Information Infrastructures	4. Formulate Individual Facility Life Extension Programs
Build maintenance cycles for all facilitie     Review the need to have facilities, mea be taken and so on.     Carry on and enhance support as by su	es asures to ubsidization	<ul> <li>Maintain standards in order</li> <li>Update standards with new technologies and knowledge</li> </ul>			Gather information through checkups, repairs, etc. Accumulate information and consolidate information in a unified manner, including that available from local governments	- Promote planning and enhance contents
5. Development and Introduction of New	w Technologies	6 Budget Management		] [	7 Constructing of systems	8 Development of legislation, etc.
<ul> <li>Industry-academia-government collabo and matching between needs and seed</li> <li>Clarification of field conditions, etc. tail new technology usage</li> </ul>	oration, ds lored to	- Reduction and leveling of total costs - Review of benefits and burdens			Enhance qualification systems, and utilize technicians versed in advanced technical capabilities Build a scheme of partnership between managers	<ul> <li>Define shares of responsibility and respond to changes in social structure</li> </ul>
[Key approaches]						
Start using new standards and documentation Example: Make close-up visual checks on highway bridges, etc. once every 5 years		OEnhance qualification systems Example: Specify required capabilities and skills, assess and accredit associated private qualifications and so on				
ORun new databases and enhance futuristic features		Build a framework of using technicians with advanced technical capabilities     Example: Establish a system of providing technical support in the road and other fields, such as dispatching governmental officers				
Concentrate and remove facilities as needed and so on Example: Advise, etc. on the concentration and removal of bridges, etc. to reflect changes in social structure		OBuild a framework of collaborations among administrators Example: Provide technical assistance, etc. to municipalities by way of supporting organizations composed of the state and local public entities				
5. Others OFolio	5. Others OFollow up plans to enhance and deepen efforts.				ORelease information positive	ly through websites or else.
Source) MLIT						

Chapter 2 Deploying Land, Infrastructure, Transport and Tourism Administration Tailored to Urges of the Times The plan calls for:

- (1) checking up infrastructures perioodically and repairing or renewing them as appropriate and keeping the information in chart form in a database to create maintenance cycles;
- (2) moving ahead with further cost reductions by leveraging maintenance technologies and with lifetime extension strategically based on the concept of preventive maintenance, thereby leveling the burdens of maintenance spending; and
- (3) providing financial support by granting diaster preparedness and safety subsidies and technical support by offering standards and manuals.

The MLIT is committed to a continuing program of approaching measures against aging infrastructures on a prioritized and planned basis so that required infrastructures will be kept sustainable from now on.

#### (2) Social Infrastructures Maintenance Strategy Subcommittee and Technicians Qualification Systems Subcommittee

Prioritized measures to be taken by the MLIT and local public entities, etc. and estimates of the future costs of maintenance/management and renewal (Figure II-2-2-3), etc. were examined and debated at the Social Infrastructures Maintenance Strategy Subcommittee institued on July, 2012 under the Infrastructure Development Council and the Traffic Policy Council. In FY2014, those matters that dictate further discussion to implement what had been set forth in "Recommendations on Maintaining, Managing and Renewing Social Infrastructures" compiled in December 2013 were reviewed and debated to come up with proposals on the future directions of the four review subjects:

- 1. Establishing a qualification system for checkups and diagnostics
- 2. Organizational framework for expediting maintenance and management, and support extended to local public entities, etc.
- 3. Sharing and visualizing information pertaining to maintenance, management and renewal.

Regarding "1. Establishing a qualification system for checkups and diagnostics" among these proposals,

#### Figure II-2-2-3

Estimated Costs of Maintenance/management and renewal

○ According to the preliminary calculations by the MLIT on the basis of discussions at the technology task force "Subcommittee on Social Infrastructure Maintenance Strategies" of the Technology Goup of the Infrastructure Development Council and the Traffic Policy Council, maintenance, management, and renewal costs were approximately 3.6 trillion yen in FY2013, and estimated to be 4.3 to 5.1 trillion yen 10 years later and 4.6 to 5.5 trillion yen 20 years later.

Fiscal year	Estimated result		
(FY2013)	Approx 3.6 trillion ven		
EV2023 (10 years later)	Approx 43 to 51 trillion ven		
EV2022 (20 years later)	Approx. 4.5 to 5.1 trillion yon		
F 12033 (20 years later)	Approx. 4.6 to 5.5 thillon yen		
*1 The number of facilities falling in each of the 10 fields of social infrastructures (roads, flood control, sewer systems, ports and harbors, public housing, parks, coasts, airports, aids to navigation, governmental facilities) over which the MLIT has jurisdiction and that are managed by the state, local public entities, Regional Road Public Corporations or Japan Water Agency, an incorporated administrative agency, has been checked by year of initial construction for estimation, with records of their maintenance/management, renewal, etc. taken into account. *2 No allowance is made for the volumes of new construction and retirement in the future, because they are difficult to estimate. *3 Functional enhancements occurring to facilities on renewal are to update them with equivalent functionalities (including responses to the current quake-resistance standards). *4 Land, compensation and natural disaster relief expenses not included. *5 Individual social infrastructures are given some latitude in their estimates, because they are dranagement and renewal any depending on where they are located, or to what extent they have been damaged, and on the constraints that are placed on their maintenance/management and renewal work.			

Source) MLIT

"Regulations for Registering Technicians Qualifications to Help Assure Quality for Surveys into Public Works and for Their Design, etc." were announced in November of the same year to inaugurate a registration system for private qualifications." The regulations spell out the kinds of knowledge and expertise required for specific kinds of tasks, such as checkups and diagnostics, and seek to foster technicians and encourage their utilization, in response to the "Emergency Recommendations on Establishing Social Infrastructures management: Inauguration of a Registration System for Private Qualifiations" compiled in August 2014 at the Technology Task Force of the Technology Group of the Infrastructure Development Council and the Transport Policy Council. Qualifications registered on these regulations have been used for setting ordering requirements for FY2015 projects.

Further, the Technicians Qualification Subcomittee was inaugurated under the Task Force to start probing into qualifications in newly evolving fields of industry, which have a close bearing on the maintenance and management of social infrastructures.

#### (3) Enforcement of compulsory periodic checkups

From 2013 to 2014, compulsory periodic checkups have been enforced by cabinet ordres, ministerial ordinances, etc. with regard to certain kinds of facilities, such as roads, rivers and ports and harbors, among all social infrastructures falling under the MLIT's jurisdiction. Checkups based on new criteria have just begun. Periodic checkups are underway on other kinds of facilities as well (Figure II-2-2-4).



#### (4) 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 Moitoring Technologies organized in October 2013. Monitoring technology hopefuls have been sought from the general public since September 2014, and their field verifications, etc. are now underway.

#### (5) 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."

The MLIT has been proceeding with the development of social infrastructures at a steady tempo in accordance with the Third Social Infrastructures Development Priority Plan (FY2012 to FY2016) approved at a cabinet meeting in August 2012. It is to review the plan to respond to imminent risks, such as aging infrastructures, megaquakes, devastating climatic hazards, ailing localities with diminishing populations and stiffening global competition amid changing conditions of social infrastructures development following the formulation of the current plan.

It would be essential that the review focus on the effective and efficient development of social infrastructures that could maximize the social infrastructures stock effects, such as getting prepared for and mitigating the aftermath of natural disasters, in order to respond properly to the risks that threaten their development.

[Ken-O Expressway]

#### Figure II-2-3-1 Example of Social Infrastructures Development Focusing on Stock Effects

#### [Hokuriku Shinkansen]

The completion of the Hokuriku Shinkansen has shortened the time required for traveling between Tokyo and Kanazawa from 3 hours 47 minutes to 2 hours 28 minutes, with the result of an expanding visiting population.



Land on the west exit area of Kanazawa station registered the highest rate of land price increase among all commercial areas nationwide (17%).



Source) MLIT

#### H27 4 8 H27 4 8 H27 4 8 H27 4 8 H H27 4 H2

to be sr

More than 5 locations

Many logistic facilities and the like have come to be located along

Ken-O Expressway as its construction progresses.

## Section 4 Promoting the Implementation of Transport Policy

#### Developing Policies Based on the Basic Act on Transport Policy

The Basic Act on Transport Policy promulgated and enforced in December 2013 dictates the formulation of a Basic Plan on Transport Policy to propel the comprehensive and planned implementation of transport measures. Pursuant to this act, the MLIT started deliberations on the formulation of a Basic Plan on Transport Policy at its Transport Policy Council and the Infrastructure development Council in April 2014. The Basic Plan on Transport Policy was approved at a cabinet meeting in Febraury 2015 after the release of final recommendations following a public comment session, etc.

The Basic Plan on Transport Policy defines the period from FY2014 to FY2020 as a planning period and provides for basic policies, measure goals, measures, etc. to be taken by the state on a comprehensive and planned basis. More specifically, three basic policies have been set forth as follows:

(A) Realize easy-to-use transportation that conduces to wealthier national livelihood;

(B) Create international and inter-regional passenger transportation and logistic 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 approaches in following up the plan, and factors for consideration in implementing measures in accordance with the three basic policies above.

The status of progress of measures taken accordance with the Basic Plan on Transport Policy is to be followed up as appropriate. The plan is also open for further improvement.



## 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. Keeping up and even consolidating local vitalities also calls for enhancing local public transportation in coordination with a compact community development endeavor.

As the management climate continues to grow harder on the undertakers of local public transportation than ever, the traditional framework dependent on private operators would no longer be fit to fill the social needs for local public transportation. Under the cirmstances, the Act for Making Amendments to the Act on Revitalization and Rehabilitation of Local Public Transportation Systems has opened a way for supporting local public entities responsible for general regional administration in their effort to realize transportation networks and traffic services optimized for



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their localities under agreed-upon terms at their initiatives while keeping proper shares of responsibility with the stakeholders concerned, from viewpoints of community development, tourism promotion and more.

The MLIT will extend necessary support to local public entities at work while keeping in mind the directions set forth in the "New Institutional Framework for Enhancing Local Public Transportation Systems and Key Concepts of Their Utilization" compiled in August 2014.



### Section 5 Driving the Implementation of Ocean Policy (Oceanic State)

### Driving the Basic Plan on Ocean Policy Steadily

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.

The first version of the Basic Plan on Ocean Policy came as a Cabinet decision in March 2008 with the understanding that it would be reviewed about every five years. In April 26, 2013, a new Basic Plan on Ocean Policy was approved at the Cabinet meeting.

In the current context of disaster preparedness and energy policies having been refurbished in the wake of Great East Japan Earthquake, soaring hopes for oceanic energies and mineral resources, such as methane hydrates, and changing social conditions, including international climates concerning the preservation of maritime interests, the new Basic Plan on Ocean Policy is organized of four approaches and directions designed to let Japan grow into an oceanic state: a. International collaboration and contribution to the international community, b. Wealth and prosperity derived from oceanic development and usage, c. Transition from a sea-guarded state to a sea-protecting nation and d. Challenging an untrodden frontier. The Ministry of Land, Infrastructure, Transport and Tourism is also geared at driving the implementation of the ocean policies at a steady pace according to the guidelines stipulated in the new Basic Plan on Ocean Policy. Specifically, it will be working to toughen the structure of the Japan Coast Guard to protect Japan's sovereignty and territorial land and seas while seeking to use renewable marine energies, develop and use marine resources, etc., foster

marine development human resource, transport energies, etc. by sea efficiently, and promote ocean industries. Further, it will be actively promoting the creation of an environment that supports marine frontiers, such as promoting oceanographic surveys to make for ocean interest preservation, preserving Low-Tide Lines Note, which is a basis for exclusive economic zones and building action bases on Minamitorishima Island and Okinotorishima Island. Measures related to events held on the Marine Day will also be promoted in conjunction with the ministries and agencies concerned to win added understanding and interest from the general public.



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

#### (1) Promoting Maritime Surveys in Territorial Waters and the Exclusive Economic Zone and Consolidating Maritime Information

In our country's territorial waters and the exclusive economic zone there are waters lacking adequate survey data and the Japan Coast Guard is conducting intensive maritime surveys in these waters including submarine topography, crustal structure, and the baselines of territorial waters to strategically and continuously implement the development of basic information that will contribute to the safety of ship traffic, protecting our country's maritime rights, and maritime development. In June 2014, the Japan Coast Guard 's autonomous undewater vehicle (AUV), Gondo, working in a submarine topographic survey off the Kumejima Island, Okinawa Prefecture spotted the largest cluster of chimneys (columns of hydrothermal eruptions composed mainly of heavy metals) ever known arond Japan. A subsequent resource survey conducted by Japan Oil, Gas and Metals National Corporation (JOGMEC), an incorporated administrative agency, confirmed them to be a promising sea-floor hydrothermal deposit rich in high-grade copper, zinc and so on.

Also, under the comprehensive coordination of the Headquarters for Ocean Policy Secretariat, Cabinet Secretariat, the "Maritime Information Clearinghouse," which aggregates the gathering, management, and provision of maritime information, is being operated. Additionally, the "Maritime Ledger" was developed which is a web service that can overlay information on maps and allows general users to utilize various natural information (submarine topography, ocean currents, water temperature, etc.) and social information (port areas, fishing rights areas, etc.).

Chapter 2 Deploying Land, Infrastructure, Transport and Tourism Administration Tailored to Urges of the Times

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

In April 20, 2012, the UN "Commission on the Limits of the Continental Shelf" adopted the counsel submitted by our country in November 2008 to the commission on information regarding 200 nautical miles of continental shelf in accordance with the United Nations Convention on the Law of the Sea. Since the recommendation granted an extension to Japan's continental shelf accounting for approximately 80% of her land area, the Shikoku basin sea area and the Okidaito ridge sea area were newly designated Japan's continental shelf by a cabinet order in October 2014. In the meantime, since the review of some water areas has been postponed, the Japan Coast Guard will continue working towards the demarcation of a continental shelf by partnering with the ministries and agencies concerned under coordinated supervision of the Secretariat of the Cabinet Secretariat Headquarters for Ocean Policy.

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

#### a. Conservation 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. In addition to the two islands, the state is taking direct control to ensure adequate measures to preserve the entire atoll.

#### b. 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 the low-tide lines preservation areas to implement restrictions on activity in the area. Also, sight patrols by disaster prevention helicopters and ships as well as satellite images are used to survey low-tide lines and its surrounding conditions and by confirming the existence of restricted activities in the area or topographical changes due to natural erosion, strive to protect the low-tide line which forms the basis of the Exclusive Economic Zone and continental shelf as well as appropriate management of related information for the implementation of sure and efficient preservation of low-tide lines.

#### c. Developing Bases of Activity in Remote Islands (Okinotorishima island and Minamitorishima island)

In accordance with the "Low-Tide Preservation Act", etc., Minamitorishima island and Okinotorishima island which are areas remote from the mainland, port facilities are being developed as a base of activities for the conservation and usage of the exclusive economic zone and continental shelf to enable the mooring and berthing of vessels, cargo handling, etc.

## Section 6 Protecting Territorial Land and Territorial Waters Firmly

Intrusions into Japan's territorial waters around the Senkaku Islands by Chinese government vessels, etc. and sovereignty claims by activitists of Chinese, Taiwanense and others have taken place in recent years. Particulary since the acquisition and maintainance of the three of the Senkaku Islands (Uotsuri Island, Kitakojima Island, Minamikojima Island) in September 2012 in particular, intrusion into Japan's territorial waters by Chinese government vessels have been increasing.

While the number of cases of intrusions into Japan's territorial waters by Chinese government vessels in 2014 decreased from its year earlier level, their status of navigation through the contiguous zones remains unchanged. In addition, activities by foreign fishing boats in the seas have intensified. Resolved to protect Japan's territorial land and waters by all means, the Japan Coast Guard deals with the matters calmly and firmly.

Many Chinese coral fishing vessels have been noticed in the waters around the Ogasawara Islands and elsewhere since September 2014. The Japan Coast Guard has mobilized patrol vessels and aircraft intensively by partnering with the Fisheries Agency and other agencies concerned to enforce strict regulations, arresting 10 Chinese coral fishing boats. It will stay vigilant.

In the Japan's exclusive economic zone in the East China Sea, and other waters, foreign oceanographic research vessels have been found to conduct surveys without Japan's consent. The situation of the seas around Japan continues to grow increasing more severe than before.

Under the circumstances, the Japan Coast Guard seeks to consolidate its full-time committment to guarding the territorial waters around the Senkaku Islands and to hasten the implementation of a system of support dispatching from across the nation to respond to further changing situations and a system of tight maritime safety in Japan's surrounding waters, including those around the Senkaku Islands and Ogasawawa Islands to ensure a perfect solution to guarding territorial waters in Japan's sea areas.



<<Status of government vessels intruding into the territorial waters after acquisition and maintainance of the Three Senkaku Islands by the Japanese government (as of the end of March 2015)>>

Intrusion into the territorial waters: 113 cases (115 days)
 Maximum number of vessels intruding into the territorial waters: 8 vessels
 Longest duration of intrusion into the territorial waters: 28 hours 15 minutes Source) MLT

Patrol vessels in the seas around the Senkaku Islands.



Source) MLIT

Patrol vessels and compact boat keep track of Chinese coral fishing boats in the waters around the Ogasawara Islands.



## **Column** Eruptions on Nishinoshima Island Stretch Borders of Territorial Waters

On November 20, 2013, the Nishinoshima volcano 500 m southeast off the coast of Nishinoshima Island in the Ogasawara Islands erupted for the first time in 39 years, forming a new land. More than one year on, active volnanic activities still continue.

The Japan Coast Guard has issued navigation alarms right after the eruption to warn vessels navigating nearby. Further, it conducts aircraft-aided observations periodically and publicizes the observation results and report them to the Coordinating Committee for Prediction of Volcanic Eruptions in its bid to prevent volcanic hazards.

Since November 20, 2013, the new land continued to expand as lava flowed out until it merged with former Nishinoshima Island on December 26. Active volcanic activities kept the land expanding thereafter such that Nishinoshima Island grew into an area of approximately 2.5 km² (including former Nishinoshima Island) by March 25, 2015. Volanic experts watch the progress of the volcanic activities as the eruptive activities of a sea volvano lasting for 1 year or longer are a globally rare phenomenon.

The expanding sphere of Nishinoshima Island could stretch the borders of Japan's territorial waters and exclusive economic zones. Territorial waters extend from the low-tide line shown in the marine chart published by the Japan Coast Guard up to 12 nautical miles (up to 200 nautical miles for exclusive economic zones). As soon as volcanic activities settle down and safety is confirmed, a precise water channel survey will be conducted to finalize a new low-tide line. The new extents of territorial waters, etc. will be fixed when the expanded sphere of Nishinoshima Island is listed in a nautical chart on the basis of the survey findings.

The Japan Coast Guard will carry on its observation of volcanic activites in Nishinoshima Island.



## **Section 7** Driving the Implementation of Water Cycle

The Basic Act on Water Cycle was resolved in March 2014 and came into effect in July. The act sets fifth guiding principles of water cycle, such as actively promoting approaches to maintaining or restoring sound water cycle, measures designed to implement these principles and which stipulates the state and local public entities' liabilities, etc. in the light of the fact that water nourishes life on earth in its process of cycle, playing a significant role in the national livelihood and industrial activities. At the same time, the Headquarters for Water Cycle Policy was inaugurated in the Cabinet, when a framework for the state working in accord to tackle a host of tasks, including the preparation of a basic plan for water cycle aimed at driving the implementation of water cycle, in a comprehensive, integrated manner was in place. The Minister of Land, Infrastructure, Transport and Tourism, Akihiro Ohta ^{Note}, was appointed the first minister in charge of Water Cycle Policy in May of the same year.

In July, the Headquarters for Water Cycle Policy had its first meeting, at which Director-General Shinzo Abe, the PM, spoke to the effect: "Since ancient times, water has nourished fields and sustained social and cultural prosperity and is still offering "great blessings" to us, but at times, water could bring out "disaster," such as landslides and drought. In order for us to enjoy the "blessings" of water eternally, it would be of vital importance to maintain sound water cycle with the impact of human activities upon water taken into consideration. It is my hope that the government will approach this goal in a unified fashion with the Headquarters for Water Cycle Policy acting as a command center."

Since a basic plan for water cycle is schedule to win a cabinet council decision at the earliest timing before the summer of 2015, the MLIT is committed to promoting the steady implementation of the water cycle policy.



## Section 8 Efficient, Prioritized Deployment of Measures

### Automating, Streamlining and Upgrading Construction Production System Workflow

As Japanese workfoce continues to shrink as a whole, the need augments to automate, streamline and upgrade construction management system workflow for higher productivity while endeavoring to improve the cost structures in the successive stages of social infrastructure development planning, engineering, construction and management in order to develop social infrastructures efficiently and effectively for maximized social infrastructure stock effects and to assure their quality in the future. The MLIT promotes a variety of approaches that help improve productivity from perspectives of developing and utilizaing new technologies and methods, leveling construction timings and maintaining fair construction periods, expediting communication, making efficient use of technicians and craftspersons.

## 2 Assuring Public Works Quality and Fostering and Maintaining Bearers

#### (1) Amendments to the Three Public Work Bearers Acts

The 186th session of the Diet in 2014 approved amendments to the "Act for Promoting the Assurance of Quality of Public Works (Quality Assurance Act)", the "Act for Promoting Proper Tendering and Contracting for Public works (Tendering and Contracting Act)" and the "Construction Business Act (the so-called Three Public Work Bearers Acts)" with a view to assuring the present and future quality of public works and fostering and maintaining bearers of public works from medium- to long-term perspectives.

In September of the same year, amendments to the basic policies based on the Quality Assurance Act and to the rationalization guidelines based on the Tendering and Contracting Act were decided at a cabinet meeting. The basic

policies define a broad package of measures to be taken to assure the quality of public works constructed and maintain public works bearers, such as establishing qualification systems for setting and surveying proper unit prices for construction design work and assuring design quality, formulating national operational guidelines and extending support to local public entities, as well as the issues to be approached by purchasers, such as setting fair predetermined prices, leveling construction timings by setting fair construction periods and marginal periods and introducing and using varied tendering and contracting options. The rationalization guidelines call for thorough utilization of low bid price survey programs, etc. by declaring that the act of deduction from the designed amounts calculated by fair costing is a breach of the Quality Assurance Act and also specifying what actions should be taken by purchasers to rationalize the bidding and tendering process, such as eliminating contractors that do not subscribe to a social insurance or any other appropriate program.

#### (2) Approaches to fulfilling purchasers' liabilities

To abide by the principles of the Quality Assurance Act, it is essential for all purchasers of public works, including prefectural and municipal authorities, to practice their ordering paperwork properly to fullfuill their liabilities. The state worked out "Guidelines for the Practice of Ordering Paperwork (Operational Guidelines) in January 2015 pursuant to the Quality Assurance Act, Article 22 to this end. The Operational Guidelines serve as a common manual for all purchasers of public works to follow and summarize an organized plan of acvitity for the issues to be tackled in the sequential stages of ordering paperwork, i.e., survey and design, preparation for ordering construction projects, tendering and contracting, construction and completion, and varied tendering and contracting options available. Individual purchasers are supposed to proceed with their specific approaches pursuant to these guidelines.

To bolster the practical usefulness of the Operational Guidelines, the MLIT will provide relevant support and collaboration to local public entities, etc. by way of Regional Purchasers Conferences, Regional Public-Works Project Liaison Conferences and so on and also promote responses to the issues of common concern to purchasers in a more intensified alliance of purchasers. The MLIT also plans to periodically examine to see if the purchasers conduct ordering paperwork properly in compliance with these guidelines and compile and release findings of such examinations.

#### (3) Review of varied tendering and contracting options, etc.

New additions to the Quality Assurance Act include the selection and utilization of varied tendering and contracting options (Article 14), phased screening (Article 16), technical proposal and bargaining methods (Article 18) and methods that make for maintenance and management of regional social infrastructures (multi-year contracting, packaged contracting, joint order-taking (Article 20). The MLIT has worked to explore recommended sequences of processes, from planning of the development of social infrastructures to their engineering, construction and management, from purchasers' viewpoints and responses to various issues occurring since November 2013 at the "Conference on How Future Construction Production and Management Systems Should Be to Fulfill Purchasers' Liabilities" and compiled the ways purchasers should choose tendering and contracting methods to suit specific project characteristics as "Guidelines for Applying Tendering and Contracting Methods to the Implementation of Public-Works Projets."

#### (4) Approaches to assuring quality in the construction stage

Other ongoing efforts include the promotion of information sharing between contractor and contractee to assure the quality of work objects, and the trial practice of "in-process checkups," which verify the status, etc. of construction works across the flow of construction processes, and "quality certifications by third parties under contract from the builders."

## Section 9 Forming a New Phase of Relationships between the Central and Local Governments and Private Sectors

#### New Phase of Relationships between the Central and Local Governments

The MLIT is working on the decentralization of power from the state to local public entities, including relaxing regulations that are imposed on localities and transferring paperwork and authorities to local public entities, by taking into consideration the proper shares of responsibility between the state and local public entities for approaching key issues that are directly linked to national livelihood, such as forming dynamic economic societies and regions and assuring safety and security.

With the enactment of the Act on Legislation Designed to Promote Reforms for Enhancing Local Autonomy and Independence (Fourth Package)" regarding the transfer, etc. of paperwork and authorities in FY2014, the MLIT is ready to transfer paperwork, authorities, etc., such as registering onerous passenger transporters, to local public entities starting from FY2015.

A suggestion collection program has also been commenced to invite individual local public entities, etc. to submit their own proposals and explore ways to implement them, to promote new approaches taken at the initiative of localities. A policy for responding to such proposals was approved at a cabinet meeting in January 2015, on the basis of which a fifth package bil was submitted to the Diet in March 2015, calling for delegation of the terms of members of the Architectural Review Board to locals as an approach to local deregulation.

#### Driving Public-Private Partnerships, etc.

The formation of new schemes of PPP (Public-Private Partnership)/PFI and concrete proposals has been promoted to develop, maintain and manage social infrastructures of real need by expanding the utilization of private funds under stringent financial conditions. More specifically, the MLIT not only conducts surveys and reviews on its own but also extends subsidies, etc. to local public entities or the like.

For example, the MLIT adopted 28 public-private partnership support projects of pioneering nature to receive subsidies for FY2014 and extended aid to the implementation of feasibility studies, etc. for the integrated area development of urban parks and a large-scale commercial facility in a public-private partnership in Machida City, Tokyo. Further, it adopted 11 public-private partnership earthquake recovery support projects to receive subsidies for FY2014 and extended aid to the implementation of feasibility studies, etc. for the development and supply of public housing for disaster victims using a regional system of housing production in Otsuchi-town, Iwate Prefecture.

## Section 10 Policy Evaluations, Project Evaluations and Interactive Administration

#### Driving Policy Evaluations

Pursuant to the "Ministry of Land, Infrastructure, Transport and Tourism Basic Plan for Policy Evaluations," the three key schemes of evaluating policies, namely, policy assessments (Project Evaluation Method), policy checkups (Performance Evaluation Method) and policy reviews (Comprehensive Evaluation Method) have been defined to achieve the following three goals: realization of efficient and high-quality nation-oriented administration; promotion of performance-centric administration; and thorough perfection of accountability to the nation. At the same time, individual public-works projects, individual research and development issues, regulations and special taxation measures have been subjected to policy evaluations to suit specific policy characteristics. Further, a framework for assessing the performance results of incorporated administrative agencies has been laid down in accordance with the provisions of the Act on General Rules for Incorporated Administrative Agencies. Within the key schemes, 36 new measures projected in the FY2015 budgetary requests were subjected to a policy assessment in August 2014 and four subjects to a policy review in March 2015. In addition, the performance results of 19 incorporated administrative agencies under control were assessed ^{Note}.

Note Ministry of Land, Infrastructure and Transport and Tourism Policy Appraisal Website: http://www.mlit.go.jp/seisakutokatsu/hyouka/index.html

## 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 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 posted on the Internet and elsewhere ^{Note}.

Further, the 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.

## 3 Driving Administrative Management Open to the Public, and Interactive Administration

#### (1) MLIT Hotline Station

In driving 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, etc. on the monthly average.

#### (2) Keeping consumers, etc. informed

The MLIT has opened the "Negative Information 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 infrastuctures, it is important to ensure the transparency and fairness of the planning process and win understanding and cooperation from the local residents, etc. 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 encouraging the participation of various entities, including local residents, in the process.

## Section 11 Approaches to Hosting Tokyo 2020 Olympic and Paralympic Games

At the September 7, 2013 plenary meeting of the International Olympic Committee (IOC), Tokyo was chosen to host the 2020 32nd Olympic Games and 16th Paralympic Games. The state inaugurated a ministerial conference on the Tokyo 2020 Olympic and Paralympic Games on April 22, 2014 to help expedite the preparatory process for the Games.

The MLIT launched the MLIT Prepartory 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 transporation comfortable. It will also move ahead with necessary approaches to realize the future evisions of a Tokyo and Japan defined for "Grand Design of National Spatial Development towards 2050" and after by taking the year 2020 as a milestone, instead of viewing it as a goal. Further, the MLIT is keen to lure foreign visitors into every little locality of the land of Japan to help make for its buoyancy as we conduct the Games not only in Tokyo but nationwide.

More specifically, the MLIT will partner with the Tokyo Organising Committee for the Olympic and Paralympic Games, Tokyo and other stakeholders concerned to condition the environment to host foreign visitors, by developing access roads to the Games sites and Olympic Village, filling the demand for transportation perfectly at the Tokyo

Note Project Appraisal Website: http://www.mlit.go.jp/tec/hyouka/public/index.html Project Appraisal Chart: http://www.mlit.go.jp/tec/hyouka/public/jghks/chart.htm
metropolitan airport, a gateway to Japan, facilitating the ease of access, making barrier-free towns, providing multilingual versions of guidance signs and maps, installing free public LAN, delivering special license plates to commemorate the Games and so on.

## **Chapter 3**

## Realizing a Tourism Nation 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 nonresident population vising from both at home and abroad in a depopulating 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 Now

#### (1) Trends in the nation's tourism

The number of domestic pleasure trips with lodging made in 2014 averaged 2.12 overnight stays per capita (against 2.25 a year earlier) and the average number of trips per capita was 1.29 times (against 1.39 a year earlier). Spending on the domestic trips with lodging, including homecoming and business trips, amounted to about 14.3 trillion yen (against 15.8 trillion yen a year earlier), and the number of overnight stays, the number of trips taken and the amount of spending all decreased from their year earlier levels.

The number of overseas tourists in 2014 dipped 3.3% (about 570,000) from the previous year to about 16.90 million, with their spending in the same year falling to about 4.5 trillion yen from its year earlier level of (about 4.5 trillion yen).

#### (2) Trends in foreigners touring Japan

In 2014, approximately 13.41 million foreign tourists visited Japan (up 29% from a year earlier), three million more than the record-breaking 10-million-tourist mark attained in 2013, a major step towards nearing the goal of 20 million tourists set for 2020.

By nationality and region, Taiwan accounted for about 2.83 million (up 28% from the previous year), followed by

Korea with about 2.76 million (up 12%) and China with about 2.41 million (up 83% from the previous year). By Visit Japan Campaign market, Korea, China, Taiwan, Hong Kong, Thailand, Singapore, Malaysia, Indonesia, the Phillipines, Vietnam, India, Australia, the U.S., Canada, France and Germany registered their record highs.

With increases in the number of inbound foreign tourists, they spent an all-time high of 2.278 trillion yen in 2014, an advance fo 43.1% (611.1 billion yen) from 2013.



## Column Inbound Spending Grabs Attention

As more foreign tourists visit Japan, they are expected to spend more to contribute to the nation's economy and help revitalize regional economies. High expectations are placed on their shopping in Japan, mainly among Asian travelers, as it accounts for about 33% of their total amount of spending. This may be due partly to Japanese tours made relatively less costly than before with the exchange rate of the yen trending lower, and also to a broadening of the list of consumption tax exempt-items from October 1, 2014 to stimulate buying motivatins.

Since the inauguration of the consumption tax in 1989, consumable supplies, such as food, drinks, drugs and medicines and cosmetics, had not been taxexempt. The FY2014 tax reform, however, allowed these supplies into the scope of tax exemption on the condition that cetain measures to prevent frauds are taken, and at the same time, made the forms of tax exemption documentation more flexible and simplified the procedural routines for added convenience.

Consequently, unique local specialties, such as renowned sweets and locally brewed sake, have been newly made tax-exempt, with a total of 9,361 duty-free shops proliferating nationwide as of October 1, 2014, amazing increase of 3,584 duty-free shops in half year — at souvenir corners in hotels and Japanese inns, specialty centers, regional airport stores and elsewhere. From a viewpoint of further expanding the list of dutyfree shops and augmenting their conveniences, a program allowing tax-exempt sale procedures for shops in shopping malls, etc. to be completed all together at a Tax-Exemption Procedures Counter has been inaugurated since April 2015.

In addition, the "Duty-Free Shop Logotype" has been newly launched to promote the public recognition of duty-free shops as a brand. As duty-free shop owners apply for using the logotype, they are invited to provide information about themselves, which is posted at a











JNTO website. So far, "live information" about approximately 8,600 duty-free shops nationwide has been collected for wide dissemination.

- Expanding list of regional duty-free shops (Case Study)

#### Kagawa speciality center "Ritsurin-an" (Kagawa Prefecture)

- A shop located in the premises of Ritsurin Garden, a state-designated Special Place of Scenic Beauty, has been made duty-free.
- The shop is furnished with a counter to receive foreign tourists and with other facilities designed to expedite their reception, such as a duty-free shopping counter and a POS register system.
- The shop sells udon (Japanese noodles), typical of Kagawa' local food, olives, paper tigers manufactured in a time-honored fashion, rare sugar and more.

#### Kuroshio City (Wakayama Prefecture)

- Shops in Kuroshio Market in Wakayama Marina City and in the hotel have been made duty-free.
- Not only guidance boards, posters, etc. are posted but staff members capable of speaking Chinese are in position.
- The shops sell locally manufactured dried marine products, shoyu, ume (plum) liquor, Wakayama ramen noodles and more.



Source) MLIT



Source) MLIT

#### (3) Trends in the tourism industry

#### a. Travel trade

In FY2014, Japan's 50 major travel agencies had a total transaction value of 6,419.6 billion yen (against 101.2% a year earlier), broken down into approximately 2,203.3 billion yen (98.4%) for overseas trips, approximately 4,103.6 billion yen (102.1%) and approximately 112.5 billion yen (135.2%) for inbound foreigner tours.

#### b. Guestroom occupancy ratios at accommodation facilities (hotels and Japanese inns)

The guestroom occupany ratios (preliminary figures at the hotels and Japanese inns for FY2014 were 78.0% for city hotels (against 75.7% a year earlier), 54.5% (52.5%) for resort hotels, 73.8% (69.5%) for business hotels and 35.9% (35.9%) for Japanese inns.

## Section 2 Approaches to Forging a Tourism Nation

The "Action Program toward Realization of Japan as a Tourism Nation" was approved at the June 11, 2013 meeting of the Ministerial Council on the Promotion of Japan as a Tourism-Oriented Country chaired by the Prime Minister. After toughened approaches subsequently taken to forge a tourism nation, the year 2013 witnessed a record-high inbound foreign tourist count of 10.36 milion. Since an instruction was given by the Prime Minister on January 17, 2014 to revise the Action Program to target an inbound foreign tourist count of 20 million by 2020, "Action Program toward Realization of Japan as a Tourism Nation 2014" was decided on June 17 of the same year. As a result of the government, public and private sectors having worked in hand in hand to get Actin Program 2014 fulfilled, the number of inbound foreign tourists in 2014 reached a record high of 13.41 million.

## Promoting Tourism in Time for the 2020 Tokyo Olympic and Paralympic Games

In FY2014, the MLIT took part in "Japan Omotenashi Pavillion," which was run from June 12 to July 13, 2014 in a unified governmental-private endeavor at FIfA World Cup Brazil held in Brazil, to promote the charms of Japan to the global soccer fans that gathered there and to play Japanese tour promotion videos and sponsor special events, etc. featuring Japanese fashion, traditional art and pop cultures to get them better know of Japan and cherish desires to visit Japan. Efforts made to condition the environment for receiving inbound foreign tourists include developing and promoting a free public wireless LAN environment, improving on multilingual support, reinforcing reception of Musulim tourists, simplifying and expediting the procedural flow of immigration at airports and ports, including improved CIQ, enhancing the means of secondary transportation, improving on the payment environment and more.

## 2 Approaches to Expanding Inbound Tourism Drastically

The Visit Japan Campaign has been run in a unified "All Japan" effort of public and private sectors to promote the charms of Japanese tourism to stir inbound Japanese tourism.

The campaign has focused on the nations holding a prospective population of visitors to Japan (Korea, China, Taiwan, Hong Kong, Thailand, Singapore, Malaysia, Indonesia, Australia, U.S., Canada, U.K., France, Germany) by launching: a. Projects targeting overseas travel agencies, such as inviting them or putting joint tour ads; b. Projects targeting overseas consumers, such as putting overseas ads and inviting overseas media; c. Regional collaborative projects jointly implemented in a wide area by Transport Bureaus, etc. with local authorities to grab foreign tourists; and d. Approaches to promoting inbound Japanese tourism in a unified "All Japan" of with the government ministries and agencies concerned, including overseas diplomatic establishments abroad, and private enterprises.

## 3 Fueling Japanese Travel with Eased Visa Requirements, etc.

Requirements for multiple-entry visa approval were relaxed for Indonesians, Filipinos and Vietnamese on September 30, 2014 and procedures for applying for single-entry visas were simplified on November 20 of the same year. An exemption of visas subject to prior registation of microchipped passpors was granted to Indonesians on December 1 of the same year. Multiple-entry visas for Indians were introduced on July 3 of the same year, followed by a decision to introduce multiple-entry visas for Brazilians in August. In addition, the requirements for multiple-entry visas for Chinese were relaxed effective January 19, 2015.

Feasibility studies of a long-term stay plan were also carried forward to help capture the demand for longer-term stays among overseas wealthy travelers.



## 4 Developing Attractive Tourism Areas Appealing to the Whole World

### (1) Developing attractive tourism areas with high international competitiveness

The development of "Tourism Zones" readied for the stay-and-exchange type of tourism has been promoted pursuant to the "Act on Promotion of Tourists' Visit and Stay Through Development of Tourism Areas (Tourism Zones Development Act)" to create special-interest tourism areas with exceptional charms to appeal both at home and abroad. In FY2014, four Tourism Zones were designated, including the "Umino-Kyoto" tourism zone. For these 10 tourism zones, local branding strategies were formulated and the projects based on the branding strategies were supported by the "Tourism Area Branding Support Projects."

In addition, the Overseas Demand Basic Survey Project for Promoting Formation of Wide-Area Round-Trip Routes" has been implemented to reinforce inter-regional wide-area alliances to augment the abilities to disseminate information and also to promote the formation of wide-area round-trip routes full of tales and subjects appealing to the target markets. The project has so far probed into trends among the inbound foreign tourists to identify the areas that should dictate more efforts directed at conditioning the environment to host tourists than anywhere else and has surveyed and analyzed the Japanese travel market to define what measures should be targeted to solicit tourists in the future.



#### (2) Supporting the development of tourism areas that leverages tourist resources

It would be essential for locals to have a framework of developing and selling optional tour products (experience- and exchange-type programs) on their own autonomously and continuously to revitalize local economies by leveraging attractive local tourimsm resources.

For this reason, the "Tourist Business Creation Total Support Project" was implemented in FY2014 to extend support to 45 areas selected from across the nation. More specifically, experts (cognoscenti) were dispatched to these areas to conduct monitoring tours with regard to the travel products that had been developed through workshops or other occasions. The resultant information was then disseminated through Websites or the like. In addition, practical training sessions and

business talks with travel agencies were held in these 45 areas to get their tourist resources closer to a state of commercialization and to build business models that appropriate profits for the development of more optional tour products.

About 70% of the *Michi-no-Ekis* located nationwide are furnished with a tourist information center, which not only serves as a gateway for first-time visitors to the localities but as a site to host optional tours. In FY2014, the priority Michinoeki program was inaugurated to extend prioritized support to excellent Michinoekis and was pursued in conjunction with authorities who were concerned with their current abilities to serve as a general point of guidance for local tourism, promote inbound tourism, etc.

## 5 Conditioning the Environment to Host Foreign Tourists

To attain a milestone of 20 million inbound foreign tourists by 2020, it would be of exceptional importance to create an environment for these tourists to be able to move and stay in with comfort and to allow them leave Japan at the end of their tours satisfied, and then come back to Japan in the future as repeat customers.

To attain this goal, the following approaches were taken during FY2014.

As for multilingual support, approaches to pursuing the consistsency and continuity of markings used in a broad range of facilities, such as art galleries, museums, natural parks, tourist sites, raods and public transport facilities, were driven in conjunction with the relevant government ministries and agencies pursuant to guidelines commonly applicable to these facilities formulated and published in March 2014, so that foreign tourists can enoy their tours of Japan without being frustrated by "language barriers" to the extent possible. In addition, amendments were made to the "Ordinance on Road Signage and Marking" to encourage the conversion of road guide signs from Romanized letters to English at major tourist spots and elsewhere, so that the signs would be more intelligible for foreign tourists. In the meantime, more than 60 years on after the inauguration of the Licensed Guide-Intepreter Program, problems have been raised concerning the quality and quantity of Licensed Guide-Interpreters as the number of inbound foreign tourists has topped 13 million and now aims to attain 20 million. In December 2014, the Review Commitee on the Licensed Guide-Interpreter Program organized of representatives of a broad class of stakeholders met to start exploring possible solutions to these problems.

In August 2014, the "Free Public Wireless LAN Development Promotion Conference" was incorporated jointly with the Ministry of Internal Affairs and Communications to develop an environment in which foreign travelers can walk out on their own. Efforts have been driven through the medium of this Conference to promote further development, broader recognition and acceptance of a free public wireless LAN environment and to simplify authentication procedures.

Efforts directed at bracing for the "Era of One Million Cruising Tourists" to come include answering queries from cruise ship companies and others at a single one-stop point of contact installed at the MLIT's Ports and Harbours Bureau, sponsoring sessions of business negotiations and symposiums with the participation of cruise ship companies, port management bodies and others in corabolation with "National Cruise Vitalization Conference" and improving an integrated website from which to release information about the specifications of port and harbor facilities and tourist information about the ports of call. Also, the functions of passenger terminals have been enhanced by efficiently utilizing the existing facilities.

To encourage tourist visits to Japan from Islamic nations, including Southeast nations that promise further leaps, guides designed for eating and drinking establishments, etc. that expect to host Musulim tourists so that they can make smoother choices of their orders at these establishments. At the same time, seminars have been held to promote the dissemination of information about the menus, foodstuffs, eating utensils, cooking environment and so on. The dissemination of information sought by the Musulim tourists, such as the places of eating and drinking establishments and places of worship in the localities, etc. has also been reinforced.

Other efforts made include simplifying the procedrual flow of immigration at airports and ports with improved CIQ, improving means of secondary transportation, improvement of the payment environment, such as promoting the installation of ATMs ready for credit cards issued overseas and encouraging "Hands-Free Travel" for inbound foreign tourists leveraging home-delivery and other services.

## 6 Promoting Attraction and Holding of MICE and Grabbing Foreign Business Guests

Promoting the attraction and holding of international conventions, etc. (MICE) Note is meaningful in a broad range of aspects, including capturing overseas people and their wisdom into Japan, producing major economic benefits in and around the places of the conventions, creating chances of business innovation and boosting national and municipal competitiveness and brand power. According to International Congress and Convention Association (ICCA) statistics, the number of times international conventions are held is on the rise worldwide and its growth is most pronounced in Asia on the support of its rapid rates of economic growth. In Japan, 342 international conventions were held in 2013, the seventh in number in the world and the largest for the second consecutive year in Asia. Asian competitors have been staging proactive campaigns to grab MICE, with the consequence of proportionately declining Japanese international competitiveness as Japan is faced with increasingly tough rivalry. Hence, its international competitiveness needs to be built up.

To attain the goal of "building the untottering number one position in Asia as an international convention host nation in 2030" set forth in the Japan Revitalization Strategy, approaches have been started, including:

a. Fostering global MICE cities to win tough competition from overseas competitors for hosting MICE.

b. Appointing individuals who are influential at home and abroad through academic societies, etc. as "MICE Ambassadors" to publicize and promote the attraction of international conferences and stage attraction and other activities.

c. Seeking qualitative and quantitative expansion in the usage and promotion of unique venues to create a sense of distinction or regional characteristics by holding conventions or reception in buildings of historic significance, public spaces or elsewhere.

After these efforts directed at inviting MICE into Japan, the holding of a chain of massive international conferences in Japan has been decided, including SIGGRAPH Asia 2015 scheduled in Kobe (6,000 participants scheduled) and the World Buiatrics Congress 2018 scheduled in Sapporo (2,000 participants scheduled). The number of large incentive tours has also increased, including those from Taiwan containing a total party of about 2,000.

## 7 Consolidating the tourism industry

#### (1) Dissemination of the concept of safety management for travel agencies

The concept of safety management was disseminated and promoted among travel agencies, including smaller agencies who are not familar with it, since the importance of a thorough implementation of safety management in the tourism industry as a whole had been suggested at a FY2013 meeting of the Tourism Industry Study Group.

#### (2) Formulating guidelines relating to online travel trasactions

While Internet transactions continue to proliferate, numerous overseas online travel agencies (OTAs), site loaners that do not take liability as a subject of a contract by themselves and others exist. Considering the fact that many consumers sign up with them without knowledge of their partners or terms of the contracts, guidelines have been formulated relating to online travel transactions to keep the travel contracts both safe and secure and thus to prevent troubles.

#### (3) Disseminating information about accomodation facilities

A general portal site has been opened at a JNTO website to provide foreign tourists with information about Japan's diverse accomodation facilities in an intelligible manner. The portal site has made it possible to augment the public awareness of, and interest in, the brand of Japanese inns, or Japan's unique accomodation facilities, and to refer the foreign tourists to websites run by the individual facilities wanting in their abilities to disseminate information overseas.

Note MICE is an acronym for (Meetings), or meetings held by businesses and the like, incentive and study tours (Incentive (Travel) conducted by businesses, (Conventions), or international conferences and (Exhibitions), or trade fairs and exhibitions.

#### (4) Promoting universal tourism

Approaches have been taken to boost activities aimed at creating an environment in which all people, , including elderly people or people with disabilities, can enjoy touring. These approaches include launching an integrated point of regional consultation, and releasing information from websites in multiple languages. In addition, studies have been made to add to the number of tourist agencies working towards the goal of universal tourism.

#### (5) Developing human resources in the tourism industry

Seminars have been conducted and e-learning lectures delivered to hotel and Japanese inn executives, who play a significant role in a regional economy, to raise their awareness for the significance of improved management. In addition, an internship model project was carried out for college students with help from tourism-related bodies and enterprises to help them develop a better understanding of the tourism industry and brew a sense of employment in it.

#### (6) Inviting Tourism-Related Industries from Overseas

The JETRO has discovered overseas promising tourism-related industries (LCCs, hotes, tour operators and more) and invited them to expand into Japan to help revitalize Japan' tourism industry.

## 8 Encouraging holiday taking

The government currently recommends that "Hometown Holidays" be appointed as locally unique holidays to meet regional traditions or events for better work-life balances and for local revitalization. In response, the Japan Tourism Agency has expanded the "Family Time Making Project," which had pursued matching between children and adults' holidays by encouraging flexible setting of school holidays and taking of paid holidays by workers, to extend support to the implementation of Hometown Holidays, as well as creation of chains of holidays, thereby guiding the nationwide trend towards reforming the way of taking one's holidays.

Further, the MLIT has been promoting the "Positive Off" campaign, or a movement that encourages taking a vacation in a forward-looking stance, for businesses and associations jointly with the Cabinet Office, Ministry of Health, Labour and Welfare and Ministry of Economy, Trade and Industry. As of the end of 2014, 450 businesses and associations have subscribed to this movement.

## 9 Preparing tourism statistics

The "Tour and Sightseeing Consumption Trend Survey," "Hotel-Staying Tour Statistical Survey" and "Inbound Foreigner Consumption Trend Survey" have been conducted to aid in strategic planning of tourism policies and verification of their accomplishments.

Among these, the timing of the Hotel-Staying Tour Statistical Survey has been changed from quarterly as it had been in the past to every month, starting from the April 2015 survey, to reinforce its immediacy aspect as a result of enhanced coordination with the departments concerned. In addition, the sample size per quarter for the Inbound Foreigner Consumption Trend Survey has been changed from 6,600 to 9,700 to reflect an increase in the number of airports and ports under survey from 11 to 18 and an increase in the number of natinos and regions under survey from 18 to 20 markets, including Italy and Spain, starting from the January-March 2015 survey, to gain a more precise insight into the status of inbound foreign tourists.

PR activities have also been stage at each individual Transport Bureau, including holding explanatory sessions for prefectural and municipal authorities, think tanks and the press.

## 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 638 groups as of September 30, 2014, with 449 of them pursuing their own landscape plans. Further, the number of municipalities that have been designated a landscape administrative body to take over the prefectural authority of formulating ministerial ordinances pursuant to the "Outdoor Advertisement Act" rose to 68 groups as of April 1, 2015 as part of the consolidated approaches to pleasing landscape formation.

#### (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 elimination of utility poles

From viewpoints of forming pleasing landscapes, promoting tourism, keeping passage spaces safe and comfortable, getting roads disaster-prepared and so on, the elimination of utility poles has been driven through the dissemination, etc. of various development techniques, such as constructing new roads or widening existing roads.

# (4) Driving the "Japan Scenic Trails" campaign

The "Japan Scenic Trails" campaign has been driven 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 nation and contribute to regional revitalization. As of the end of March 2015, 135 routes were



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 the development of waterfront spaces, etc.

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 organism inherent in rivers and diversities of river landscape while keeping the rivers in harmony with local livelihood, history and cultures with their workings of nature taken into consideration. Other activities being driven include the implementation of the "Projects for Waterfront Schools for Fun" for creating a place of river environment education and a "River and Community Making" support program and the development of river management facilities relevant to flood control and safe and secure river usage, which are

**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, Chapter 2 and Chapters 4 and 5, Landscape Act) upon prior consultation with the governor of its prefecture.

positioned as part of "Reservoir area Vision."

Other ongoing efforts directed at regenerating and creating waterside environments from the facility spaces of sewage line and from sewage plant effluents include development of babbling water streams taking advantage of storm sewers and that of facilities for putting sewage plant effluents to use as babbling water. 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

## Developing National Government Parks to contribute to the preservation, utilization, etc. of Japan's indigenous cultures

The development of National Government Parks has been driven to ensure the preservation, utilization, etc. of Japan's superb indigenous cultures. A total of 17 National Government Parks are already open, including the Asuka Historical National Government Park. In FY2014, the area surrounding the Kitora Tumulus, etc. was refurbished in the Asuka Historical National Government Park (Asuka Zone).

#### (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.

The preservation and utilization of locally long-loved governmental and other public facilities has been promoted. In addition, efforts have been encouraged to turn erosion and sediment control facilities of historic significance (as of March 31, 2015, two designated Important Cultural Properties and 183 designated Registered Tangible Cultural Properties) and their ambient surroundings into a new forum of human interaction by positioning these facilities as a core of tourism resources.

Civil-Engineering Art Sediment-Control Dam Tour (Otari-mura, Nagano Prefecture)

Tourism and exchange activities are promoted using historic sediment control facilities that protect the communities.



Source) MLIT

#### (4) Community development leveraging histories and cultures

Historic landscape maintenance and improvement plans for 49 municipalities (as of March 31, 2015) have been accredited to drive 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)." Further, empirical studies and surveys have been conducted in 10 regions nationwide and support extended to the refurbishing, etc. of building architectures of scenic or historic values with a view to resolving the common blocks that block the formation of historic townscape.

#### (5) Driving projects for creating futures of waterside and community

Local residents, businesses and administrative authorities are working in accord to drive efforts to create attractive waterside spaces that combine beauty and elegance as part of community development and thus preserving and creating vigors and vitaliites, landscape rich in nature and so on. In Tokyo in particular, the implementation of relevant efforts along Sumida River and elsewhere is promoted with the opening of the 2020 Tokyo Olympic and Paralympic Games in sight.



# **Column** Rejuvenating Waterborne Transportation in the Aqua Metropolis of Tokyo

With the opening of the 2020 Tokyo Olympic and Paralympic Games years ahead, the need for waterborne transportation looms into prominence as a complimentary means of transportation for Games spectators and staff members to ensure smoother travel during the period of the Games. Multilingual support and other efforts need also be highlighted to enhance conveniences for the growing number of inbound foreign tourists and others.

Because many of the facilities are located on the waterfront on and around Tokyo Bay, the Games should provide a good opportunity for promoting and boosting waterborne transportation in Tokyo proactively, together with its rivers and waterfront on the bay.

For this reason, the "Liaison Conference among Stakeholders for Rejuvenating Waterborne Transportation in the Aqua Metropolis of Tokyo" was inaugurated in February 2014 as a forum for stakeholders exchanging their views on, and coordinating their efforts to approach, a host of issues, such as receiving inbound foreign and Japanese tourists predicted to grow in volume as the Games near, promoting the waterfront and waterborne transportation in Tokyo and attracting visitors. The Conference met four times until the end of March 2015. In September 2014, a publicity event featuring a old-fashioned houseboat ride was conducted for foreign travel agents visiting Tourism EXPO Japan. The event met with an exceptional reception as many of the passengers expressed their emotion watching the night views of Tokyo from the boat. These foreign travel agents are expected to publicize the charms of riding an old-fashioned houseboat in Japan when they are back home.

The Liaison Conference is committed to further exploring the issues of responding to mounting demand for tourism in time for the 2020 Tokyo Olympic and Paralympic Games, promoting the waterfront and waterborne transportation in Tokyo, laying relevant groundwork and so on.



Source) MLIT

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## Chapter 4 Promoting Regional Revitalization

## Section 1 Approaches to Regional Revitalization

The government recognizes regional revitalization as a key issue and pursues a policy of achieving regional revitalization from cross-ministerial and cross-measure perspectives under a scheme of integrated governance (Integrated Headquarters for Regional Revitalization).

As part of this effort, a fourth international forum was held in Higashi Matsushima City, Miyagi Prefecture in December 2014 to publicize the "Environmental Future City" initiative to the world.

In the work of its designation of six National Strategic Special Zones, including Tokyo, in May 2014 as a breakthrough to bold regulatory reforms, etc., the MLIT now hastens to implement specific projects. In March 2015, local public entities eager to realize regional revitalization through regulatory reforms were named "Regional Revitalization Special Zones."

The Comprehensive Special Zone System offers comprehensive support, such as holding sessions of consultation on preferential measures, etc. for regulations necessary to make approaches taken in the individual Special Zones come true. The Structural Reform Special Zone System introduces regulatory reform in selected regions to propel structural reforms in those regions for regional revitalization. Preferential deregulation measures tailored to regional characteristics, such as an easing of use categorizations in reclaimed land in public waters (measures taken in FY2014) were introduced. Under the regional revitalization program, financial and banking aids have been extended to the voluntary, self-reliant efforts being made by local governments to provide an integrated, effective impetus to the goals of rejuvenating local economies, creating job opportunities locally and so on.

In September 2014, the Headquarters for Overcoming Population Decline and Vitalizing Local Economy was set up to provide integrated governmental solutions to the major issues of rapidly dimishing and fast aging populations facing Japan so that the individual regions will be able to create an autonomous and sustainable society each by leveraging their own characteristics.

In December of the same year, the Headquarters formulated "Overcoming Population Decline and Vitalizing Local Economies: Long-term Vision" to set forth a key recognition of population issues and "Overcoming Population Decline and Vitalizing Local Economies: Comprehensive Strategy" to present policy objectives for the five years to come and basic directions, etc. of the measures to be taken, driving approaches to overcoming the issues of diminishing populations and revitalizing regions across the government ministries and agencies concerned and also across discrete measures.

Because more of the local residents' voices need to be heeded in promoting the endeavors for regional revitalization, the governmental system of consultation has been molded into a one-stop sequence to follow up the endeavors for regional renovation in a fully integrated flow for each regional block. A regional revitalization concierge staffed by governmental workers, etc. and a regional revitalization support program were launched to provide positive impetus to the efforts made by local public entities at the same time.

The MLIT has also been working to impel community revitalization by forming "Small Stations" in hilly and mountainous areas, downsizing regional cities and promoting networked transportation, forging allied core metropolitan areas with multiple municipalities that ally with one another for the sake of integrated advanced urban facilities and better livelihood services and accelerating multi-generation-ready housing and community development linked with comprehensive regional care systems in metroplitan subrubs. In the meantime, the MLIT is also at work, creating tourist areas, securing, fostering and otherwise supporting leaders in the construction, shipbuilding, transportation and other industries underlying regional economies and promoting cohabitation in a sheer manner to keep jobs and people creating positive cycles.

The MLIT has also been driving nationwide urban renaissance, as through the development, etc. of public and publicbenefit facilities in a public-private partnership, as well as urban renaissance aimed at enhancement, etc. urban international competitiveness leveraging private vitalities.

#### Promoting Measures Supporting Regional Revitalization Section 2

## Efforts Directed at Augment Regional and Private Self-reliance and Discretion

#### (1) Expanding and improving on administration on various subsidies

The "Regional Renovation Infrastructures Reinforcement Subsidies" are a cross-ministerial package of subsidies that are granted to help develop functionally similar facilities in clusters in accordance with a regional renovation plan. The package comprises the "Road Development Subsidy" (municipal roads, wide-area agricultural roads or forest roads), the "Sewage Treatment Facility Development Subsidy" (public sewerage, village drainage or septic tanks) and the "Harbor Development Subsidy" (local harbor facilities or Category 1 or 2 fishing port facilities). As of the end of March 2015, 1,870 regional renovation plans were accredited. The "Regional Renovation Infrastructures Reinforcement Subsidies" are used to finance facilities development in the projects based on 1,168 of these regional renovation plans.

#### (2) Supporting local regional revitalization efforts

It also awards "Handmade Hometown Prizes" Note 1 to promote further approaches to individualistic and charming regional planning. In FY2014, 19 ingeniously elaborated projects won prizes (four in the grand prize category, 15 in the general prize category), including regional festivitity creation and hometown development projects. In addition, case studies of tourism town development planning focusing on infrastructures and tourism have been created, and information that is instrumental in regional development planning, such as case studies of successful regional development acvitity, are being disseminated to subscribers to an online email magazine Note 2.

#### (3) Promoting use of know-how and funds originating from private sectors

Excellent private urban redevelopment projects, such as those linked with an urban renaissance and development project undertaken by a local public entity and accredied by the Minister of MLIT are entitled to investment, joint implementation or any other form of support granted from general incorporated foundation Organization for Promoting Urban Development (hereinafter simply called "MINT"). Support is also extended to a residentparticipation community development fund, which subsidizes community development projects carried out with local resident parcipation or the like.

diffusion and promotion of know-how, etc. that is possessed by private associations advanced in the practice of

community charms and vitalities and get it come to stay.

Example of a private urban redevelopment project accredited by the Minister of MLIT Ofunato Spa



In addition, studies are in progress toward the realization of measures aimed at combatting aging expressways in conjunction with urban renaissance activity, using the Tsukiji River and other sections of the Metropolitan Expressways as model cases, on the basis of amendments to the Road Act, etc. in FY2014 that opened the way for usage of upper open

As of the end of FY2014, there are 1,323 subscriptions to the online magazine.

Note 1 A system of official commendation by the Minister of Land, Infrastructure, Transport and Tourism in recognition of satisfactory social infrastructures that create regional charms and individualities and the associated regional activities as a whole. Note 2 Regional Planning Information System - Repis:http://www.mlit.go.jp/sogoseisaku/region/chiiki-joho/index.html

spaces on roads.

Furthermore, the MLIT promotes openness of road spaces to help develop and manage infrastructures in a new initiative for partnership between public and private sectors that is financed by private funds and to create new business opportunities that open urban road spaces to the private sector. One example of such efforts is the amendments made to the Act on Special Measures Concerning Urban Renaissance in FY2011 that introduce exceptions to road occupancy regulations opening a way to create opportunities for festivity and human exchange (such as installing open cafes). Another is the inauguration of a program for strengthening the international competitiveness of the nation's industries and developing sites for international economic activities (such as sponsoring international events) in FY2013 under the Act on National Strategic Special Districts. Also, in FY2014, the "Act for the City Center Vitalization" was amended and an institution for the vitalization of central urban areas was established (such as installing open cafes).

## 2 General Endeavors to Build an Intensive Urban Structure

While regional cities have so far expanded their sphere of urban areas gaining primary impetus from population influx into them, diminishing population now threatens a degradation of the livelihood facilities in the upsized urban areas, with regional economies and vitality decaying. Under these circumstances, it would be esential to promote the concept of "compact" and "networked", which gathers medical, welfare, commercial and other urban facilities at hubs or at livelihood hubs and induce dwelling around these hubs to keep up certain population densities while enhancing networks of public transportation to assure ready access to these hubs in order to let the inhabitants live a healty and comfotable life, maintain economic activities and ensure sustainable urban management.

In larger cities, urban development friendly to elderly people needs to be pushed, as by placing medical care and welfare facilities around their homes on the basis of the concept of a comprehensive regional care system to address rapidly surging aging populations and the associated advances in the demand for medical care and nursing care services. Accelerated community planning with charms and walkability to encourage the outing of elderly people would also be important.

The Amended Act on Special Measures concerning Urban Reconstruction was enforced in August 2014 to proeed with comprehensive implementation of these measures, inaugurating a location rationalization planning system to propel compact community development. The MLIT is committed to supporting the municiplaties in their efforts to downsize their cities and restructure and network public transportation in the surrounding areas while seeking coordination with relevan measures through the medium of the "Compact City Formation Support Team," which is orgnaized of representatives of the government ministries and agencies concerned in its bid to facilitate the implementation of municipal efforts leveraging this system.



# 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 significantly 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 only a small lot of land yet to be purchased, the local governments (project implementing entities) announce their pledges to complete the construction within a certain period of time (completion time declaration routes; as of April, 2014, 112 routes were declared by 53 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, hold a high degree of convenience and 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 leverages 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 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.

Further, the MLIT subsidizes the implementation of the Station-Town Partnership Project that is in progress in the Sannomiya Station Front South District (Kobe City), a project based on a comprehensive plan formulated by a conference composed of local governments, railway operators, etc., in order to keep the activity moving efficiently. This project, coupled with a station facility usage promotion project for Hansin Sannomiya Station, aims to renovate the station area in an integrated fashion.

The MLIT also encourages upgrading the station facilities for the general goal of safe and comfortable regional living by building child-support and medical facilities at the premises of existing railway stations. This idea comes from the viewpoint of regional concentration, which brings medicine, work, and living into closer vicinities.

#### (3) 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.

#### a. 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 plays 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.

#### b. Port and harbor development

Amid globally tight supply-demand balances for resources, energies 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. The MLIT seeks to build stable and efficient networks of marine transportation for resources, energies and so on by developing large ship-ready port and harbor facilities as key locations, promoting interbusiness partnership and so on.

#### c. 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, etc. that support regional economies.

#### d. Road development

Most newly-built plants are located within 10 km from an expressway interchange in order to promote the efficient logistic flow of products and materials, transportation convenience, and so on. The formation of a new network of trunk highways, such as arterial high-standard highways, is being promoted to strengthen international competitiveness and to further regional independence and industrial growth through accelerating and facilitating logistics.

#### (4) Accelerating the development of transport infrastructures

Regarding the method of determining whether considerations for setting sectional surface rights, etc. relating to projects authorized to use deep underground pursuant to the "Act on Special Measures concerning Public Use of Deep Underground" are to be treated as transfer income or not, the FY2015 tax reform took a measure to have the considerations set according to 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 setting sectional surface rights, etc. relevant to the projects that are implemented as integral part of a project accredited under the "Act on Special Measures concerning Public Use of Deep Underground", granting a special credit of 50 million yen, etc. for exchanges on expropriation, etc.

#### (5) Promoting community-conscious projects and programs

#### a. 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 March 2015, 1,040 Michi-no-ekis are registered.

Efforts have progressed in recent years to set up *Michi-no-ekis* as hubs of regional revitalization nationwide by attracting many visitors through featuring local specialties and tourist resources, thereby creating regional employment, reactivating economies, and helping improve resident



services. To support these efforts, the priority *Michi-no-eki* system has been inaugurated to select six nationwide model *Michi-no-ekis*, 35 priority *Michi-no-ekis*, and to prioritize 49 *Michi-no-eki* canditates. The MLIT plans to offer prioritized support to them by partnering with the appropriate authorities.

#### b. Promoting river town development

The MLIT is keen to exploit the regional resources, or charms, of rivers, such as scenery, history and culture, that could help revitalize local industries, such as tourism, etc., and the wisdom, or ingenuities, of the locals. It is committed to expediting spatial planning to merge excellent concepts of community development with the waterside, through implementation of the highly practicable plans worked out in conjunction with local governments and local residents to develop and utilize rivers and the waterside.

#### c. 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 idea of good river development are appointed "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, collecting information about river management, such as locating cases of illegal garbage dumping into rivers and detecting flaws in the river facilities, and promoting the philosophy of river preservation.

Further, with the inauguration of a river cooperation organization designation program, the MLIT designates those private organizations, etc. that pursue activities voluntary relevant to the development, maintenance, etc. of river environments as "river cooperation organizations" and legally accredits them as an organization working in conjunction with a river administrator, with a view to promoting their organized voluntary activities and driving diverse modes of river management tailored to specific regional conditions.

#### d. Supporting efforts to take advantage of the regional features of the seaside

The implementation of seaside environment development projects, which formulate seaside usage revitalization plans and develop seaside preservation facilities according to those plans, are supported by granting General Social Infrastructures Development Subsidies to them to revitalize the usage of the seaside and add to its charms as a tourist resource.

Since a seaside cooperation organization designation program was inguruated, 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, and implementing proper and positive coastal management, as seaside cooperation organizations to reinforce the ties of collaboration with localities and thus to enhance coastal management to suit regional characteristics.

#### e. Regional promotion built around ports

Those facilities at which continual approaches to regional development are carried on have been accredited and registered as "Minato (Port) Oases" by Regional Development Bureau Director Generals and others to promote community development around the core of ports to help revitalize localities by promoting exchanges of local residents and tourism (as of March 31, 2015, 80 ports).

Diverse events with resident participation taking advantage of regional characteristics and ingenuities are being held at the Minato Oases nationwide, bustling with numerous local residents and tourists.

In addition, the "All Japan Sea-kyu Gourmets Competition," an event featuring local specialty food, held at the "National Council on Minato Oases," an organ aimed at encouraging exchanges, etc. among the administrators of the Minato Oases nationwide ,attracted a large number of participants.

Minato Oases have also been used as a place of serving oceangoing cruise ships in diverse ways to help revitalize localities with the power of oceangoing cruisers on the rise.



#### f. Building centers of marine leisure

The MLIT not only drives the construction of Umi-no-Eki Stations as marine leisure sites that leverage existing port facilities, marinas, Fisharenas (fishing + arena) and the like (as of the end of December 2014, 151 Umi-no-eki available) but also provides support, etc. to diverse, regionally distinctive efforts in progress at Umi-no-eki, such as cruising by rental boats, sale of marine products, a hands-on experience with fishing and sponsoring of events.





#### (6) Promoting the maintenance of cadastral maps positively

Cadastral surveys are conducted by municipal authorities to determine the boundaries, etc. of individual lots of land. Findings help expedite land transactions, private development and infrastructure development, speeds up the workflow of disaster preparedness and restoratin from disasters. The MLIT not only develops public-private boundary information in urban areas and preserves boundary information in mountain villages under direct state control to accelerate cadastral surveys, but promotes the utilization of non-cadastral survey results to push the maintenance of land registers.

The MILT also supports the implementation of cadastral surveys in the regions devastated by the Great East Japan Earthquake in conjunction with restoration and recovery projects, and refurbishes government-private boundary information under the government's direct control in the areas that could be inundated by Nankai Trough Earthquakes once they occur by taking lessens from the Great East Japan Earquake and drives the maintenance of land registers particularly in the areas that could be targeted by massive natural disasters to help develop safe, secure areas.

#### (7) Deep underground utilization

Technological studies on smoother reviews are in progress to facilitate the implementation of highly public projects in the three major metropolitan areas based on the "Act on Special Measures concerning Public Use of Deep Underground." In addition, information about deep underground is exchanged by means of the "Deep Underground Utilization Council" that has been formed of national administrative agencies and prefectures concerned for each of the target areas (Tokyo Metropolitan, Kinki Metropolitan and Chubu Metropolitan Areas).

# 4 Self-Reliance and Revitalization of Wide-Area Blocks, and Formation of National Land

### (1) Self-reliance and revitalization of wide-area blocks

To achieve regional revitalization and sustainable growth, it is important to deploy measures in an integrated manner while drawing out regional wisdom and devices. To this end, the deployment of measures tailored to characteristics of the diverse wide-area blocks has been pursued with a view to shaping a national land in which the wide-area blocks can grow in a self-reliant manner in line with the National Spatial Strategies and Regional Plans. The MLIT also pursues measures to promote the formulation and implementation of strategies by public-private partnership organizations to allow various regional entities to step up the revitalization of their regions by taking advantage of their specific characteristics, to provide governmental aid to these entities and to proceed with community planning by the leaders of a "new standard of publicness."

#### a. Promoting regional self-reliance and revitalization

To implement structural and non-structural mixes of efforts designed to form self-reliant wide-area blocks and to revitalize the regions through buoyant human or material traffic, the MLIT has granted subsidies to 123 plans on the basis of wide-area regional revitalization infrastructures development plans prepared by prefectures. Of these plans, 48 have been worked out by multiple prefectures working in accord and cooperation in a bid to revitalize even wide areas.

## b. Promoting the development of infrastructures for regional revitalization with partnership between the public and private sectors

To facilitate smooth migration of those projects that have been worked out in a partnership between the public and private sectors to contribute to the implementation of wide-area regional strategies for target regions, from the stage of infrastructures development planning into the stage of project implementation smoothly and speedily at the timing of private decision making, a system was inaugurated in FY2011. In FY2014, 27 surveys were supported, including reviews related to the improvement of regional disaster prevention.

#### c. 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 supports efforts to:

(a) gain absolute assessments of the social values of community development activities, and

(b) build a support system with various entities interworking with one another to craft project-type community development activities (regional businesses).

#### (2) Promotion, etc. of regional center formation

a. Developing centers of self-reliant growth of diverse wide-area blocks

The MLIT has promoted development of regional centers as a foothold for the concentration of unique local industrial, cultural and other features in accordance with the "Multi-Polar Patterns National Land Formation Promotion Act." In addition, the development of core cities ^{Note} as defined in the National Capital Region Development Plan continues, by relocating business facilities and concentrating various other functions in the core cities, helping ease excessive concentration in downtown Tokyo to some extent. The development of core cities will continue further. In addition, the

Note A core city is a city located outside the wards of Tokyo that should serve as the core of a reasonably wide area that surrounds its location. (There are 14 core cities.)

MLIT has driven the construction of Tsukuba Academic City to pursue urban revitalization by taking advantage of an accumulation of science and technology in accordance with the "Act on Construction of Tsukuba Science City." Further, environmentally friendly cities are being built along the Tsukuba Express railroad line by leveraging the characteristics of Tsukuba Science City as the pace of urban development accelerates. The Ceremony of the 50th Anniversary of Founding of the Tsukuba Science City was held in Tsukuba City on November 12, 2013. In the Kinki Metropolitan area, on the other hand, the construction of Kansai Science City is underway to form a new foothold for the deployment of cultural, academic and research activity in accordance with the "Kansai Science City Construction Promotion Act." Further efforts to promote the science city continue in a partnership among the ministries concerned, local governments, economic circles and so on pursuant to the "Basic Policy for the Construction of Kansai Science City" that reflects the "Third Stage Plan." In addition, the MLIT promotes the implementation of a development plan based on the "Act on Development of Osaka Bay Areas" to make a district that is complete with the facilities of a global city, good living amenities and more.

#### b. Promoting "Small Stations" development within a village area

To sustain and rejuvenate depopulated villages, etc. that suffer from a progressively diminishing or aging population, the MLIT drives "Small Stations" development in a multi-village area, such as a elementary school district, by relocating the facilities and functions essential to daily livelihood, such as stores and medical clinics, and the places of regional activities within a walking distance, with access to neighboring villages.

#### c. 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.

## 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, 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 farming, mountain and fishing villages

The MLIT implements projects for promoting the revitalization of villages to support the renovation of the existing public facilities, such as closed school buildings, located in handicapped areas (depopulated areas, mountain villages, remote islands, peninsulas and heavy-snowfall areas) to turn them into human interaction facilities, forms axes of human wide-area interaction and partnership through the development of trunk road networks, supplies housing and housing lands to help realize a country life, develops ports and harbors to serve as centers of human interaction and more. It also promotes the creation of new breeds 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 cities and farming, mountain and fishing villages.

#### (3) Promoting regional settlement, etc.

Information on the municipalities that implement projects regarding U-, J- and I-turns and settlement in localities, such as mutual interactions between city dwellers and local residents through participation in community planning activities and exposure to agricultural or forestry experiences is being disseminated from a MLIT Website. Information about dual habitation is also being disseminated ^{Note}.

The MLIT also supports the appropriation of General Social Infrastructures Development Subsidies for the utilization of vacant houses and buildings and disseminates information about the measures taken by local governments in connection with house replacement and dual-area residence, information about nationwide banks of vacant houses and to address the issues of a wide range of regional issues.

#### (4) Introduction of local license plate numbers

In August 2013, the areas in which local license plate numbers are introduced were decided for the second time (10 areas: Morioka, Hiraizumi, Koriyama, Maebashi, Kawaguchi, Koshigaya, Suginami, Setagaya, Kasukabe and Amami) so that the regional names appearing in the license plates can be used as an aid to regional revitalization, etc. License plates carrying the new regional names are scheduled to be released from November, 2014.

## 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 and developing facilities that help add to the safety of local railways.



#### (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, etc. of safety facilities by implementing regional public transport securing, management and improvement projects or offering tax incentives but also the construction, etc. of new stations on those local routes that have high potential needs for railway use by implementing projects designed to activate trunk railways, etc.

#### (3) Subsidizing regional bus routes

Securing and maintaining means of regional public transport, such as public buses, for the benefit of local residents, particularly those with limited access to transport, such as elderly people and schoolchildren, is of critical importance. To help secure and maintain optimal networks of regional transport tailored to specific regional characteristics and conditions, the government has a policy of providing integrated support to the availability of regional transport services (such as interregional bus transport networks) or bus, demand-responsive and other forms of regional transport closely related to trunk transport networks) under a scheme of shared responsibility with local governments. For other routes, relevant financial measures are taken to enable local governments to maintain them at their own discretion.

#### (4) Supporting transport to and from remote islands

To sustain 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). Starting from FY2012, airfare discounts for islanders have been subsidized on the air routes eligible for operational cost grants as part of expanding support to transport to and from remote islands.

Remote island sea routes, a vital means of transport to support islanders' daily living, are now extremely tough to economically manage. The running costs of those sea routes that are anticipated in the red and for which no alternative routes are available are subsidized by regional public transport securing, management and improvement projects. In addition, discounted passenger fares for islanders have been subsidized and port and harbor facilities developed to close gaps from other regions and to add to the convenience of the islanders' lives.

In FY2014, 55 remote island air routes were in service, when compared with 285 sea routes available at the end of FY2013 (120 of which are grant-maintained air routes).

## Section 3 Promoting the Private Urban Development

### Promoting Urban Development by Private Sectors

## (1) Promoting urban development by private sectors based on the Specific Urban Reconstruction 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. To this end, the MLIT singled out 11 areas nationwide as "Specific Urban Reconstruction Emergency Development Areas" in January 2012 to enhance urban international competitiveness. In nine of them (as of the end of March, 2015), development plans were formulated by councils formed in a partnership between the public and private sector.

In Specific Urban Reconstruction Emergency Development Areas, the MLIT supports urban development by private sectors by deregulating the private use of untapped sewage energy sources and the use of road airspaces, offering tax

Note Broad-area trunk bus routes whose maintenance has been justified at a conference and that meets government-established criteria (spanning multiple municipalities, with at least three runs of service a day).

incentives and so on, in addition to the support measures already available to an Urban Reconstruction Emergency Development Area. 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 FY2014, financial support (mezzanine support services ^{Note}) that is extended by MINT (Organization for Promoting Urban Development) to private projects that develop functionalities for augmeting the international centripetal force of foreign language-ready medical care facilities and the like was enhanced to support the formation of global business and livig



environments. At the same time, "Project Supporting the Improvement of International Business Environments, etc. and City Sales" was inaugurated to provide comprehensive support, in terms of both non-structural and structural measures, to the betterment to urban facilities that make for better international business environments, etc. and to city sales.

As of the end of March 2015, a total of 62 Urban Reconstruction Emergency Development Areas were registered in government-ordinance-designated cities and prefectural capitals, including Tokyo and Osaka, hosting a variety of urban development projects by private sectors in steady progress. Mezzanine support services supporting the procurement of middle-risk funds are carried out by MINT.

#### (2) Status of application of the measures to support urban reconstruction projects

#### a. Zoning for Special Urban Reconstruction Districts

A Special Urban Reconstruction District is a new concept of urban district, with greater latitude of zoning, that is exempt from existing zoning restrictions. A total of 73 Special Urban Reconstruction Districts were zoned as of the end of March 2015, 50 of which had been proposed by private entrepreneurs, etc.

#### b. Accreditation of private urban reconstruction project plan

Private urban reconstruction project plans accredited by the Minister of Land, Infrastructure, Transport and Tourism (74 plans as of the end of March 2015) are financially supported by the Organization for Promoting Urban Development or granted 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 implementation of postwar reconstruction land adjustment projects, etc., the scales of these blocks, with the structure of the local streets, are not fully responsive to the prevailing needs, etc. for land usage, transport infrastructures and disaster preparedness. To reinforce the international competitiveness of the big cities, revitalize local cities and seek advanced and effective land usage 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 restructuring of public facilities in accordance with Guidelines for Formation of Larger Blocks and also with Working Reference on Utilization of Larger Blocks for Promoting Community planning.

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 MINT are defined as "mezzanine support services."

## 2 Approaching National Strategic Special Districts

Since the Act on National Strategic Special Districts came into effect in December 2013, the MLIT has been committed to comprehensively and intensively driving drastic regulatory reforms and other measures, including special measures under the Building Standards Act, Road Act and City Planning Act, to target the projects that are pursued by the national and local governments and private sectors working in a united effort in a state-designated National Strategic Special District. In the six zones designated in May 2014 (Tokyo Zone, Kansai Zone, Niigata City, Yabu City, Fukuoka City, Okinawa Prefecture), zonal meetings have been launched in sequence to accredit zonal plans encompassing special measures, etc. for the Road Act and the City Planning Act in the Tokyo Zone and those for the Road Act in Fukuoka City, for example.

## Section 4 Promoting Localized Promotion Measures

## Measures Directed at Heavy Snowfall Areas

The MLIT not only promotes the availability of transport and the development of the living environment and national land management facilities under the "Act on Special Measures concerning Countermeasures for Heavy Snowfall Areas" but also conducts surveys for safe, comfortable community planning. As of April 2014, 532 municipalities were specified as heavy-snowfall areas (201 of which were designated as special heavy-snowfall areas).

## 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.

## 3 Promoting and Developing the Amami Islands and Ogasawara Islands

In addition to continuing with the development, etc. of social infrastructures through implementation of 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 extended and amended in April 2014, the MLIT leverages newly founded 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.

## Promoting Peninsulas

The MLIT supports development of peninsular loop roads, etc. and the promotion, etc. of industries in the peninsular areas under development (as of April 2014, 23 areas spanning 194 municipalities in 22 prefectures) based on the peninsular areas development plans prepared by municipalities in accordance with the "Peninsular Areas Development Act."

The MILT is also committed to conducting surveys, such as those for collecting information necessary to enforce the Peninsular Areas Development Act, and empirical surveys with regard to efforts directed at regional revitalization within the peninsular areas and implementing model survey projects as for industrial development and other activities involving collaboration among various entities. On March 31, 2015, amendments to the Act that stretch its date of expiration and made enhancements to its content came into effect as a law-maker initiated legistration to proceed further with peninsular areas development.

## Section 5 Promoting Comprehensive Development of Hokkaido

## Promoting the Hokkaido Comprehensive Development Plan

#### (1) Initiatives Taken for the Revision of 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.

As part of its continuing effort to push the implementation of various measures pursuant to the seventh phase of the New Hokkaido General Development Plan to User in the Era of the Global Environment (decided at a July 2008 Cabinet Council meeting), the MILT decided to embark on the formulation of a new plan by leveraging discussions at the Advisory Panel of Experts on Future Prospects of Hokkaido Development (publicized in December 2014) in response to changing conditions since, such as the start of work to make amendments to the National Land Formation Plan and the approval of the National Resilience Basic Plan at a Cabinet Council meeting. Intensive surveys and discussions are now underway at a planning panel founded under the Hokkaido Development Subcommittee, National Land Development Council in January 2015.

#### (2) Working to realize the Plan

#### a. Strengthening the total food supply capacities

To strengthen the food supply capacities of Hokkaido that command 25% of the nation's farmland area, the farmland in Hokkaido has been consolidated in larger lots, etc. to augment the productive capacities. The MLIT also supports efforts to create higher added values through the implementation of more advanced expertise of quality control, collaboration with tourism and so on. In addition, the MLIT promotes the development of the infrastructures relevant to tougher logistics. Approaches to fostering food industries include the construction of HOP (Hokkaido export Platform) to facilitate direct, stable export of Hokkaido-made products.

#### b. Creating internationally competitive, appealing tourist sites

Efforts are underway to improve the tourist reception environment in Hokkaido by trimming travel time and easing round-trips through infrastructures development, working on the Scenic Byway Hokkaido campaign and so on to take advantage of the potentials of Hokkaido with its appealing tourist resources, such as scenic beauty and food. In September 2014, a fam trip (invitation tours) was conducted to promote cycling tourism. Regional efforts aimed at promoting Hokkaido as a host to international conventions of conferences (MIC) in Hokkaido are also supported.

# c. Forming a sustainable regional community that lives symbiotically with the nature

The MLIT has driven the conservation and regeneration of moorland environments, the construction of breakwaters conscious of the habitat of aquatic organisms, purification of rivers and lakes and so on to help form a community that A scene of a fam trip in Tokachi in which Taiwanese bicycle industrialists were invited.



lives together with the rich nature of Hokkaido. Efforts to promote the utilization of renewable energy sources have been developed in different parts of Japan, including the opening of a symposium in November 2014 aimed at realizing a hydrogen society.

#### d. Enhanced network and mobility to support internal and external interactions

To achieve the three strategic goals of the Hokkaido Comprehensive Development Plan, the MLIT has driven the development of key transport infrastructures, such as high-standard highways, airports and harbors, the reinforcement of logistic network facilities, etc. effectively in collaboration with various entities. The MLIT also carries on active efforts to add to the safety and reliability of winter-time transportation.

#### e. Building a safe, secure land

Japan has recently been hit by a chain of major natural disasters, including the Great East Japan Earthquake. Hokkaido, too, has suffered heavy snowfalls, severe snowstorms, landslide disasters and wind and flood damages in FY2014 and posing many issues to be solved to be able to form a safe, secure regional community. Hence, the MLIT has promoted disaster preparedness efforts in conjunction with local governments, residents, etc. to make social infrastructures immune to earthquakes, dispatch TEC-FORCE (Technical Emergency Control Force), take integrated packages of flood control and landslide control measures, build reliable networks of roads, reinforce crisis management systems and so on. In addition, since concerns over aging facilities and their maintenance and management continue to loom, the MILT is also pushing relevant approaches, such as those aimed at creating maintenance cycles.

## **Column** Realizing a Hydrogen Society in Hokkaido

Hydrogen grabs growing attention for its possible role in transport and community development as a secondary energy that makes effective use of the potentials of the renewable energy sources occurring in abundance in Hokkaido to ensure a stable supply of energy, an issue of keen concern to our entire nation, and help resolve global warming issues.

On November 20, 2014, therefore, a public sympdium titled "Towards Realization of a Hydrogen Society in Hokkaido" was held in Sapporo City under the sponsorship of the Hokkaido Regional Development Bureau and others with a view to sharing thoughts on approaches to realizing a hydrogen society in Hokkaido, with an attendance of about 300.

The sympodium featured a speech by Mr. Hiroshi Saeki, professor emeritus at Hokkaido University, and panel discussions among representatives of the industry, academia and government.

The speech emphasized an absolute need for measures to combat global warming in order to build a sustainable society and stated, among other things, that, if fossils can be subsituted for by renewable eengy sources available in Hokkaido and hydrogen, then the resultant intra-regional flow of money that would otherwise be paid to overseas to purchase fossil fuels could stir the development of regional economiles.

The panel discussions were coordinated by Mr. Takemi Chikahisa, professor at Hokkaido University Graduate School with representatives of the enterprises connected with hydrogen, such as Iwatani

Gasnetwork Corporation, Toshiba Corporation and Toyota Motor Corporation, joining as panelers. The panel discussed the feasibilities of commercializing renewable energy-derived hydrogen in Hokkaido, its hopes for creating new industries and employment, the contribution of a supply of renewable energyderived hydrogen to a sustainable society and so on, and called for continuous approaches to be taken to achieve these goals from long-range perspectives, with expectations placed on the administrative authorities for steering the approaches.

The MLIT is committed to moving ahead with



Source) MLIT

approaches towards hydrogen-based community development in Hokkaido, such as exchanging views among the industry, academia and government and holding symposiums to support regional efforts.

## 2 Promoting Distinctive Regions and Cultures

#### (1) Promoting the regions neighboring the Northern Territories

The MLIT has driven the implementation of those measures necessary to promote the regions neighboring the Northern Territories in which the desirable growth of a local community has been impeded because of pending territorial issues and to stabilize the living of the local residents in these regions in an integrated manner. More specifically, the MLIT pursues a mix of structural and non-structural measures necessary to take advantage of the structural measures to build appealing regional communities in these neighboring regions pursuant to the Seventh Northern Territories Neighboring Regions Promotion Plan (FY2013 to FY2017), including the promotion of agricultural and fishery industries, development of transportation systems, implementation of public-works projects designed to preserve the national land, etc. supporting the implementation of non-structural measures with funding from grants for the expenditures for promoting project implementations, such as Northern Territory neighboring region revitalization.

#### (2) Promoting the Ainu Culture, etc.

The concepts of the tradition and culture of the Ainu, a source of the pride the Ainu people take, are being disseminated pursuant to the "Act on the Promotion of Ainu Culture, and Dissemination and Enlightenment of Knowledge about Ainu Tradition, etc."

As part of this endeavor, campaigns have been staged to arouse further interest in Ainu culture among more people nationwide and Hokkaido using "i ran karap te," an Ainu greeting meaning "how are you," as a keyword to entertanment in Hokkaido.

Supporting efforts are also underway, such as exploring action programs, as for hands-on exchanges, relating to the tradition, etc. of the Ainu in a "space symbolic of ethnic harmony," on the basis of the "Basic Policy on the Development, Management and Administration of a 'Space Symbolic of Ethnic Harmony' for Promoting the

A publicity campaign at "Tourism EXPO Japan" (Tokyo Big Sight)



Source) MLIT

Restoration, etc. of Ainu Culture" (decided at a June 13, 2014 Cabinet Council meeting) and others.

# Chapter 5 Creating a Comfortable Living Space

## Section 1 Realizing Affluent Residential Living

## Securing Stability of Residential Living and Advancing its Betterment

In accordance with the new release of the Housing Life Master Plan approved at the March 2011 Cabinet meeting, covering FY2011 to FY2020, to reflect the full-scale emergence of an aging society with falling birth-rates, declining population and families, changes in the socio-economic climate such as difficult employment and income environment, needs for housing life support services and more, the MLIT is advancing the implementation of measures aimed at securing the stability of residential living and its betterment with the following goals: a. Building a living environment that supports safe, secure and affluent residential living; b. Proper management and revitalization of housing; c. Preparing the environment for a housing market in which diverse housing needs are properly fulfilled; and d. Assuring the stability of housing for those who require special housing consideration.

#### (1) Building a living environment that supports safe, secure and affluent residential living

To create safe, secure housing and residential environments, we are advancing earthquake-resistant construction of houses and buildings to be better prepared for large-scale earthquakes, while at the same time promoting "Smart Wellness Residences and Cities," where different types of residences—such as households with elderly people, households with disabled people, or households raising children—can interact to create places to live that are safe and healthy. It also encourages the construction of housing with better energy-saving performance, utilization of local wood, etc. to get closer to the goal of realizing a low-carbon society.

The MLIT is also keen to preserve and form townscape and scenic beauty to add to the comfort and affluence of residential life, while enhancing the convenience of houses for people like the elderly living in urban areas, based on the concept of universal designs.

#### (2) Proper management and renewal of housing

While apartment buildings have become a vital mode of housing for the nation as we reached a stock of about 6.01 million apartments (as of the end of 2013), we are urged to respond to a variety of tasks involved in advancing the proper management and renewal of these buildings.

For this, the MLIT is implementing the "Apartment Building Management Optimization and Renewal Promotion Project," which aims to optimize the management and renewal of aging apartments buildings by accumulating success stories of forming consensus to address the challenges regarding apartment buildings.

In order to facilitate the renewal of aging apartment buildings, the "Law to Revise a Part of Laws related to the Facilitation of the Reconstruction of Apartment Buildings"—which contains the establishment of an apartment building premises sale system as well as special provision for easing the floor-area ratio—was established in June 2014 and put into effect in December of the same year. Along with this, the "Guidelines for the Sale of Apartment Building Premises with Insufficient Earthquake Protection" was drawn up and a consultation system is in place for receiving advice from specialists.

## (3) Preparing the environment for a housing market in which diverse housing needs are properly fulfilled

### a. Preparing a market that facilitates the smooth trading of existing houses

Based on the "Used Housing/Renovation Total Plan" (March 2012) and the "Research Report on the Distribution Promotion/Utilization of Used Housing" (June 2013), efforts of (a) and (b) were promoted to set up a market that facilitates the use of existing housing.

In addition to improving the building evaluation technique, in order to establish said improvements in the existing housing market and the home financing market, the "Used Housings Market Activation Roundtable" was held from September 2013 as a means for the private businesses and financial institutions involved in the existing housing distribution to exchange opinions. In March 2015 the results from these discussions were summarized in the "Used Housings Market Activation Roundtable Report".

Also, in the 2014 Tax Reform, in addition to making special provisions for the registration and licensing tax on acquiring existing houses that require a specific level of quality improvement, they have also decided that if an existing house is to have earthquake-resistance construction work done to it after acquisition, that it would be subject to mortgage tax breaks and other special provisions. Also, in the 2014 revision to the taxation system, a preferential measure for the registration license tax related to housing purchases in the buyback-resale business was created as a potential catalyst for expanding the existing housing/renovation market. Further, in the 2015 revision to the taxation system, a new measure was created to reduce the real estate acquisition tax that is imposed on the buyback-resale businesses.

#### (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 FY2014, there were 9,305 telephone inquiries regarding remodeling, 808 calls for checking quoted remodeling costs, and 884 calls for expert consultation regarding remodeling.

In FY2014, there were 2,493 subscriptions to 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, and subscriptions to the large-scale repair work liability insurance program for large-scale apartment building repairs were filed for 618 apartments.

Contractors seeking to be insured are registered with the Housing Defect Liability Insurance Corporation, subject to their possession of a construction business license, proven performance, etc. The Program allows consumers to browse through a list of registered contractors at an Association of Housing Warranty Insurance website as a helpful tool in choosing contractors.

Further, under the "Housing Renovation Business Organization Registration System", we are working on building an environment where 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 are properly managed and information can be provided to the consumers.

#### (b) Developing a market environment in which consumers can purchase existing houses without worry

Consumers who consider the purchase of existing housing may worry about the quality and performance of housing. Therefore, to expand the existing housing distribution market, it is necessary to build an environment where consumers can purchase an existing house without worry.

In order to do this, we are promoting the popularization of appropriate inspections based on the "Existing Housing Inspection Guidelines" (established in June 2013), which are guidelines pertaining to the inspection of current state of housing, so that consumers can get a grasp on the condition of the existing housing.

In terms of the Existing Housing Sale Warranty Insurance System, an insurance package that covers both inspections and warranty to defects, there is a growing variation in insurance products—such as the new insurance product developed in FY2013 which has a shorter coverage period but is relatively inexpensive—which has resulted in an increase in the number of subscriptions, from 4,072 in FY2013 to 8,261 in FY2014.

Like the Remodeling Defect Liability Insurance Program, the Existing Housing Defect Liability Insurance Program allows consumers to search through a list of registered traders at a website to aid in their trader selection.

#### b. Forming long-lasting quality stocks

#### (a) Housing quality assurance

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." At the same time, a housing performance marking program has been put into effect for objective assessment of the basic performance characteristics of new and existing houses, such as earthquake-resistance, energy-saving measures, preventing measures against deterioration, etc. In FY2013, Housing Design Performance Assessment Reports were issued for 195,973 houses to assess them in their stage of design documentation, Constructed Housing Performance Assessment Reports (New House) were issued for 172,361 houses to evaluate them on site inspection, and Constructed Housing Performance Assessment Reports (Existing House) were issued for 324 existing houses.

Disputes arising in connection with houses that have been subjected to a constructed housing performance evaluation are to be promptly and legitimately settled by local bar associations that are a designated housing dispute settlement agency, with support from the Center for Housing Renovation and Dispute Settlement Support. The Center also accepts applications for consultation on housing issues. In FY2014, there were 27 cases of application for dispute processing regarding a house for which a constructed housing performance evaluation report was issued by designated housing dispute processing agency, and 822 cases of consultation regarding a house for which a constructed housing performance evaluation report was issued by the same center.

#### (b) Approaches to longer-lasting 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-lasting Quality Housing") under the "Act on the Promotion of Dissemination of Long-Lasting Quality Housing." (Certified houses in FY2013: 100,029).

We are also supporting progressive approaches to renovation that contributes to the longevity of existing housing.

#### (c) Promotion of wooden housing

In recognition of the national need for wooden housing, as much as 80% of the Japanese people favor wooden housing ^{Note}. The MLIT supports not only the construction of long-lasing quality wooden housing by a group of contractors working in the entire process of housing, from supplying local timber and other materials, to designing and constructing housing, but also the development of human resources relevant to the construction of wooden housing, to create quality wooden stock.

## Column Distribution Promotion/Utilization of Existing Housing

As the number of available houses becomes greater than the number of households and further population decline is expected, it is important to become a society where "good quality is built, well-maintained, and used for a long time."

Within the distribution of all housing (existing housing + new housing), the share of existing housing distribution in Japan is low compared to new housing, and is at very low level compared to countries in Europe and North America. It has been pointed out that in spite of there being actual housing stock available, this stock is not being used for upgrading/moving. For this reason, it is important to vitalize the distribution of existing housing so that existing housing of good quality can be purchased with confidence.



(Note) For 1993, 1998, 2003, 2008, 2013, the distribution amount of existing housing was calculated with numbers for January through September being used to calculate the full-year equivalent. International Comparison of Existing Housing Distribution Share



(Notes) 1 France: For the yearly distribution amount of existing housing, the monthly distribution amount of existing housing was annualized and the yearly average of that number was used.

2 Number of housing transactions was for those with a transaction amount of over GBP40,000. Therefore HMRC—the survey facility providing this data estimates that due to this threshold, 12% of the overall housing transactions do not get included as subjects of the survey. Source) Japan: "2013 Statistical Survey of Housing and Land" by MIC, "2013 Housing

Construction Statistical Survey of Housing and Land by Milo, 2016 Housing Construction Statistics' by MLIT United States of America: U.S.Census Bureau "New Residential Construction",

"The 2011 Statistical Abstract" (2010 Data) http://www.census.gov/

United Kingdom: Department for Communities and Local Government "Housing Statistics" (2012 Data)

http://www.communities.gov.uk/

France: Ministère de l'Écologie, du Développement durable et de l'Énergie "Service de l'Observation et des Statistiques", "Conseilgénéral de l'environnement et du développement" (2013 Data) http://www.driea.ile-de-france.developpementdurable.gouv.fr/

Therefore, for the purpose of sharing the basic directions for expanding and vitalizing the existing housing/ reconstruction market as well as the issues involved, MLIT established the "Used Housing Market Vitalization Roundtable" in September 2013 as a place where those involved in real-estate transactions and financing can have an honest and free exchange of opinions. The results from these discussions were then summarized in a report in March 2015. In this report the roundtable discussions that took place over the 2 years was summarized around the themes of (1) improving building evaluations and getting established in the market, (2) creating a supply of available quality housing and preparing the conditions to promote the distribution of such housing, (3) efforts for the financial aspects in contributing to the vitalization of the used housing market, (4) vitalizing the one-family rental house market, (5) cooperating with regional policy.

Going forward, based on these roundtable discussions, we will continue to hold "Used Housing Market Vitalization Roundtable" as necessary for the purpose of sharing the awareness of current conditions/issues and facilitating mutual role-sharing and cooperation with those involved, as we work to actualize the efforts to vitalize the used housing/renovation market of Japan.

Source) Compiled by MLIT from "Housing Construction Statistics" by MLIT, "Housing and Land Survey" by MIC

c. Making housing available to fill varied dwelling needs and closing gaps between supply and demand for housing

#### (a) Home financing

The Japan Housing Finance Agency offers securitization support services to support the availability of long-term, relatively low fixed-rate home loans from private banking institutions. Its operations include Flat 35 (buy-out type) that consolidates the securitization of housing loan receivables of private banking institutions and Flat 35 (guaranteed type) which supports the private banking institutions themselves becoming the originator ^{Note 1} to handle the securitization. The performance result for Flat 35 (buy-out type) up to the end of March 2015 was 944,489 cases of buy-out applications and 665,259 cases of successful buy-outs, with 329 financial institutions participating. The performance result for Flat 35 (guaranteed type) up to the end of March 2015 was 20,148 applications for insurance coverage and 12,416 cases receiving insurance coverage, with 5 financial institutions participating.

For houses that are entitled to receiving securitization support, 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 the loan on the acquisition of houses that meet any one of the performance requirements: earthquake-resistance, energy-saving performance, barrierfree readiness, and durability/modifiability, for the first years of its repayment (for the first 10 years for long-lasting quality housing).

The Agency also provides services in those areas that are politically significant but that cannot be easily addressed by private banking institutions, such as financing housing designed for disaster recovery or elderly rental housing with supportive services.

#### (b) Housing Tax System

With the housing acquisition environment growing worse, and in order to prop up the existing housing construction, major improvements were made in the 2015 taxation reforms with regard to dealing with the recoil reduction from the 10% increase of the consumption tax rate planned for April 2017, such as extending the tax-free measures for gift tax in the case of gifts from lineal ascendants for housing purchase funds to the end of June 2019, and raising the maximum tax-free limit to JPY300 million. Also, a maximum housing benefit of JPY300,000 cash benefit had been created, along with the expanding of the home buyer's tax break in accordance with the 8% increase of consumption tax rate in April 2014. This applicable cut-off date has now been extended 1.5 years from the year-end of 2017 to the end of June 2019 to match the 1.5 year postponement of the 10% increase in the consumption tax rate.

It is hoped that with these measures in place, the housing acquisition of the younger generation will be promoted and the predictability will get higher for those who are considering housing acquisitions, and that these factors will contribute to the stabilization of the housing market.

#### (c) Preparing the rental housing market

To improve the stocks of owner-occupied houses, such as stand-alone houses and condominium apartments, by making them available for rent in the rental housing market, the MLIT is working to prepare the rental housing market by disseminating the fixed-term housing rental system, developing standard contracts for subleasing ^{Note 2} original rental housing, and developing DIY type lease ^{Notes 3 & 4} guideline.

#### (d) Improving the residential environment by promoting measures against vacant houses

To ameliorate the residential environment which can deteriorate due to an accumulation of vacant houses that are not

Note 4 DIY usually means doing your own repairs, assembling, and home carpentry without the help of professionals, but in this case the DIY-type lease includes instances where the tenant hires a professional to make facility improvements or remodeling according to his/her own preferences.

Note 1 A business enterprise that possesses assets to be liquidated. An originator raises funds by securitizing its assets, by transferring its credit, realestate properties, etc. to a special-purpose company.

Note 2 A rental housing management firm renting a building from its owner (landlord) or else for subleasing and then hiring it out as a subleaser to a sublease (resident).

Note 3 The type of lease where the landlord does not do the repairs but rents it "as is" and the tenant makes repairs and improvements with his/her own funds.

being properly managed, we are working on developing ways to use or dispose of vacant houses and buildings, as well as a consultation system for owners of vacant houses.

#### (4) Assuring housing stability for those who require special consideration for housing

#### a. Supply of public rental housing

To deliver 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, the MLIT set up the Regional Excellent Rental Housing Program as a scheme that complements the public housing and subsidizes the expenses incurred for the development of public rental housing and also for the reduction of the rents.

To provide a housing safety net for those who are obliged to leave their homes because of dismissal or any other reason, the MLIT promotes a single-source information service that gives out information about public housing available to retiring individuals, and rental housing from the Urban Renaissance Agency, in coordination with local branches of Hello Work (Public Employment Security Office), and has also taken measures aimed at stabilizing the dwelling of the retiring individuals.

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 2.17 million houses (FY2012)
Improved housing	Supplies public rental housing to existing residents who are in serious need of housing in a deteriorated residential area.	About 150,000 houses (FY2012)
UR Rental Housing	Supplies quality rental housing that is conveniently located for access to work, focusing on family-oriented rental housing hardly in ample supply from private business entrepreneurs, in major urban areas, as well as develops residential districts (since FY2002, a privately supplied support rental housing program has been launched to support the supply of family-oriented rental housing from private business entrepreneurs).	About 750,000 houses (FY2012)
Agency rental housing	Supplies quality rental housing to fill the regional demand for rental housing.	About 130,000 houses (FY2012)
Regional excellent rental housing	Provides subsidies to private land owners to fund maintenance and other expenses and cover rent cuts to provide excellent rental housing for households consisting of elderly people, child-raising families, etc.	<ul> <li>About 131,000 designated excellent rental houses (FY2013)</li> <li>About 39,000 designated excellent rental houses for elderly people (FY2012)</li> </ul>
(Notes) 1 The number of rental houses managed by the Urban Renaissance Agency includes the subsidized rental housing with high quality for elderly. 2 The number of public rental housings does not include those of the Specified Good Rental Housings and Subsidized Rental Housings with High Quality for Elderly. 3 The Specified Good Rental Housings Institution and Subsidized Rental Housing with High Quality for Elderly Institution were reorganized and the Regional Good Rental Housings Institution established in FY2007.		

#### b. Using private rental housing

In order to facilitate the promotion of smooth move-ins to private rental housing by people such as the elderly, disabled, foreigners and families with small children, we are providing housing assistance such as information services and consultation services through the Housing Assistance Council (48 councils (37 prefectures and 11 cities) established as of the end of FY2014), which is made up of local government, real estate related organizations and housing assistance organizations.

## 2 Supply and Utilization of Good Housing Land

#### (1) Land price trends

The results of the 2015 Posted Land Prices (as of January 1, 2015) for the national average showed that though the residential property prices fell the drop rate had decreased, and for commercial properties that prices had recovered from a decline and leveled out. The average for the 3 major metropolitan areas where prices had made an upward turn last year continued the rising trend for both residential properties and commercial properties. On the other hand, land prices for the rural areas still continue the downward trend, though the drop rate has decreased.

#### (2) Present status and problems in housing land supply

There is a driving shift from the traditional course of policy that promoted a large supply of new housing land to a housing land policy that reflects trends in population and household. 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.

To facilitate wider acceptance of this system, the MLIT is working to clarify things like the tax procedures for handling prepaid rents – a third kind of lump-sum payment next to deposits and premiums.

#### (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.

We also provide information on area management Note that aids in revitalization of the new towns.

## Section 2 Realizing Comfortable Living Environments

## 1 Developing City Parks and Forming a Good Urban Environment

#### (1) Status of development of city parks and approaches to upgrading them

Because city parks are key facilities laid out to fill diversified public needs, national government parks, the development of national government parks, disaster preparedness parks, and the preservation of time-honored cities and green spaces have been implemented efficiently and on a planned basis, with primary emphasis on: a. Building a safe and secure municipality furnished with disaster preparedness parks that could serve as evacuation sites; b. Building safe and secure community sites to address the issues of an aging population with falling birthrates; c. Preserving and shaping a good natural environment that aids in building a recycling-oriented society and addressing global environmental issues; and d. Building sites for advancing tourism that takes advantage of regional characteristics or for inter-regional exchanges or collaboration.

Opening entire area of Michinoku Lakewood National Government Park in June 2014 (Kawasaki Town in Shibata district, Miyagi Prefecture)



As of the end of FY2012, city parks were maintained at 104,099 locations nationwide, covering 121,473ha, or about 10.1m² per capita. National government parks were visited by about 38.13 million people in FY2014, with 17 locations being developed and maintained.

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Note Proactive efforts by residents, business owners, and landowners to maintain and improve the value of the region and its good environment

#### (2) Forming a green urban environment

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 the global environmental issues, such as global warming and biodiversity preservation, and to aim at realizing green-rich city environment by preserving and forming a good natural environment. Specifically, the MLIT is promoting preservation of greenary by advancing the development of green-rich city parks using the social capital development general grant, etc., and utilizing the Special Green Space Conservation District Program, which aims to protect planting of greenery by restricting the construction of buildings or purchasing land, and the Citizen Green Space Program, which makes green spaces available to citizens under contract. Greening of private land is also being promoted through the Green Space System and the District Plan Greening Ratio Ordinance System. Furthermore, we are facilitating the conservation of multi-function agricultural land within urban areas through the Production Greenland Area System.

Along with holding events like national "Protecting Greenery" gatherings and National City Greening Fairs to gain public awareness regarding greening, 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.

## 2 Advancing Roads that Prioritize Pedestrians and Bicycle Riders

#### a. 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.

#### b. Creating a safe and comfortable cycling environment

Bicycles play an important role as an accessible means of transportation, but the number of bicycle and pedestrian accidents in 2013 increased compared to the previous 10 years, pointing to the need for a safer, more comfortable environment for cycling. In light of this, the MLIT is working on making the "Guidelines for Creating a Safe and Comfortable Cycling Environment" (November 2012, MLIT, National Police Agency) more widely known, so that each region's road administrators and prefecture police are encouraged to work on formulating and maintaining bicycle network plans, reallocating road space, and enforcing strict adherence to traffic rules in order to create environments that make bicycle usage safe and comfortable.

#### c. 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.

#### d. 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.
## e. 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.; and (d) preferential measures for the administration of off-street convenience facilities to keep roads and roadside facilities under integrated management.

## **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 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 let the council 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 (as of March 2015, Integrated Urban/Regional Transport Strategies had been formulated or were being formulated in 81 cities), with the stakeholders taking their respective shares of responsibility for implementing measures or projects. 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, and city planning programs.

## (2) Promoting Smart Use of the Roads

Compared to other countries, Japan's road networks are weak, with fewer lanes on expressways and existing networks that are not fully utilized. Specifically, due to the uneven time/space aspects of the traffic demands, there are problems with travel performance, such as traffic jams occurring at certain locations as well as issues of safety, ease-of-use, and cooperation with the districts. For example, currently the amount of time a car is stuck in traffic is approximately 40% of all transit time. Compared to Europe and North America where this figure is approximately 20%, this is a great social loss.



In order to achieve road transit service that is smooth, safe, comfortable and contributes to increasing area vitality, MLIT is moving forward with efforts to further improve the functionality of existing roads by working on developing necessary networks, as well as improving operations and small-scale enhancements.

MLIT is also working on traffic demand management and bottleneck prevention strategies that are based on scientific analysis, in order to make smooth transit possible.

In order to secure safe road transit, the MLIT is putting into effect thorough and efficient accident prevention measures on arterial highways using 'Big Data', such as, for example, prevention against sudden braking. In addition, the MLIT is redirecting traffic on residential roads to expressways that are safer in order to eliminate through traffic while also implementing limits on traffic speed.

To improve the usability of roads, the MLIT is working to improve the service of road guides and rest stops, as well as revitalizing the flow of people and goods by improving access to traffic hubs such as airports/seaports, and developing transport nodes such as station plazas.

Note Short for Light Rail Transit. A next-generation rail transit system that offers excellent characteristics derived from the use of lightrail vehicles (LRV), improvements to rails or stops—such as ease of getting on and out—, punctuality, speediness and passenger comfort.

In order to promote cooperation among local areas, the MLIT is working on accessibility, strengthening including direct connections between expressways and facilities. By being flexible in building additional Smart ICs, we are working on increasing accessibility to the distribution centers and tourism hubs from expressways and on the consolidation and sophistication of measures based on the concept of "compact" and "networked". This is also being undertaken to alleviate traffic jams around the existing ICs. In view of vitalizing the local area by promoting the use of expressways and improving convenience, the MLIT will move forward with directly connecting expressways and facilities based on the appropriate load, especially for areas that have large-scale distribution centers, industrial complexes, and commercial facilities near the expressways.

In terms of the toll system for the Tokyo Metropolitan Area—per the "Basic Policy" of the Arterial Highways Workshop that organizes and unifies toll rate level and start/end points, and starts charging fees in FY2016—we will move forward with concrete planning (For the Kinki Region, we will start sorting through the issues specific to the area in preparation for starting in FY2017).







## (3) 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 regional public transportation assurance, maintenance and improvement projects, to accelerate the improvement of regional public transportation usage environment as part of its barrier-free community planning effort. In FY2014, low floor type cars were deployed by Toyama local railway.

## (4) Upgrading urban railway networks

Urban railway networks have upgraded to a considerable extent to date as they have been refurbished with a primary view to building up their transportation capacities to ease traffic congestion. As a result, traffic congestion in the major metropolitan areas during commuting to and from office or school by train are on the decline, keeping pace with the continuing trends towards an aging population with fewer births. The rate of congestion on some routes, however, remains as high as over 180% and demands continued efforts to mitigate congestion. Efforts in progress include quadruple tracking of Odakyu Electric Railway's Odawara Line and modifications to Tokyu's Toyoko Line, both funded by the Designated Urban Railway Development Reserve Program.

The Kanagawa Eastern lines (Sotetsu - JR/Tokyu Through line) and others have been developed by leveraging the "Act on Enhancement of Convenience of Urban Railways, etc.", a legislation aimed at upgrading the speediness and traffic node functions of existing urban railway networks, to further enhance the urban railway networks, including added user convenience.

The conditions surrounding the urban railways is changing greatly, such as the rising necessity to strengthen the international competitiveness of cities, the progress of the declining birthrate and aging population and the impending era of population decline, as well as an increase in foreign tourists visiting Japan. Within these conditions—in view of constructing an increasingly high quality urban railway network in the Tokyo Metropolitan Area—improving airport access, dealing with train delays, and coordinating with city building have all become urgent issues to be resolved. For this reason, in April 2014, the Council of Transport Policy was consulted regarding the future of the urban railway in the Tokyo Metropolitan Area.



## (5) 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 FY2014, various cities moved forward with the renovation of public transportation networks. For example, Sapporo City built a loop to connect the existing streetcar lines, while Toyama City connected the south side and north side of Toyama Station with streetcars, and Fukui City moved forward with developing mutual accessibility between the streetcar line and the railway.



## (6) 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 a Competitive Economic Society

## Section 1 Constructing Traffic Networks

## 1 Constructing Highways

Since the First Five-Year Road Construction Plan formulated in 1950, 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.

In the meantime, the speed of interurban transportation, an indicator of the speediness of interurban travel, tends to lag in the areas in which trunk road networks are underdeveloped. While European and U.S. freeways each have at least four lanes on average, freeways that have only one lane in either direction account for 30% or more of all freeways in Japan.

Freeways are less vulnerable to accidents involving human casualties than general highways with a probability of about 1 in 10. In addition, they have about two-thirds of the carbon dioxide emissions and about seven times more cars running per lane. Freeways are not only "safe and clean" but serve as a "path to life" in times of disaster. The MLIT is committed to firmly linking freeway networks together and promoting a framework to use them wisely.



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## 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 eighth of automobiles). As New Shinkansen Note, Tohoku Shinkansen (between Hachinohe and Shin-Aomori) opened in December 2010 and the Kagoshima Route (between Hakata and Shin-Yatsushiro) of Kyushyu Shinkansen opened in March 2011, and Hokuriku Shinkansen (between Nagano and Kanazawa) opened in March 2015. Furthermore, the development of the Hokkaido Shinkansen line (between Shin-Aomori and Shin-Hakodate Hokuto) is in steady progress for completion and opening scheduled for the end of FY2015.

For those sections of Shinkansen whose construction started in June 2012 (between Shin-Hakodate Hokuto and Sapporo on the Hokkaido Shinkansen line, between Kanazawa and Tsuruga on the Hokuriku Shinkansen line and between Takeo Onsen and Nagasaki on the Kyushu Shinkansen line), their opening schedules have been acclerated in accordance with "Handling of New Shinkansen Lines" (agreed upon between the government and the ruling party on January 14, 2015). More specifically, the Hokkaido Shinkansen line (between Shin-Hakodate Hokuto and Sapporo) is scheduled to complete and open at the end of FY2030 five years ahead of the end of FY2025 as originally scheduled, the Hokuriku Sinkansen line (between Kanazawa and Turuga) at the end of FY2022 three years ahead of the end of FY2035 as originally scheduled. In the meantime, the completion and opening schedules of the Kyushu Shinkansen line (between Takeo Spa and Nagasaki) will be moved up from FY2022 to the extent possible as works are underway at a steady pace.

The Transport Policy Council, which had debated Chuo Shinkansen since March 2010, came up with recommendations in May 2011 to affirm the appropriateness of Central Japan Railway Company as an entity of its operation and construction, the superconducting maglev method of train operation and the Southern Alps of Japan route. The MLIT responded to name Central Japan Railway Company as an entity of operation and construction for Chuo Shinkansen in accordance with the Nationwide Shinkansen Railway Development Act, and decided on the Development Plan and directed Central Japan Railway Company to embark on construction. Central Japan Railway Company, which expects to open its Shinkansen routes between Tokyo and Nagoya in 2027 and between Nagoya and Osaka in 2045, sent an environmental effect assessment report to the MLIT pursuant to the Environmental Effect Assessment Act with regard to the railway between Tokyo and Nagoya. In July 2014, the Minister of Land, Infrastructure, Transport and Tourism released his views to

Central Japan Railway Company ("JR Tokai") with the Environment Minister's view expressed in June 2014 taken into consideration. JR Tokai responded by publicizing and making available for public inspection an environmental assessment report edited to reflect the views of the Minister of Land, Infrastructure, Transport and Tourism in August of the same year and, at the same time, file and application for "Plan for Constructing the Chuo Shinkansen Line Section between Shinagawa and Nagoya Stations (No. 1) to the MLIT, which was approved by the Minister of Land, Infrastructure, Transport and Tourism in October of the same year. Preparations are underway to get construction works started on a full scale.



Note Five routes that are stipulated in the Development Plan approved in 1973 pursuant to the Nationwide Shinkansen Railway Development Act.

### Column 50th Anniversary of Tokaido Shinkansen

In October 2014, the Tokaido Shinkansen line had its 50th anniversary of founding since it opened in 1964 between Tokyo and Shin-Osaka as a "dream superexpress train."

Linking Japan's three largest metropolitan zones of Tokyo, Nagoya and Osaka with one another, Tokaido Shinkansen has carried as many as 56 billion passengers during the following 50 years, escalating people's opportunities for exchanges to make for further national economic advances and broader spheres of national livelihood as a lifeblood system of rapid transport.

Tokaido Shinkansen started out with two services an hour or 60 services a day but grew to offer a maximum of 15 services a day or 324 a day. Its maximum speed also advanced from 200 km/hour in its initial days of opening to 285 km/hour, trimming the time to travel between Tokyo and Shin-Osaka from 4 hours to 2 hours 22 minutes at the shortest for faster transit and better convenience (train schedules revised in March 2015).

Furthermore, Tokaido Shinkansen has not only suffered a single instance of passenger death accidents but also boats of excellent records of safety and punctuality, with its average delays held to less than 1 minute, despite its extremely tight train service schedules of 15 services an hour). It is also characterized by extremely low carbon dioxide emissions when compared with other means of transport.

The growth of Tokaido Shinkansen has influenced the subsequent development of other New Shinkansen lines. In the wake of Tokaido Shikansen, the Sanyo, Tohoku, Joetsu, Hokuriku (Nagano) and Kyushu Shikansen lines have been developed in sequence. Among them, Hokuriku Shinkansen line (between Nagano and Kanazawa) came into service on March 14, 2015. Hokkaido Shinkansen (between Shin-Aomori and Shin-Hakodate Hokuto) is scheduled to follow suit at the end of FY2015, when the nation will be united as one by Shinkansen lines, from Hokkaido down to Kyushu.

The Hokkaido Shinkansen line (between Shin-Hakodate Hokuto and Sapporo) is scheduled to complete and open five years ahead of the end of FY2035 as originally scheduled, the Hokuriku Sinkansen line (between Kanazawa and Tsuruga) three years ahead of the end of FY2025 as originally scheduled. In the meantime, the completion and opening schedules of the Kyushu Shinkansen line (between Takeo Spa and Nagasaki) will be moved up from FY2022 to the extent possible.

The nation's network of Shinkansen lines promises a further leap as the construction of the Chuo Shinkansen line (between Tokyo and Nagoya) running on a superconducting maglev method of train operation started in December 2014.



Coin made in commemoration of the 50th anniversary of the opening of Shinkansen

## (2) Driving technical development

## a. Superconducting maglev trains

Running tests for superconducting maglev trains had been carried out on the Yamanashi Test Line since 1997. The Superconducting Magnetic Levitation Technological Practicality Evaluation Committee that met in July 2009 concluded that the "development of the technologies prerequisite to driving superconducting maglev trains to the stage of practical usefulness, including their operation as super-fast mass transit system, are in sight." Since August 2013, a running test has been in progress on the entire Yamanashi Maglev Test Line to make a final verification of the practical specifications of the cars, propulsion coils and more.

## b. Free Gauge trains

Technological development of free gauge trains capable of through operation from Shinkansen railway line to conventional railway line and vice versa is underway for completion scheduled for service on Kyushu Shinkansen and Hokuriku Shinkansen. Efforts started in FY2014 will be carried forward to drive technological development for verifying the durability of free gauge trains on the Kyushu Shinkansen (Nagasaki route). In addition, technological development activity meant to address snow hazards (snow and cold resistance) will get into full swing for running on the Hokuriku Shinkansen.

## 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.

## (1) Expanding aviation networks

## a. Enhancing metropolitan airports functionalities

To beef up Japan's competitiveness in the global arenas of business and tourism, enhancements to the functions of the metropolitan airports, a prime impetus to propel Japan's growth, are contemplated. Annual total number of arrival and departure slots at Tokyo International Airport and Narita International Airport to 750,000 has been achieved in March 2015.

Additions to the international passenger terminal building at Tokyo International Airport (Haneda) elevated the number of boarding/alighting slots on the international lines by 30,000 to 450,000 a year from March 2014, allowing around-the-clock deployment of long-haul Asian routes and high-demand business routes bound for the U.S. and Europe. In December of the same year, an extension to Runway C was commissioned into service. Efforts will continue to develop an international and domestic line connecting tunnel to augment the international and domestic line transit functionality.



Narita international Airport realized 300 thousand arrival and departure slots a year in March 2015 thanks to the development, etc. of an LCC terminal. Efforts will continue to consolidate its position as a hub airport in Asia by making further of enhancements to the network international and domestic airlines, including LCCs.

Even after the attainment of 750,000 arrival and departure slots, approaches will still be underway to build up the functionalities of the metropolitan airports, including their competitiveness, deliver the potentials of global growth to Local Areas, realize the governmental goal of 20 million foreign visitors to Japan and stay best prepared for the 2020 Olympic and Paralympic Games.

Technical discussions had been held at a committee composed of scholars and experts to explore ways to enhance the functionalities of the metropolitan airports. The committee came up with an interim report in July 2014, stating, above anything, that the number of arrival and departure slots could be inreased by as many as 79 thousand by 2020 by reviewing runway operations and flight routes at Haneda International Airport, boosting the control functionalities of Narita International Airport and so on. Subsequently, a council composed of representatives of the local public entities concerned, airlines and the





like was set up in August of the same year to embark on continuing consultation with the parties concerned.

## b. Driving the Open Skies strategically

The Ministry has strategically pursued the Open Skies ^{Note 1}, including metropolitan airports, 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 27 nations and regions ^{Note 2} were realized by March 2015. Discussions with ASEAN started in October 2014 with a view to concluding an air service agreement between Japan and ASEAN.

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Note 1 An agreement on mutually removing bilateral constraints on the number of operators, that of routes and that of flights in international air transportation to enhance the quality of services, such as cutting airfares by encouraging the entry of new airlines, increasing the number of flights and stimulating competition between airlines. In recent years, many countries in the world pursue its implementation.

Note 2 The number of passengers flying to and from the 27 nations and regions accounts for about 94%.

## c. Realizing concessions related to Kansai International Airport and Osaka International Airport

On July, 2012, Kansai International Airport and Osaka International Airport merged into a New Kansai International Airport Co., Ltd. with a view to rejuvenating and reinforcing Kansai International Airport as an international core airport and expanding the demand for air transportation in the Kansai district through appropriate and effective utilization of the two airports. The New Kansai International Airport Co., Ltd. is now operating in an integrated manner.

The newborn company has moved ahead with positive measures, such as expanding passenger networks, including LCCs, and turning into a cargo hub airport, in its bid to augment the corporate value of these two airports. It developed and announced the Implementation Policy based on the "PFI Act" on July 25, 2014 and developed and started distributing the Application Guidelines on November 12 of the same year. On December 26, 2014, the company proceeded with procedures for bidding and selecting the Operating Right Holder, such as disclosing the Participation Requirements Screening Results, expecting to commission port administration as a concession by the end of FY2015.

## d. Present status of airport development

For the development of general airports (other than metropolitan airports), MLIT has shifted its emphasis from quantitative to qualitative enhancement, mainly implementing appropriate mix of measures on facilities, equipment, laws and regulations and promoting effective use of existing airports. New projects including the construction of new runways and extension of existing runways will be conducted only when absolutely necessary.

The construction of the new runway at Naha Airport, which started in January 2014, were carried forward into FY2014. On the other hand, the environmental assessment procedures on the construction of the new runway at Fukuoka Airport have been implemented to mitigate the chronic airport congestion at peak times. Also, MLIT has been renewing or renovating aging airport facilities to ensure airport operation safety, while pushing forward with quake-resistant technologies and structures so that airports can maintain their operations at the time of natural disasters, including earthquakes. Furthermore, it has been promoting relocate or change the internal layout of airport terminal area in order to enhance Japan's international competitiveness and regional competitiveness in the hinterlands of the airports.

## e. Fostering and securing aircraft pilots, etc.

Rapidly expanding LCCs and those regional airlines that have structural difficulties seucring pilots in Japan's aviation industry are faced with a shortterm undersupply of pilots. In 2014, Peach Aviation and Vanilla Air had to trim their flights due to pilot shortages.

While drastic leaps in the demand for aviation focusing on international lines and massive retirement of pilots in their 40s, who form a primar workforce at present, are predicted in the future, it would be difficult to fully fill the future demand for pilots with the present yearly supply of new pilots. Hence, a solution to middleand long-term shortages of pilots is sought.

In the circumstances, the Joint Subcommittee for Studying Crew Policies, etc. was formed under the Basic Policy Taskforce and Technology and Safety Taskforce, Aviation Group, Transport Policy Council in December 2013 to explore directions in the specific measures to address shortages of pilots, etc. The





subcommittee came up with a report in July 2014, which pledges to take these approaches.

Approaches to resolving a short-term undersupply of pilots will include using Self-Defense Force pilots or foreign pilots or hiring active pilots under enhanced health management, etc. to secure pilots ready for work.

Solutions to address a middle- or long-term under sypply of pilots will include fostering pilots efficiently at airlines, expanding the supply capacities of private training institutes, such as private colleges and making more resort to the Civil Aviation College to expand the supply of young pilots.

Furthermore, the Aircraft Pilot Training Liaison Conference launched in August 2014 to promote collaboration among stakeholders concernred, including airlines and training institutes, and probe and resolve the various challenges of training and securing pilots, etc.

## (2) Enhancement and optimization of airport operations

## a. 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 non-airline 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. In the meantime, procedures are underway at Sendai Airport for publicly seeking and selecting the Operating Right Holder with a view to commencing the Airport Operating Business by the holder within FY2015.

## b. Encouraging LCC entry

An LCC originating from Japan went into service in March 2012. As of March 2015, Peach Aviation operated 12 domestic routes and seven international routes, JetStar, 19 domestic routes and one international route, Vanilla Air, three domestic routes and four international routes and Spring Airlines, three domestic routes as of March 2015.

The accelerating entry of LCCs could create new demand for aviation by attracting more tourists visiting Japan, expanding domestic tourism and so on. Government-set goals dictate that "domestic LCC passengers account for 14% of the total number of airline passengers in 2020, with international LCC



passengers accounting for 17%." Various measures have been taken by Japan and at the individual airports to encourage the entry of LCCs.

Two principal governmental measures being implemented or explored are summarized below. The first measure is the lowering of the landing fees during FY2013 with regard to mainly used equipment (up to 100 tons) aimed at revitalizing local communities by maintaining local routes and supporting LCCs, and FY2014 as well.

The second is the promotion of airport management reforms. Many of Japan's airports are managed by the central and local governments, contemplating the keep their runways and airport buildings under integrated management and launching strategic airfare plans and sales campaigns in conjunction with private businesses in a bid to attract LCCs. In addition to these measures, each individual airport has also taken two key steps to create an environment for hosting LCCs. One is the construction of LCC terminals. FY2012 witnessed the launch of an interim LCC receiving facility at Narita International Airport, Japan's first LCC terminal (T2) at Kansai International Airport and an interim LCC terminal leveraging existing facilities at Naha Airport. Terminal 3 (LCC terminal) at Narita International Airport is scheduled to

come into service on April 8, 2015. In addition, the construction of LCC terminals (T3) is being contemplated for Kansai International Airport for completion by the end of FY2016. The feasibility of constructing new LCC terminal is being explored at Chubu International Airport as well. The second is the reduction of the airport facility fees, including landing fees. Efforts that began in FY2013 continued into FY2014 to mark down or review the airport facility fees, including landing fees at Narita International Airport and Kansai International Airport.

## c. 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, the need to attract investment from overseas is beginning to win wider recognition than before, instead of conducting a one-sided exchanges, such as building a plant overseas. Hence, the importance and potentials of business jets in Japan will grow from a viewpoint of consolidating economic growths in the Asian regions from now on.

Comparisons of the status of business jet ownership by country, however, show that only 54 business jets are registered in Japan (in 2014), against the largest owner U.S. with about 19,000 business jets registered in the same year. Business jets are, thus, yet to be popular in Japan.

Structural measures have been implemented and regulations eased to get better prepared for hosting business jets flying into metropolitan airports.

The Ministry will consider phasing in measures designed to accelerate the reception of business jets at the airports nationwide, as they are practicable, with reference to the measures taken in overseas while exploring measures to consolidate the usage of business jets, such as disseminating information proactively and easing regulations relevant to business jets.

## **Column** Business Jets Made More Convenient to Use at the Tokyo International Airport

The MLIT has taken the approaches outlined below for this fiscal year to make business jets more convenient at the Tokyo International Airport.

A traffic line furnished with dedicated CIQ facilities opened in the premises of the international passenger terminal on September 30, 2014. Operations have also been revised to assign one spot before the international passenger terminal to business jets using the dedicated traffic line on a priority basis. Consequently, the time spent by business jet users can traveling within the airport has been cut by about 30 minutes.

Further, spots were added for six large business jets to park on March 5, 2015, in addition to existing spots for three jets, thereby allowing a total of nine jets to be parked. At the Narita international Airport as well, spots were added for large business jets to park on June 26, 2014.

On September 18 of the same year, a new access road was commissioned into service to allow vehicles to travel more efficiently within the airport. The access road has trimmed the time needed to travel between the dedicated business jet terminal and one of the business jet parking spots from about 16 minutes to about 8 minutes. In addition, two parking spots were added for use in getting on and off a business jet. Using these spots will cut the time needed to travel to the dedicated business jet terminal to about 5 minutes.

These approaches are expected to spur more inbound tourists to visit Japan aboard business jets.



## (3) Constructing air traffic system

## a. Building a new air traffic systems

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 Renovative Air Traffic Systems) with a view to realizing a globally interoperable air traffic systems and addressing increases in long-term demand for air traffic capacity and diversified needs for. Studies are underway to make this vision come true in conjunction with the ICAO's Global Air Navigation Plan (GANP).

Specifically, the possible installation and deployment of high-standard area navigation (RNAV) and RNAV for small aircraft have been debated in order to cut flight duration and fuel consumption by shortening flight path and to achieve further improvement of the flying rate through relaxing the landing limit imposed due to the land features and weather conditions. In addition, plans on how to optimize the order and time of aircraft arrivals and departures and how to mitigate delay on the ground have been explored in an integrated manner to make effective use of limited resources, such as airport runways and arrival and departure slots, and provided added puncuality. New networks for sharing air traffic information around the world are also being probed.

## b. Pursuing enhancing metropolitan airport capacities

As continual effort directed at expanding the capacities of the metropolitan airports and airspaces, a yearly arrival/ departure capacity of 447 thousand times was achieved at Tokyo International Airport (Haneda) in March 2014. At Narita International Airport as well, simultaneous parallel departure procudure has been introduced since October 2011 to enhance annual capacity without expanding noise-impacted zone and achieved a yearly capacity of 300,000 arrivals/ departures in March, 2015 with the two runways currently in service by the familiarization with this method of aircraft operation and deployment of equipment which can monitor aircrafts with high precision.

Specific studies will proceed towards to pursue further functional enhancements to the metropolitan airports.

## (4) Strategic promotion of international aviation measures

The Asia-Pacific region is considered to grow into the world's largest aviation market before not too long. In the circumstances, what is of strategic importance to Japan is 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.

Because unified public and private approaches are essential to winning orders, efforts have been made to collect information and consolidate bilateral ties at the primary initiative of the Council for the International Deployment of Aviation Infrastructures.

Activities in FY2014 include conducting a top sales campaign in Mongol (April 2014) and holding a business seminar in the Philippines (February 2015).

## 4 Facilitating Traffic Access to Airports

Plans are presently being pursued to construct the Downtown Through Line to directly connect the center of Tokyo to the metropolitan airports to allow transfer-free swift travel, which will make Tokyo International Airport (Haneda) and Narita International Airport more readily accessible to downtown Tokyo and consolidate the location competitiveness of the center of Tokyo, thereby facilitating the attraction of global businesses into Tokyo and revitalizing the Japan's economy.

In addition, ways to improve access to Kansai International Airport have been surveyed and explored.



## Section 2 Implementing Comprehensive and Integrated Logistics Policies

In June 2013, the Framework for General Measures for Logistics (2013-2017) was approved at a Cabinet meeting to offer a quick, precise solution to the prevailing conditions of logistics, such as deepening global supply chains, growing urges to combat global warming and assuring safety and security. Pursuant to this framework, the implementation of logistics Measures has been driven in a comprehensive, integrated manner in a public-private partnership.

## 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 under way, 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.

While the urge for Japanese logistics companies to expand into global markets mounts, certain problems need to be resolved, including institutional constraints placed in the partner countries, before high-quality logistics systems can be deployed in the Asian nations. The MLIT seeks to refurbish the environment to encourge overseas deployment, etc. of Japan's logistics systems in a government-private partnership, through the implementation of Asian logistic pilot businesses, policy dialogs at a governmental level, logistics personnel fostering businesses and so on.

## (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 key sea routes making fewer calls at Japan. Further, 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 key 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.

## a. Enhancing the facilities of strategic international container ports

To strengthen Japanese industrial competitiveness and to maintain and create citizens' employment, the key international routes of marine container transportation that link Japan to North America, Europe and else need to be consistently maintained and even expanded.

To address this need, Hanshin Port and Keihin Port were selected to be an international container strategic port each in August 2010 to implement a fully package of structural and non-structural measures, including the construction of deepwater quays and efficient port management. Under the circumstances where ports of call for international backbone

Note A generic term covering cargoes that ship in bulk, such as grains, iron ores, coal, oils and timber.

routes had been narrowing down because ships were becoming larger and collaboration between shipping companies progressing, the International Container Strategy Port and Harbor Policy Promotion Committee released its final conclusions in January 2014 focusing on the three key principles of "concentration," as by picking up cargoes at strategic ports from sources over a broad area, "creation," as by integrating industries in the hinterlands of strategic ports, and "increased competitiveness," as by reinforcing the functionalities of deepwater container terminals or creating a government system of investment into port management companies.

Reflecting the committee's discussions, the Law for Making Partial Amendments to the Port and Harbor Law was enforced in July 2014, allowing national governmental investment into the port management companies at international container strategic ports, adding warehouses that involve distribution and processing in the vicinity of piers at international container strategic ports to a list of facilities eligible for the interest-free loan program and so on.

In October 2014, special port operating companies at Hanshin Port merged with one another to incorporate Kobe-Osaka International Port Corporation, which works to book cargoes at Hanshin Port by leveraging the International Strategic Port Competitiveness Enhancement Project ^{Note}. In December 2014, the government made an investment in Kobe-Osaka International Port Corporation to craft a scheme of collaboration among the government, port management body and he private sector.

From now on, the international container strategic port and harbor policies will be deepen and also initiatives be accelerated.

## b. Forming a marine transportation network for moving resources, energy sources and so on with stability and efficiency

In a globally tight supply and demand climate for resources, energies and so on, importing these materials with stability and at low cost has become an pressing issue for Japan, because the nation depends on imports for virtually all of her requirements for these materials.

Japan is, therefore, committed to forging a marine transportation network to move resources, energy sources, etc. with stability and efficiency by building large vessel-ready port and harbor facilities of core importance, by encouraging interbusiness collaboration and so on. On December 1, 2013, the amended Port and Harbor Act came into effect to this end, along with associated cabinet orders and ministerial ordinances. The Act authoriizes the Minister of Land, Infrastructure, Transport and Tourism to name designated cargo import ports as import sites for bulk cargoes, such as coals, and also stipulates measures, etc. in support of such ports. On December 19 of the same year, Onahama Port, which had been selected to be one of the international bulk strategic ports, was named the nation's first designated bulk import port (coal). On December 4, 2014, Fukushima Prefecture, the port manager, created and publicized a joint shipping plan utilizing large vessels in an inter-business partnership. As for port development, the construction of two international physical distribution terminals was commenced, one was 18 meters deep at Onahana Port for handling coal starting from FY2013 and the other is a 14 meter deep at Kushiro Port for handling grains starting from FY2014. The goal is to realize a stable, low-cost supply of imports and thus build up Japan's industrial competitiveness, create more employment and prevent outflow of earnings abroad.

## c. 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. The progress and other aspects of the plans formulated by port managers will be followed up from now on.

## d. Building an integrated logistics information platform

An integrated logistics information platform that combines Nippon Automated Cargo Consolidated System (NACCS), with Container Logistics Information Service (Colins) is being built in order to improve the efficiency of system administration and user convenience.

## e. Enhancing functionalities of international ports

The MLIT not only develops international physical distrubition 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 ehnacing 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.

## f. 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.

## (3) Developing advanced aviation logistics facilities to pursue increased international competitiveness

The MLIT pushes efforts to consolidate the functionalities of the metroplitan 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 postively capture airfreight originating from and arriving in Asia as it promises further leaps.

## (4) Strategic development and utilization of a logistically important road network

Building an efficient logistics network is of crucial importance to motor-truck transportation, which accounts for about 80% of domestic transportation. Because of this, the construction of ring roads in the three major metropolitan areas, access roads to airports and ports, etc. is underway. In October 2014, "road network for vehicles exceeding the weight and size limits" were separately designated among these roads to simplify the procedural routine for issuing passage permits for those large-sized vehicles using roads in these sections. Such sections are to be expanded and traffic-impeded sections will be resolved on a planned basis from now on. Efforts are also underway to utilize and upgrade existing road networks, including the construction of smart ICs.

## (5) Measures that help consolidate international logistics facilities

The urgent formation of logistical plans, in which international logistics is efficiently combined with domestic transport modes of land, sea and air, is being pursued. This includes propelling the development of the mutual passage of chasses (trailing trucks without a power drive) to and from Korea and China and the use of a sea and rail scheme under which marine transportation is coupled with railway transportation.

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 competiveness 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.

A unit loading terminal is a terminal ready for the scheme of transportation in which freights are loaded and unloaded, unitized, Note in chasses, containers or the like, to make their physical distribution faster and more efficient.

## 2 Measures Aimed at Building an Efficient and Sustainable Logistics System in Japan

Additional approaches are underway to build an efficient logistics system in Japan to enhance Japan's industrial competitiveness while decreasing 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 multimodal 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 Tokyo Port and elsewhere to consolidate coordination between marine transportation and other modes of transport. In addition, the MLIT works to drive modal shifts, as by approaching various issues relevant to alternative transportation in case of rail transportation accidents.

Key road networks will also be constructed to streamline the flow of truck transportation.

## (2) Streamlining the inner-region logistics including inner-city logistics

Urban distribution centers ^{Note 1} have been developed in 22 cities and 29 locations (27 of which were already in service by the end of March 2015), 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 2014, municipal ordinances had been amended in 89 cities to dictate the installation of parking spaces for cargo handling at commercial installations within a certain scale or larger.

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, non-structural 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.

In depopulated areas or the like., local residents find it increasingly difficult to make day-to-day shopping, etc. while the efficiency of physical distribution continues to decline. Starting from October 2014, the "Review Panel on Sustainable Logistics Networks in Support of Communities" has been organized to maintain and upgrade home delivery services through collaborations between operators and NPOs and other entities and to explore new transportation systems instrumental in support, etc. of shopping-handicapped residents.

At the same time, case studies of excellent endeavors have been publicized to encourage local public entities and operators at work.

## (3) Further efforts to implement logistic services that are more sophisticated and that deliver better total efficiency

To accelerate the implementation of the 3PL business ^{Note 2} further, the Ministry not only arranges for the environment in which logistic companies find it easier to make inroads into the 3PL business easier, by hosting human resources development and training sessions, creating guidelines for small and medium business companies to enter the EC market and so on, but also seeks to generalize and simplify the logistic flow through a system of accreditation for total efficiency plans ^{Note 3} in accordance with the Act on the Improvement of Urban Distribution Centers. As of the end of February 2015, 249 total efficiency plans were accredited in accordance with the Act.

Note 1 A facility built at an appropriate site, for instance one near a freeway interchange, as a large-scale physical distribution center in which logistic facilities, such as truck terminals and warehouses, are concentrated.

Note 2 Third-party logistics: An outsourcing service that undertakes a fully integrated flow of physical distribution of cargoes from the cargo owners.

**Note 3** A plan that is committed to integrating and expediting physical distribution mainly at a physical facility located in the vicinity of a social infrastructure, such as an expressway interchange or port, as by installing information systems, disaster prevention facilities and the like while seeking concentrate transportation networks and share shipping and delivery operations.

Studies are underway to explore how to introduce the concept of KPIs into the physical distribution industry so allow physical distributors and cargo owners to work in accord to simplify their flow of physical distribution activity.

## (4) Measures for Labor Shortage in Logistics Sector

Under the influence of falling birthrates with aging populations, concerns over shrinking workforces are looming mainly in the trucking and domestic shipping sectors. The MLIT addresses these situations by developing effective public relations campaings that emphasize the social significance of logistics, by simplifying and automating the workflow of logistics by promoting modal shifts and joint transportation with several shipping companies, and by reducing redelivery and so on. Further, MLIT has compiled a specific package of government-private measures to be taken in the future at its Logistics Problem Survey Workshop and published it as "Action Plan to Counter Labor Shortages in the Logistics Sector."

## Section 3 Reactivating Industries

## 1 Trends in Railway Industries and Measures

## (1) Railway business

## a. Trends and measures in the railway business

The number of railway passengers carried in FY2013 increased from its year earlier level. At Japan Railway, transportation on Shinkansen increased while transportation on conventional railway lines increased slightly, with transportation on private railways on the increase.

The volume of railway freight transportation during FY2013 rose from its year earlier level in both the number of tons and that of kilograms carried a year for reasons, such as last-minute demand before the consumption tax increase, truck driver shortage and so on.

The railway operators are working to present guidance information in multiple languages, show route and station names along with their alphanumeric notation, offer free public wireless LAN services and more in their bid to achieve further leaps through enhanced railway competitiveness, collaboration with livelihood services and so on and to better receive inbound foreign tourists. 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.

## b. Initiatives towards the complete privatization of Japan Railways

The individual companies of Japan Railways incorporated upon breakup and privatization of Japan National Railways in April 1987 have carried on their respective management efforts to meet their own regional conditions and management climates over the following more than 25 years. In the meantime, East Japan Railway Company, Central Japan Railway Company and West Japan Railway Company were completely privatized when the sale of the capital holdings of Japan Railway Construction, Transport and Technology Agency (JRTT) completed, but measures have been taken for the time being to keep the Japan Railways companies in mutual partnership and collaboration, assure user convenience, care for smaller enterprises and so on in consideration of the background of the Japan Railways reform.

Hokkaido Railway Company, Shikoku Railway Company, Kyushu Railway Company and Japan Freight Railway Company, on the other hand, carry on their respective efforts to increase revenues and cut costs. In the light of the social significance of the roles these companies play, such as securing means of local transportation and driving railway freight transportation having low environmental loads, necessary aids have been extended to them to reinforce their management structure and thus make them economically viable by leveraging funds from the JRTT Special Services Account since FY2011 in accordance with the Act on Treatment of Debt, etc. of JNR Settlement Corporation, in addition to the fixed property tax breaks already in effect.

## (2) Railway vehicle industry

The volume of newly built railway vehicles by value moved flatwise for domestic shipment and varied depending on the status of orders for overseas shipment. Production by value in FY2013 stood at 192.6 billion yen (1,692 vehicles), 80% (154.2 billion yen) of which was domestic-bound and 20.0% (38.4 billion yen) was export-bound, former rising 2.9% over FY2012 and the latter 10.7% over FY2012.

Production of railway vehicle parts (such as power generators and bogies) was 252.4 billion ven by value, that of signal protection devices (such as automatic train control devices and electrical interlocking devices) was 132.5 billion yen.

Rolling stock builders 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 and service sites in the U.S., U.K. and elsewhere with the recent order taking for overseas projects as an impetus.

#### Trends in Motor Truck Transport Business and Measures 2

## (1) Passenger vehicle transport business

## a. Motor bus business

Demand for motor bus transportation, which is represented by the number of passengers carried and operating revenues, remained on the decline in pace with changes in the urban structure, such as a hollowing of the central area of a city, and increased ownership of private cars with the progress of motorization. While business activity remains sluggish, the climate surrounding the motor bus business remains extremely harsh.



. 30 buses for that fiscal year

2 The number of passengers carried in the three major metropolitan areas is an aggregate total for Saitama, Chiba, Tokyo, Kanagawa, Aichi, Mie, Gifu, Osaka, Kyoto and Hyogo. Source) MLIT

### b. 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. Further, as group tours continue to get downsized and travel goods are lower-priced, transportation revenues have been declining. In addition, upsurges in the fuel charges continue to toughen the business climate surrounding the chartered bus business.

On the basis of the discussions at the Review Panel on the Future of the Bus Service that met in the wake of the April 2012 Kanetsu Expressway rapid tour bus



accident, the Rapid and Chartered Bus Safety and Confidence Recovery Plan was worked out to carry on two-year efforts intended to add to the safety of rapid and chartered buses in FY2013 and FY2014.

## c. Taxi business

As for the taxi business, amendments to the "Act on Special Measures Concerning Rationalization and Revitalization of General Passenger Vehicle Transportation Businesses in Designated Districts" enforced in October 2009 were passed as a lawmaker-initiated legistlation at the 185th extraordinary session of the Diet in 2013 to upgrade the drivers' working conditions, enhance the level of taxi services and so on, and came into effect in January 2014.

The MLIT seeks to resolve the problems of the oversupply of taxes and upgrade services and safety on the basis of statutory regulations and collateral resolutions made at both Houses of the Diet.



## (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 2014, 8,890 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.

## (3) Truck transport business

The number of motor truck carriers had been on the rise for long, but the number of newcomers and that of retirees have equaled since 2008, with the number of carriers moving crabwise at about 63,000.

While carriers are kept in an increasingly harsh management climate under the influence of light oil price hikes, etc., various countermeasures have been taken, including encouraging the introduction of fuel surcharges to pass on light oil price hikes to the freight charges and saving energy requirements in motor truck transportation to back up the carriers in their effort to improve fuel efficiency.

The MLIT will seek to rationalize the market, as by promoting and diffusing the practice of exchanging documents in writing and toughning checks made at the



launch of a business on the basis of discussins made at the Expert Council for Rationalization and Reactivation of the Trucking Industry and also upgrade the working environment and educate motor truck carriers more intensively to secure and foster truck drivers feared to run short in the future.

## (4) Securing and fostering bearers of motor carrier busineses, 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 business is feared to occur in the future.

In the light of these circumstances, the MLIT has defined the year 2014 as the "first year of human resources securing fostering" and worked out its future approaches to analyzing current status across these businesses, identifying problems, enouraging the work of younger and female workers and so on.

The MLIT has also opened a website, called "Female Truck Driver Promotion Project Site," that tells female job applicants how to become truck drivers and also introduces how active female truck drivers are at work. Preparing pamphlets that help business operators to improve their workplace environment is another measure taken by the MLIT to secure bearers of the truckng business. Campaings made in respective automotive maintenance include visititing high-

school principals and other key persons in a public-private collaboration to promote the work of the automotive maintenance business using explanatory pamphlets and preparing automotive maintenance publicity posters appealing to females and asking them to be posted at sites of local public entities, in public transportation facilities and elsewhere.

Fi	Figure II-6-3-5		E	Employment Structure of the Motor Carrier Businesses, etc.					
				Trucks	Buses	Taxes	Auto maintenance	Total industry average	
Employment structure	Number of drivers and maintenance teo		hnicians	84 ten thousand	13 ten thousand	34 ten thousand	40 ten thousand	-	
		(Female ratio)		2.4%	1.4%	2.3%	2.1%	42.8%	
	Average age		Age 46.2	Age 48.3	Age 58.3	Age 43.5	Age 42.0		
	Working hours		220 hours	209 hours	196 hours	192 hours	177 hours		
	Annual income		JPY4.18 million	JPY4.4 million	JPY2.97 million	JPY4.19 million	JPY4.69 million		
Sou	rce) N	ИLIT						~ 	

## 3 Trends in Maritime Industries and Measures

## (1) Achieving stable marine transportation

a. Achieving Japanese-flagged vessels and Japanese seafarers

As Japan is a nation with limited resources surrounded by the sea in all its international sides, shipping, which depends on 99.7% of the Japan's trade, plays a significant role to its industrial infrastructure, lifeline for Japanese economy and national life. Japaneseflagged vessels and seafarers over which Japan has regal jurisdiction are necessary to maintain at a certain level at all time because of requiring economic security assurance, but rooting cost competitions of international trade, those have been decreased to the amount gradually.

Dealing with the situation, the MLIT has set forward intentional increasing in Japanese-flagged vessels and Japanese seafarers through the tonnage tax system ^{Note} to those operators who are allowed under the Japanese-flagged vessels and Japanese Seafarers Securing Plan based on the Marine Transportation Law since 2008.

Consequently, Japanese vessels and Japanese seafarers has been turned into increasing. On the other hand, causing the terrible Great East Japan Earthquake and the nuclear power plant accident, the significance of economic security assurance through Japanese merchant fleets have been rising more than before.





Among of the situation, the amended Marine Transportation Law came into force in September 2012, establishing a "deemed-Japanese-flagged vessel" system. The deemed-Japanese-flagged vessel means a foreign-flagged vessel operated by Japanese shipping firm and owned by their overseas subsidiaries which can change its flag to Japan immediately in case of issuing the "Order to Engage in Voyage" based on Marine Transportation Law. "Deemed-Japanese-flagged vessel" has been added to the objective of vessels which applied the tonnage tax system since April 2013.

Japan will promote to support the increased Japanese-flagged vessels and secure the deemed-Japanese-flagged vessels to perform a complementary role of Japanese-flagged vessels.

## b. 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. Yet, the number of Japanese overseas ship

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**Note** A tax system that calculates the amount of tax payment on the basis of predetermined deemed profit according to vessel tonnage, rather than yearly profits. Similar tax systems are already introduced in the world's major nautical nations.

seafarers has fallen to about 2,300 after peaking at about 57,000. In the concerns over stable marine transportation loom as coastal ship seafarers continues to get aged at a rapid pace (about 50% of the entire seafarers are 50 years old or more), with the result of a resultant dominant shortage of successors to them.

For this reason, the MLIT works to secure Japanese seafarers to get aboard oceangoing vessels through steady implementation, etc. of the Japanese-flagged vessels and Japanese Seafarers Securing Plan.

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.

As for domestic ship seafarers, the MLIT is committed to extending support to those operators who employ seafarers on a planned basis, holding job fairs for new graduates and so on. It will also work to secure and foster young seafarers, as by making upgrades, etc. to the new Sixth Class Marine Technician training course to encourage those who have not graduated a professional educational institution to find employment as domestic ship seafarers. 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.

The I.A.I. Marine Technical Education Agency (MTEA) and the National Institute for Sea Training (NIST) are the seafarers training institutions over which the MLIT hold jurisdiction. The MTEA not only provides the basic knowledge and skill required for a ship operating officer but also implements reeducation to meet shipping industry's requests or to catch up with technological innovations. The NIST provides unified on-board practical training on students at the MTEA and mercantile marine colleges and technical colleges using five training vessels. The NIST conducts on-board training that is based on coastal shipping operations using the "Taisei-maru", a coastal training ship commissioned into service in April 2014. With the implementation of such measures, the institutions enhance the development of younger seafarers who are capable of service off hand both effectively and efficiently.

## c. Disseminating Maritime Thought Note

For the growth of maritime industry, it is essential for people to understand and be interested in maritime industry.

The MLIT is making efforts of maritime publicity activities, such as sponsoring Sea-Festa (held in Kyoto in 2014) and commending those who have been instrumental in helping Japan to grow into a maritime nation (Prime Minister's Commendation).

## (2) Marine transportation industry

## a. International shipping

The volume of cargo movement on ocean in the world for 2013 stood at 9.91 billion tons (up 3.7% from its year earlier level) with Japan's volume of seaborne trade for the same year at 0.97 billion tons (up 1.4% from its year earlier level).

International shipping in FY2013 showed signs of general recovery in the business environment on the support of business pickups mainly in the U.S., despite continuing harsh conditions, such as decelerating economic booms in the emerging nations, sluggish European economies and continually high bunker oil prices.

## b. Domestic passenger shipping business

The domestic passenger shipping business plays a significant role as a means of regional transportation. Ferryboat transportion, in particular, has become an integral part of the nationwide network of physical distribution as a recipient of modal shifts. In the meantime, the domestic passenger shipping business needs to boost its competitiveness or toughen its structure, as by pushing furthre automation to cut costs, to break through a variety of confronting challenges, such as declining demand for transportation with changes in the demographic struture and soaring fuel prices.

Accordingly, a variety of support measures have been advanced in collaboration with local governments or operators, including making ships more energy-efficient through the utilization of co-owner ship construction institution of the

Japan Railway Construction, Transport and Technology Agency, adding to the charms of voyage by sea and augmenting user convenience in conjunction with the tourism industry.



## c. Coastal shipping

Coastal shipping offers high economic efficiency and excellent shipping characteristics in terms of environmental protection. Coastal shipping is a key means conveyance supporting Japan's of economic activity and national life, as it commands about 40% of domestic distribution and about 80% of industrial basic material transport. Traffic volume increases are noticed in some product sectors, such as cement and iron and steel in recent years, as the business follows an undertone of recovery, but general cargo movements remain at about the same level as in FY2013. In the meantime, the building of new ships contiues strong but overage



ships still account for a bulk of the total ship population. Promoting shipbuilding to replace at a steady pace, coupled with efforts to simplify the flow of shipping, should be the key to assuring stable shipping while responding precisely to demand changes.

To address such circumstances, the MLIT has reduced charterages by taking advantage of joint ownership shipbuilding scheme of Japan Railway Construction, Transport and Technology Agency, an independent administrative agency, and offered exceptional tax measures to encourage migration to building ships that offer superior environmental performance, thereby pushing the implementation of measures aimed at building competitiveness, as by saving ship energy requirements. The MLIT formulated and publicized "Guidelines for Ship Management Activities in Coastal Shipping" to help reactivate coastal shipping that leverages ship management firms in July 2012 and also introduced techniques for assessing compliance with the Guidelines in April 2013 to "visualize" the management services provided by the ship management firms. Further, the smooth and steady implementation of provisional measures for coastal shipping Note is also supported.

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**Note** A system that resolves the owned tonnage adjustment program based on a scrap and build principle and that grants a certain amount of subsidy to those who have dismantled and removed their ships and that demands the shipbuilders to pay fees.

## d. 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 2014, there are 879 transporters (0.5% down from the previous year) in the general port and harbor transportation business, etc. at the 93 ports nationwide that are governed by the Port and Harbor Transportation Business Act. Vessel loading and unloading volumes for FY2013 were approximately 1,443 million tons nationwide (up 2.5% from the previous year).

## (3) Shipbuilding industry

## a. 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.

Following the increases in the volume of marine transportation reflecting a buoyant global market, China and Korea stepped up their shipbuilding capacities rapidly, pushing the world's amount of new shipbuilding for 2014 to 65,670,000 gross tons (against 13,420,000 gross tons for Japan, commanding 20.4% of the global market).Japan's order volume has turned upward on the support of corretions of the yen appreciation since the end of 2012, but stiff global competition still continues, keeping tonnage values low.

The production of ship machinery products (except for outboard motors) for 2013 was valued at 712.5 billion yen (down about 10.8% from its year earlier level), with an export amount of 239.3 billion yen (up about 23.9% from



its year earlier level). The climate surrounding the ship machinery business is predicted to become harsher than ever, with stiffening global competition and increasingly aged employees.





b. Approaches to consolidating the international competitiveness of the shipbuilding industry

To consolidate the international competitiveness of Japan's shipbuilding industry and allow Japan to stay a first-class shipbuilding nation, the implementation of a policy package focusing on boosting Japan's order-taking capacities and deployment into new markets and new segments of business, and assurance and cultivation of human resources, need to be propelled.

Starting from FY2013, support has been extended to shipbuilders, shipping operators and the like in their efforts to develop next-generation marine environment technologies that help enhance fuel efficiencies for their vessels with a view to reinforce Japan's order-taking capacities. The Ministry is committed to realizing a desirable framework of international collaboration under cooperation between the public and private sectors and exploring, and promoting the diffusion of, energy-saving technologies for ships, natural gas-fueled ships and so on.

Approaches to the promising growth fields of marine resources development, renewable marine energy sources deployment and so on and to establishing a system of marine transportation on new routes of energy transportation will also be impelled. Specifically, the MLIT will seek to expand the horizons of business chances in the marine development field, as by supporting involvement in marine resources development projects taking advantage of Japan's strengths, supporting the development of marine resources-related technologies and promoting the trainning marrine development engineers and, at the same time, consolidate the international competitiveness of the marine indutries. In addition, the MLIT works on the formulation of safety and environmental guidelines for promoting the diffusion of floating marine energy power generation facilities. As for the availability of human resources in the shipbuilding industry, the utilization of foreign human resources ready for work will be pursued as an emergency and temporary response (scheduled for expiry in FY2020) while adhering to the key principle of seeking human resources from within Japan. Furthermore, specific measures have been explored in an integrated industry-academimic-government effort to develop domestic human resources to back up management.

The Ministry has also embarked on deals to combat fake ship machinery products and works to consolidate the engineering capabilities of smaller shipbuilders through the promotion of energy saving ships by Japan Railway Construction, Transport and Technology Agency (JRTT), the commercialization support of evolving technologies and so on.

## Trends in Air Transport Business and Measures

Despite sharply declining crude prices since late 2014, increases in fuel spending caused by their secular upsurges and other conditions have left airlines stuck in a harsh climate. According to Japan's air transport results, the number of domestic air passengers, which had move downward after peaking in FY2006, turned for an increase from FY2012 on, with impetus from demand for restoration from the Great East Japan Earthquake, increased demand encouraged by the entry of LCCs and so on, reaching 92.48 million in FY2013 (up 7.5% from a year earlier level).

The number of international passengers also turned for the increase, reaching 15.08 million (up 6.2% from a year earlier level), same as the domestic passengers.



Since Peach Aviation, Japan's first full-scale LCC, came into service in March 2012, Jetstar Japan and AirAsia Japan (Vanilla Air at present) followed suit in July and August, respectively, and Spring Airlines Japan in August 2014.

LCCs have been expanding their business activities, with Peach Aviation operating 12 domestic routes and seven

international routes, JetStar, 19 domestic routes and one international route, Vanilla Air, three domestic routes and four international routes and Spring Airlines, three domestic routes as of March 2015.

In the meantime, Skymark Airlines filed for the commencement rehabilitation proceedings under the Civil Rehabilitation Law on January 28, 2015. Court-led proceedings are now underway.

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## 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, as internal trade takes on an increasingly important tone, global shipment gets more streamlined than before, urging safety assurance during transportation. The MLIT works to ensure the availability of safe and secure logistics services, as by conducting audits, etc. to consolidate thorough operator code compliance.

## 6 Trends in the Warehousing Business and Measures

Commercial warehouses play a significant role as nodal points of physical distribution. There are 5,975 warehouse operators (4,798 ordinary warehouse operators, 1,177 refrigerated warehouse operators) as of the end of FY2013.

In recent years, the construction of large, intelligent physical distribution facilities by foreign or domestic real estate entities or funds has been activated, giving birth to warehouse operators who rent such facilities to develop their businesses. To fulfill sophisticated and diversified needs for physical distribution, warehouse operators tend to combine other multiple physical distribution businesses, such as a consigned freight forwarding business.

The introduction of equipment that makes for a lower-carbon implementation is underway, as well as the introduction of emergency power supplies and telecommunications equipment that help build a disaster-tolerant warehouse.

## 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.

The introduction of equipment that makes for a lower-carbon implementation is underway, as well as the introduction of emergency power supplies and telecommunications equipment that help build a disaster-tolerant truck terminal.

## 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 2.7% of the total sales of all industries and 11.2% of the total number of corporations (FY2013).

Land prices had followed a downward trend nationwide till now. According to the 2015 official land prices (as of January 2015), residential land prices fell but their rate of drop, while the rate of drop in commercial land prices moved sideways (0.0%) from a declining state. The average land prices in Japan's three largest metropolitan zones, which had turned for a rise last year, continued to rise for both residential and commercial land. In the regional zones, on the other hand, land prices continued falling down, but the rate of drop narrowed. The number of new housing starts, after exceeding 890 thousand in FY2013 but sagged to 880 in FY2014 upon loss from rebounding from the last-minute demand stirred by a hike in the consumption tax rate.

Note A business that transports cargoes by the means of transport (motor trucks, railways, aircrafts, ships) owned by real carriers (who undertake transportation by themselves) in a fully integrated, complex flow of door-to-door transportation, from picking up cargoes to delivering them.

In the existing housing circulation market, the number of successful deals has followed a steady trend with 158,000 (down 3.1% compared to the previous year) in FY2014 according to the Real Estate Information Network System (REINS) Note 1.

### (2) Real estate market status quo

The Ministry endeavors to ensure precise administration of the Building Lots and Buildings Transaction Business Act to protect consumer interest involved in housing land and building deals and to expedite distribution. There were 122,127 building lots and buildings business operators (as of the end of March 2014). This number is on a slight decline in recent years.

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 FY2013, 314 supervisory dispositions were imposed (including 184 revocations of licenses, 65 suspensions of business and 65 orders).

To combat the problems of malicious soliciting at the time of condominium sale, the Act was amended in August 2011 to define the acts that are prohibited in soliciting in connection with building lots and buildings transactions. The Ministry will continue to alert consumers through its Website or other means and work together with the agencies concerned to provide relevant supervision and guidance.

To ensure proper management of growing stocks of condominium, a system of registration for condominium management services entities and service regulations have been enforced to ensure their proper management in accordance with the Act on Advancement of Proper Condominium Management. As of the end of FY2013, 2,230 condominium management services entities were registered, with no significant changes in their number of the last couple of years.

From a viewpoint of promoting the code compliance of condominium management services entities, on-the-spot inspections have been conducted.

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 since December 2011 to foster and develop a good-quality rental housing business. As of the end of March 2014, 3,267 rental housing management entities were registered.

## (3) Conditioning the environment for market reactivation

## a. Status quo of the real estate market

Japan's real estate had a total asset value of about 2,400 trillion yen Note 2 as of the end of 2013.

The book value of the real estate or the beneficial interest in trust on the real estate that were acquired by J-REIT (real estate investment entity), real estate specified joint enterprises, special-purpose companies and so on as objects of securitization during FY2014 stood at about 5.5 trillion yen.

J-REITs play a central role in the real-estate investment market. As many as seven brands were newly listed in just one year in FY2014, and as of the end of March 2015, 51 brands were listed on the Tokyo Stock Exchange. Total book value of assets under management of J-REITs amounts to 13 trillion yen and the market value of the real-estate investment securities adds up to about 10.7 trillion yen.

The Tokyo Stock Exchange REIT index (TSEREIT), which provides a measure of price movements across the J-REIT market, generally moved consistently in the range of 1,450 to 1,500 points in the January-March period of 2014. Subsequently, the TSEREIT followed a firm undertone to rise for the nine consecutive months thanks to further drops in the long-term interest rate in addition to the expectation for the recovery of the real estate market, a weakening yen exchange rate and rising stock prices. These trends were pronounced at once when the Bank of Japan decided an additional monetary easing measure at the end of October, with the TSEREIT reaching the 1,900-point mark for the first time in seven years at a time.

The amount of yearly property acquisition in J-REITs stood at about 1.6 trillion yen.

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Note 1 Building lots and buildings business operators have property information loaded on REINS for them to exchange. As property deals are concluded successfully, the relevant information, including the transaction prices, is stacked on REINS.
Note 2 A sum total of the values of the buildings, structures and land calculated on the basis of National Accounts.

## b. Conditioning the environment for real-estate information

The MLIT surveys real estate transaction prices, etc. nationwide in a bid to make the real estate market more transparent, streamline, and reactivate deals. Information thus collected from such surveys, including locations, areas and prices of real properties traded, is uploaded at a Website on the Internet (Land General Information System ^{Note}) with due care taken to prevent identification of the individual properties (as of March 2015, information on 2,321,324 properties was posted, attracting a total of about 540 million Web accesses).

International agencies worked together and edited Handbook on Residential Property Price Indices(RPPI Handbook) in 2011 to build an Early Warning Signal System by taking lessons from the subprime and other crises. The MLIT created Japan Residential Property Price Index(JRPPI) based on RPPI Handbook, started pilot operation in August 2012, and then started full operation in March 2015. The MLIT also develops prototype of commercial property price index.

## c. 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 only a low share of the total volume of housing in circulation when compared with the U.S. and Europe. In FY2014, the MLIT embarked on deliberations on how to develop a system of efficiently concentrating information relevant to real-estate transactions, such as information about transaction histories, case studies of transactions in the surrounding districts and potential disaster risks and statutory regulations, to promote advanced approaches taken by building lots and buildings transaction agent to provide relevant information to consumers by partnering with remodeling and other professionals in real-estate transactions, to get the concept of the "Guidelines for Improving Building Assessments Relevant to Existing Homes" formulated in FY2013 come to stay on the minds of building lots and buildings transaction agent and to have the present conditions of existing homes properly reflected in real-estate appraisals.

## d. Tax incentives

In the FY2015 tax reform, the MLIT revised some of the requirements for the special measures for replacement purchasing of business properties relating to long-held land, etc. and extended the application deadlines for them. In addition, it extended the application deadlines for the burden adjustment measure, etc. for fixed propery taxes relating to land and also for speical measures for circulation taxes relating to land, etc., expanded special measures relating to the real estate owned by J-REITs and special enterprise operators of the Real Estate Syndicate Enterprise Act, etc. (by adding logistics facilities), etc., as well as extended applicable time limits for these measures, and also resolved the "problems of mistmatches between tax and and accounting profits" at investment corporations (J-REITs) and so on.



## (4) Building a real-estate market tailored to new ages

The MLIT revised real-estate appraisal standards, etc. (effective November 1, 2014) to reflect the diversified needs for real estate appraisals, such as those emerging from a globalized real-estate market, a progressing stock society and a growing real-estate securitization market and is now trying to make the revised version of the standards, etc. widely known.

On-site inspections of real-estate appraisers and appraisal monitoring surveys concerned mainly with facts about securitized real-estate appraisals have been conducted to enhance appraisal reliability.

Properties acquired by J-REIT tended to focus on offices and housing, but have diversified to include commercial facilities, logistics facilities and so on in recent years. Demands for health-care facilities, such as senior housings, are mounting now. The MLIT unveiled "The Guideline for Utilizing Health Care REIT for Senior Housings, etc." in June 2014 in response to "Japan Revitalization Strategy (Cabinet Decision, June 14, 2013), Working Plan for Strengthening international Competitiveness" (January 24, 2014) and so on, in its effort to laying the ground for utilizing J-REIT in developing health-care facilities.

In addition, the MLIT held workshops and council sessions at 13 locations nationwide to encourage the implementation of real-estate revitalization projects using the framework of the amended "Real Estate Syndicate Enterprise Act" (enacted on December 20, 2013) and thus to accelerate the inflow of private funds for renewing urban facilities, as for quake-proofing building structures, and at the same time, implemented model projects and decided to finance environmental remodeling activities for four buildings and new development activities as earthquake-proofing and environmental real-estate formation projects.

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Moreover, the MLIT held a meeting of the "Committe for the utilization of Public Real Estate (PRE) Using Real Estate Securitization and Other Techniques" to promote the utilization of PRE owned local public entities and thus to achieve a further expansion in the real estate investment market.

In response to Overcoming Population Decline and Vitalizing Local Economies: Comprehensive Strategy (Cabinet Decision, December 27, 2014), the MLIT is determined to prepare and disseminate guidelines for local public entities on using securitization techniques, etc. relevant to public real estate and implement associated model projects.

## 9 Building a Sustainable Construction Industry

## (1) Conditions surrounding the real estate business

The construction industry not only takes charge of the development, maintenance, management, etc. of local infrastructures but underpins local economies and employment, keeping local communities safe and secure on the front line in support of the national life and social economy.

In the meantime, the construction industry has been confronted with a chain of problems, such as diminishing skilled workforces in the field, reductions in the number of new workers joining the industry and progressively aging workforces, caused mainly by rapidly declining construction investment and dumped order taking amind stiffening competition with resultant srains on the subcontractors.

In the circumstnaces, it would be essential to build a construction industry that is sustainable from mid- to long-term standpoints to addresse these problems while taking full responses to the tasks of disaster preparedness and reduction, aging infrastructures and maintenance and quake-proofing of infrastructures.

Figure II-6-3-15 shows the trends in construction investment and the number of licensed contractors and employees.



## (2) Securing and fostering human resources to work for the construction industry

The construction industry builds on a large number of human resources, such as technicans and craftspersons. While the number of employees in the construction industry shows signs of pickup in recent years, it would be important for the MLIT to direct its continued efforts at securing and fostering industry leaders, including young workers, to enable the contruction industry to continue playing its role as a community supporter in the background of falling birthrates with aging populations.

To this end, the MLIT is working to refurbish the environment that makes construction builder confident about their future prospects, including a continued, stable supply of public works funding, as well as to promote the creation of an attractive working environment by improving the labor conditions for craftspersons drastically, such as maintaining appropriate wage levels and encouraging their subscription to social insurance and other security programs. The MLIT is also keen to enhance and reinforce education and training in the industry, as by improving the functioalities of Fuji Education Training Center to facilitate a smooth transfer of skills from generation to generation, as well as review qualifications for taking technical certification tests to help get excellent young workers to work in the early periods of their career. Moreover, the MLIT contempltes to formulate a public-private action plan to double the number of female technicians and craftsmen in five years in order to open up wider fields of activity for female workers in the construction industry.

Moreover, the MLIT will be working to help boost productivity in the construction industry, as by automating field operations and heavily tiered subconstructing strucures, as it braces for dimishing workforces in the future.

United public-private approaches will be driven to encourage more people to join in the construction industry and let them concentrate on their jobs with pride while acquiring expertise and skills.

Furthermore, the utilization of foreign human resources ready for work will be pursued as an emergency and temporary response (scheduled for expiry in FY2020) to possible transient booms in the construction demand spurred by the implementation of future restoration projects and hosting of the Tokyo Olympic and Paralympic Games while adhering to the key principle of seeking human resources from within Japan.

## (3) Establishing a framework of fair competition

As the construction industry takes charge of the jobs of keeping local communities safe and secure, as through the development, maintenance, management, etc. of local infrastructures, it needs to 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. To this end, the Ministry has been working to normalize the practice of deals between prime contractors and subcontractors in the construction business by conducting subcontracting transaction status surveys, on-the-spot surveys, etc., opening a desk for consultation services on troubles, complaints and other problems encountered in concluding construction work contracts as "Construction Business Normalization Promotion Month (November).

## (4) Measures aimed at supporting construction companies

 Regional construction business management-incentive finance program

The regional construction business management-incentive finance program allows prime contractors to acquire loans from a cooperative association or a certain private entity 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 and ease their burden of interest payment.

Effective since November 2008, this program will be carried forward through FY2015.



## b. Subcontracting receivables preservation support program

The subcontracting receivables preservation project proactively promotes the guaranteed payment of the accountreceivables for contract prices subcontractors, etc. have for their primary contractors when the payment of such receivables is guaranteed by a factoring company Note by easing the guarantee charge burden of the subcontractors, etc. and indemnifying the factoring company for the loss it may suffer upon fulfillment of the guaranteed obligations.



This program has been implemented since March 2010 and will be carried on through FY2015.

## c. Disaster-responsive construction business financial support program

The Disaster-Responsive Construction Business Financial Support Program extends financial support to smaller and medium-size construction companies for purchasing typical construction machinery to use to respond to disasters as they occur or to smaller and medium-size construction companies that have been struck by the Great East Japan Earthquake for bearing a part of interests accrued on their loans relating to the purchasing of construction machinery.

This program was implemented from March 2013 to FY2014.

### d. Construction company management strategy advisory program

The construction company management strategy advisory program is committed to providing expert advices to help resolve management tasks, such as developing new businesses, or technical tasks, such as execution management tasks, to build up the corporate structures of smaller or middle-ranking construction companies and construction-related businesses (such as surveying, construction consulting and geological surveying) as they work to develop, and maintain and manage social infrastructures and to get prepared for, and reduce the impact of, disasters in support of communities. For projects with high model property such as initiatives taken for new business development and enterprise reform for the entry into infrastructure maintenance field, as priority supports, the program provides continual support (team advice support) until the attainment of defined goals, such as formulation of a management improvement plan by a support expert team or subsidizes in part the expenditures incurred to implement those projects that could help resolve local problems by leveraging construction companies' know-how (step-up support). During FY2014, 29 instances of team advice support and 19 instances of step-up support were selected.

This program was implemeted from FY2011 to FY2014.

## (5) Promoting construction-related businesses

Information about the total number of operators registered in the construction-related businesses (such as surveying, construction consulting and geological surveying) for each month is published at the end of the next 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 growth of the construction-related industries and make effective use of the registration system, as by holding explanatory sessions for students before attending school in collaboration with the associated bodies.

**Note** A financial enterprise that collects receivables owned by others by guaranteeing or purchasing them. At present, 10 factoring companies, including bank subsidiaries, prepayment guarantee companies and leasing companies, run this service.

## (6) Present status of construction machinery and growth of construction production technologies

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 total station making for simplifying the work flow of piecework management by converting survey results to data automatically for example, and machine control/machine guidance technologies realizing high-precision and efficient construction under automated control.

## (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 FY2013, the Panel received 53 applications (six of arbitration, 43 for conciliation and four for mediation) at the central level and 92 applications (15 for arbitration, 64 for conciliation and 13 for mediation) at the prefectural level.

## **Building a Safe and Comfortable Society**

#### Realizing a Universal Society Section 1

Chapter 7

#### 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).

## (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.

## (2) Accessibility of Living and Housing **Environments**

a. Accessibility of Housing and Architecture

Figure II-7-1-1	Current Accessibility of Public Transportation							
(as of March 31, 2014) Passenger Facilities (over 3,000 persons/day using on average)								
	Total Facilities	Passenger Facilities Compliant with Accessibility Standards for Public Transportation (No Grade Barriers) ^(Note 1)	Share of Total					
Railway stations	3,491	2,909	83.3%					
Bus terminals	50	41	82.0%					
Passenger ship terminals	16	14	87.5%					
Airport passenger terminals	33	28	84.8% (100%) ^(Note 2)					

(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.

2 Installation of elevators, escalators, and slopes that can be used by people such as those with disabilities (removing steps de facto).

OVehicles

	Total Number of Vehicles, etc.	Vehicles Compliant with Accessibility Standards for Public Transportation ^(Note)	Share of Total
Railway carriages	52,601	31,308	59.5%
Low-floor busses	45,329	19,883	43.9%
Lift-equipped busses	14,488	559	3.9%
Welfare taxis	-	13,978	-
Passenger ships	688	197	28.6%
Airplanes	566	525	92.8%

(Note) "Compliance with smoothness of transport vehicles" is calculated based on each vehicle's compliance with the Accessibility Standards for Public Transportation Source) MLIT

In order for those such as the elderly and disabled to lead a secure, safe, and comfortable housing life within the region,
the conversion of housing to be barrier-free is supported by measures, for example, the financing interest of the Japan Housing Finance Agency's (Independent Administrative Institution) "Flat 35 S Loan" is reduced for obtaining housing that fulfills a certain barrier-free level:; subsidies are provided for barrier-free renovations; public housing and Urban Renaissance Agency rental housing which are newly supplied on the basis of the housing rehabilitation project are rendered barrier-free by standard specification; and assistance and other options are available for the development of serviced housing for the elderly by private sector businesses and others.

Also for architectural structures used by the general public, including those such as the elderly and disabled, architectured to be over a certain scale are required to be accessible in accordance with the "Barrier-free Law" and approved specific buildings that meet certain requirements are eligible for support measures such as subsidy programs. For government facilities that are used by unspecified but many 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	Ap	Approvals of Architecture for Specified Designated Building in Accordance with the "Barrier-Free Law"																		
Fiscal year	FY1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
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
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
Source) MLIT																				

# b. Universal Design of Pedestrian Spaces

In accordance with the "Barrier-Free Law", areas such as roads and station squares, which connect to facilities such as stations, government facilities, and hospitals, must ensure that everyone, including the elderly and disabled, should be able to pass through comfortably. This is achieved by promoting the universal design of pedestrian spaces through measures including: creating wide sidewalks; reducing unevenness, slopes, and grades; eliminating utility poles; and making guiding blocks for the visually impaired.

# c. 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, like eliminating grade disparities at entrances, exits, and passages as well as ensuring facilities such as restrooms are usable by those such as the elderly and disabled. Also, 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 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

a. 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.

# b. Promotion of Teleworking

Teleworking, a flexible work style that uses information communication technology for the freedom to work anywhere, contributes to vitalization of local cities, etc. through promotion of workforce participation by women, etc. and creation of new workplaces and is required of promotion. In addition, teleworking promises to reduce the burden of commutes by combining work and living arrangements, realize harmony of work and life (work-life balance), and ensure business continuity during disasters and other events among other benefits.

The "Declaration to be the World's Most Advanced IT Nation" decided by Cabinet on June 14, 2013 (Revised on June 24, 2014), states, "To these ends, government will collaborate with industry to support employment models for teleworking from home that allow workers to spend at least one full workday per week at home targeting women engaged in child raising, who find it particularly difficult to continue working, as well as men participating in childcare, and caregivers. The target is full development and widespread adoption of such models by 2016 to encourage greater social participation by women, secure labor during a time of low birth rates and an again population, support greater participation by men in childcare, and achieve balance between work and care giving" and teleworking will be promoted even more through initiatives.

Relevant ministries and agencies are coordinating to promote the further adoption of teleworking through initiatives such as creating a facilitating environment and raising awareness in the belief that teleworking will create employment opportunities for people seeking alternative working arrangements and also vitalize regions among other effects.

The Ministry of Land, Infrastructure, Transport and Tourism conducted the assessment of the current situation of teleworking, quantitative assessment of the current teleworking population, and assessment of the teleworking development base demands, etc.

# (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 Regarding Safety Requirements for Playground Equipment at Urban Parks (Edition 2)" and "Pool Safety Standards Guidelines" and programs such as the Social Capital Development Integrated Grant 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 2013 is implemented at 986 housing projects (24,904 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 Ageing Society

In order to respond to the demand for the transportation disadvantaged such as the elderly and disabled to use hospitals and other care facilities, the implementation of welfare taxis ^{Note} is being promoted and as of the end of FY2013, 16,059 vehicles are being operated. Also, 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 from FY2012, universal design taxis that are easy for the elderly and various people are granted preferential measures regarding motor vehicle tonnage tax and vehicle excise tax if the vehicle meets standard specifications and is certified by government. Also, as of the end of FY2013, 3036 organizations are providing fee-based passenger transport services to allow municipal governments and NPOs to provide fee-based transport services using private vehicles in the case where the parties of the regional residents agree that services by bus or taxi companies are deemed difficult to provide and the

Note Taxi vehicles with lifts and other facilities so that those using wheelchairs or beds (stretchers) can board and disembark as is or taxi vehicles serviced by those with various qualifications such as home care worker.

private fee-based passenger transport services are required to ensure the passenger transport which is necessary for the living of the local residents.

# Promoting the Support of Pedestrian Travel

To build a universal society where everyone including the elderly, disabled, and foreign travelers can get information about travel as required and readily take part in activities, efforts are being made to support pedestrian travel through use of Information Communication Technology (ICT).

A guideline easily implementable by local governments (March issue in 2014) has been prepared based on the knowledge gained from the local projects carried out from 2011 to 2013 in 14 locations nationwide. Furthermore, since June, 2014, matters necessary for promotion of support



of pedestrian travel have been studied by the "Pedestrian Travel Support (Using ICT) Promotion Review Committee" (presided by Vice-Minister for Engineering Affairs, Ministry of Land, Infrastructure, Transport and Tourism, and the chairman is Ken Sakamura, Professor in Information Science at the University of Tokyo).

# Section 2 Natural Disaster Measures

Japan's national land is subject to severe conditions including climate, geography, and geology; almost every year natural disasters such as earthquakes, tsunamis, floods, and sediment-related disasters occur. Even in 2014, heavy disasters occurred due to sediment-related disaster in Hiroshima Prefecture, eruption of Ontakesan (Mt. Ontake) and others, leading to massive damages in several locations. Also, the importance of natural disaster measures is more urgent because there is concern over occurrence of more frequent and serious water disasters due to climate change as well as occurrence of giant earthquakes such as the Nankai Trough Mega Earthquake and Tokyo Inland Earthquake. To this end, disaster prevention, disaster mitigation, and dilapidation measures must be fundamentally bolstered and non-structural and structural measures are being taken to protect the lives and living.

# Responding to Weather Disasters Getting More Serious and Imminent Giant Earthquakes

# (1) Ideal Way of Disaster Prevention and Mitigation for Coping with New Stage

Recently, more than 50 mm of rainfall per hour has occurred frequently, showing the increasing tendency of localized, concentrated, and heavy rain. In September, 2014, Ontakesan (Mt. Ontake) erupted, presenting a situation waiting powerful volcanic eruption to occur. These situations were considered as "a new stage" and the direction of future study thereof was summarized in January, 2015.

As for earthquakes and tsunamis, the damage to be caused by the Nankai Trough Mega Earthquake and Tokyo Inland Earthquake was anticipated in accordance with the damage caused by the Great East Japan Earthquake and other earthquakes, and structural and non-structural measures are being taken to cope with the largest earthquake ground motion and tsunami.

On the other hand, as for flood and so on, facilities have been installed to cope with rainfall, etc. that does not occur too frequently, the hazard maps showing the damage to be caused by such rainfall, etc. have been created, and non-structural measures such as improvement of weather information has been taken. However, no measures have been formulated against the largest class rainfall. Therefore, flood measures in non-structural and structural perspectives need to be taken with a view to the "worst".

The "ideal way of disaster prevention and reduction for coping with new stage (hereinafter referred to as the "ideal way") basically aims to protect human lives using facilities against the rainfall, etc. that occurs relatively frequently. Against the extraordinarily heavy rainfall and so on that occur rarely, the policy aims to "protect human lives at least and avoid catastrophic damage to the socioeconomy" and respond to it by taking mainly non-structural measures. The basic concept is to "protect human lives" and avoid catastrophic damage to the socioeconomy".

Specifically, in order to "protect human lives", it is necessary for the residents not only to escape when warned to evacuate their area ("instruction awaiting" type evacuation) but also to escape themselves according to the "condition information" about the amount of rainfall, etc. ("independent action" type evacuation). Also, in order to "avoid catastrophic damage to the socioeconomy", all interested parties of national and local public entities, enterprises, etc. must share the sense of crisis to take social measures on the assumption of the worst case. In order to take specific actions in accordance with the "ideal way" summarized in January, 2015, the Regional Development Bureau started at the end of March, 2015, estimation of the damage to be caused by large-scale flooding, etc. that could occur in Tokyo, Nagoya, and Osaka in cooperation with the relating local governments, local enterprises, economic organizations, etc.

#### (2) Responding to Climate Change

It is feared that water disaster (flood, inland water, or storm surge), sediment-related disasters, and drought damage occur more frequently and seriously due to the climate change caused by global warming. In order to address this fear, the "Panel on Infrastructure Development River Subcommittee's Subcommission to Evaluate Flood Control Measures for Climate Change" conducted study and revealed the "About the Ideal Way of Climate Change Measures in the Water Disaster Field – Toward the Society that Shares Disaster Risk Information to Mitigate Disasters – Midterm Summary" in February, 2015, In order to cope with the water disasters which are getting more serious, it is important to steadily carry out construction and improvement of facilities as adaptive measures. In addition, the whole society needs to share disaster risk information and take measures to mitigate disasters on the assumption of the cases where the facilities cannot avoid disasters.

As for the measures to be taken against the disasters in coast areas, the "Committee for Study Influence of Climate Change in Coast Areas (Seaport and Seashore) and Direction of Coping" will study the direction of measures and summarize it in April, 2015.

Based on the abovementioned summaries, the relevant authorities will cooperate to implement the measures to cope with the disasters in coast areas.

# (3) 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 getting more frequent and serious. With this situation in mind, the "Underground Mall, Subway, Etc. Working Group" and "Disaster Action Plan 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 Mall, Subway, Etc. Working Group" sorts out underground space problems in cooperation with the relevant bureaus, determines the measures to take, and provides information to the administrators of underground malls, subways, and connected buildings.

The "Disaster Action Plan Working Group" created timelines focused on the evacuation order and others for the

directly controlled rivers in Japan before the flood season of 2014, and tried it. In addition, in the Metropolitan area and Chubu area, this group is promoting the leading project in order to create integrated timelines for all parties concerned, and will create the timelines before the flood season of 2015.

# (4) Responding to the Nankai Trough Mega Earthquake and Tokyo Inland Earthquake

If the 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 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 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 development and management of a lot of infrastructures and protection of human lives and properties on the sea and 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 "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 Nankai Trough Mega Earthquake Response Plan" of Land, Infrastructure, Transport and Tourism Nankai Trough Mega Earthquake Response Plan" of Land, Infrastructure, Transport and Tourism Nankai Trough Mega Earthquake Response Plan" on April 1, 2014, to determine the reality-based responses to be taken with might and main. Also, regarding the Nankai Trough Mega Earthquake, more specific and practical "Regional Response Plans" were developed for each regional block along with the abovementioned plans. In July, 2014, the MLIT determined the priority responses to be taken after 2015 after following up the implementation states of the abovementioned plans.

Specifically, in order to accelerate emergency operations in a disaster, the MLIT is promoting the introduction of a method for collecting and analyzing the disaster information using big data, including: probe information from the electronic disaster information system; increase of other organization's offshore tsunami observation data utilized to provide tsunami observation information approximately 10 minutes at the most before arrival of tsunami to the land area

when the Nankai Trough Mega Earthquake occurs; strengthening of emergency transportation roads used to support emergency life-saving operations and restoration of support operations after occurrence of the Tokyo Inland Earthquake; and buildup of the system for swift elimination of road obstacles. The Kanto Regional Development Bureau established the "Tokyo Inland Earthquake Road Obstacle Elimination Plan Study Committee" in July 2014, create a plan to eliminate road obstacles swiftly and appropriately while carrying out rescue operations. They also formulated and revealed, on February 20, 2015, the "Tokyo Inland Earthquake Road Obstacle Elimination Plan (First Edition)" intended to eliminate obstacles on highways, national roads, and other selected roads by executing the "8-direction Operation", an operation for moving forward toward the city center from eight directions at the time of a disaster. (See Figure II-7-2-1)



# 2 Shaping National Land that is Safe and Resilient to Disasters, 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 expanding the river channel to safely flush away floods, embankments, development of discharge channels, dams to temporarily hold back floods, and artificial ponds have steadily improved the degree of water control safety. However, in 2014, flooding in various locations has occurred such as the heavy rainfall disaster occurred in the Shikoku region due to Severe Tropical Storm Nakri and Typhoon Halong that approached Japan in succession and the heavy rainfall disaster occurred in the northern area of Kyoto Prefecture (it also occurred in 2013). In order to mitigate and reduce damage caused by torrential rains and other factors, 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 recent disaster forms and the influence of climate change.

In addition, preventive flood control measures which had been taken so far exerted an effect for the floods, etc. occurred in various locations in 2014. For example, the flood control measures which had been taken so far, such as storage of 1,540,000 m³ (largest amount in history) of water in the Tsurumi River multipurpose artificial pond, exerted an effect and reduced the inundation damages drastically when there was postwar Japan's second heaviest rainfall in the Tsurumi River basin due to Typhoon Phanfone.



#### a. Preventative Water Control Measures

The occurrence of large scale floods leads to human and economic losses, greatly affecting socioeconomic activities and because the recovery and reconstruction requires a great amount of time and resources, preventative water control measures are important to keep disaster from occurring. For this reason, water control facilities such as levees, excavating river channels, dams, and discharge channels are developed systematically. Also, in order to use the existing facilities effectively, the redevelopment of existing dams is carried out to enhance the water control function through increase in height and restructuring of the capacity of the existing dams. In addition, existing levees that are not sufficiently safe from permeative destruction or erosion due to floods are being strengthened.

Additionally, for "areas with a high likelihood of grave human casualties due to levee collapses in densely populated areas", in coordination with town planning projects, a safe and pleasant living environment that protects the human lives of local residents will be formed and to increase the safety of areas away from rivers, the development of high-standard levees that do not collapse in the face of flooding that exceeds the planned capacity of facilities is being carried out.

#### b. Preventing the Reoccurrence of Flood Disasters

In recent years, within regions that experienced flooding, river channels are excavated and levees are being built to improve the flow capacity of rivers, drainage pump stations are developed to prevent inside water flooding among other measures are being implemented intensively in a short time span to prevent or mitigate flooding.

# c. 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 damages, 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 increase in the impermeable land area following the development of urban areas and peripheral areas as well as 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, the development of rainwater harvesting facilities is being promoted through measures such as river basin storage and infiltration projects and



tax breaks so that the relevant local authorities can cooperate to further suppress rainwater drainage and measures to reduce civil damages.

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 flood 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 "100mm/h safe plan" is registered and initiatives to promote mitigation measures against flood damages are being implemented in addition to the development of rivers and sewerage.

# (c) Integrating Flood Control Measures with Land Use

In accordance with land use conditions, if it is an area prone to inundation disasters and more efficient and effective than developing a consecutive levee, integrated land use that combines the development of a circle levee ^{Note} and the regulation of land use through measures such as designation of disaster risk areas is combined in cooperation with local authorities to promote flood control measures.

# (d) Inner Water Measures

To prevent flooding through inner water inundation and strive for the healthy 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 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 inner 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 providing rainfall information, land use regulations, and creation of inner 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 flood measures.

# d. Strengthening the Flood Prevention Framework

In coordination with prefectures and flood prevention administration bodies, joint inspections of levees before flooding season, training exercises for communicating information, seminars for flood prevention technology, and flood prevention drills are carried out to ensure that areas requiring special attention are widely known and flood prevention technology is mastered from the perspective of flood prevention to assist the strengthening of a flood prevention framework that minimizes damages due to flooding.

In addition, in order to strengthen regional flood fighting capabilities through the participation of various entities, initiatives are supported to voluntarily secure evacuation and create inundation prevention plans in facilities such as underground malls in areas vulnerable to inundation, facilities for people with special needs, and large-scale factories. Specifically, underground malls are expected to be inundated through the connecting buildings, and therefore initiatives are carried out to promote creation of evacuation securement and inundation prevention plans.

# e. Publicizing Forecasts and Warnings of Flooding and Providing River Information

The Minister of Land, Infrastructure, Transport and Tourism or Prefectural Governor designate rivers with large river basins that are at risk of causing great damages to the nation's economy or other great losses as flood forecast rivers and issue 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 middle to small rivers are designated as water level alert rivers and during floods, when the water level reaches flood warning levels (special caution water levels), this information is also released. As of the end of March 2015, there are 419 flood forecast rivers and 1,568 water level alert rivers.

The water level, rainfall volume, 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 Disaster Prevention Information (Kawa Boh) Note 1" to be utilized in issuing warnings and evacuation during floods.

Also, the data broadcast function of digital terrestrial television is being used in cooperation with broadcasters for efforts to provide river water levels and rainfall volume information and by March 2015, 51 broadcast stations nationwide are providing such services. For the observation of rainfall volume, to deal with floods and sediment-related disasters due to the increased frequency of heavy storm (so called sudden showers) in recent years, XRAIN (MLIT X-band MP radar network) ^{Note 2} is being developed, which makes more detailed and real-time rainfall volume observation possible, for more appropriate river administration and disaster prevention activities in addition to the conventional radar (C-band radar) and rain-gauge network. Rainfall information is also available on the Internet and an observation system consisting of 38 radars was established as of the end of March 2015.

# f. Designation of Areas Vulnerable to Inundation

To raise awareness of the dangers from flooding, work to ensure the effective evacuation of residents, and guide appropriate land use, districts that are likely to be inundated when the river floods (inundation forecast districts) are designated and information such as the depth of inundation is publicized in accordance with the "Flood Control Act".

Also, so that residents can smoothly and rapidly initiate evacuation measures even when flood inundations occur, the method of distributing flood forecasts and the technical support for the creation and communication of hazard maps indicating evacuation areas are offered to municipalities. In addition, a portal site ^{Note 3} is opened on the MLIT homepage where all domestic hazard maps can be viewed.

Inundation forecast areas are already designated and publicized for roughly 97% of the rivers concerned and 98% of municipalities within inundation forecast areas already created flooding hazard maps (as of the end of March 2015).

The MLIT not only allows for tax subsidies for inundation prevention facilities obtained by the underground malls, etc. in inundation forecast areas in accordance with inundation prevention plans and supports voluntary flood defense initiatives carried out by underground malls, facilities for people with special needs, and large-scale factories, etc. via the disaster information dissemination office established within the river-related office of Regional Development Bureaus and others across the nation as a contact point for businesses and others.

### g. 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 developed 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 also advancing. Also, for river infrastructure, migration to condition-based maintenance is being implemented where degradation conditions and its progress is monitored through inspections so that measures are taken at appropriate moments to as move to extending facility life cycles and renewal in a planned manner. In addition, the Priority Plan for Social Infrastructure Development states that major river infrastructure administered by the nation will have lifetime extension plans by FY2016. In addition, necessary technological development for extending lifetime will be furthered and technical standards for middle to small rivers will be studies 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" revised partially 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, stipulates the absolute minimum technical standards that must be adhered to by all administrators regarding the maintenance and repair of river management facilities and others by decree, and also revise the "Technical Criteria for River Works: Maintenance (River)" for promotion of appropriate maintenance.

Note 1 http://www.river.go.jp [PC version], http://i.river.go.jp [mobile]

Note 2 Compared to existing radars, observation at higher frequency (every minute), and higher resolution (250m mesh) is possible. Also, time needed for information transmission was reduced from 5-10 minutes to 1-2 minutes.

Note 3 "MLIT Hazard Map Portal Site" web site: http://disaportal.gsi.go.jp

# h. Measures Against Illegally Moored Vessels in Rivers

Vessels illegally moored in rivers hampers flood control measures (interfere with the implementation of river works, obstruction of the downward flow during floods, damage to river administration facilities, etc.) and other aspects of river administration (water contamination by fuel leakage, obstruction of river usage, etc.). Such illegally moored vessels are directed to move to legal mooring facilities or removed.

In May 2013, the "Promotion Plan for Comprehensive Measures for the Appropriate Management and Improvement of the Operation Environment of Pleasure Boats" was created to resolve the issue of abandoned vessels (illegally moored vessels). In December 2013 the River Law enforcement ordinance was amended and the act of abandoning ships and other vessels was made illegal.

#### i. Road Submergence Measures

Road underpasses in Tochigi and Hiroshima Prefectures were submerged in water due to the concentrated heavy rainfall 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.

Figure II-7-2-4

# (2) Countermeasures against Sediment-related 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 to sedimentrelated 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-related disasters. There have been 1,000 cases of sediment-related disaster caused by heavy rain and earthquake annually on average in the past 10 years (from 2005 to 2014). In 2014, there were 1,184 cases, causing great damages such as 81 deaths.

In order to prevent and mitigate the damages by sediment-related disasters, combination of non-structural and structural measures, such as construction of sedimentrelated disaster prevention facilities and improvement and enhancement of early warning and evacuation systems are

Effect of Sediment Control

against Heavy Rain in August 2014

Dams

being promoted. The heavy rainfall in August 2014 caused a lot of sediment-related disasters in Hiroshima City, Hiroshima Prefecture, accompany significant damages such as 74 deaths. In Omachi area, Asaminami-ward, the existing sediment control dams blocked debris flows, succeeding in protection of 32 houses and 80 families living in apartments from sediment-related disasters. In addition, existing constructed sediment-related disaster prevention facilities exerted effects in various parts of all over the country.

### a. Fundamental Countermeasures against Sediment-related 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-related 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.

# b. Emergency Countermeasures against Sediment-related 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 sedimentrelated disasters caused loss of life and great damages to people's living, concentrated construction of sediment-related disaster prevention facilities for preventing recurrence of disasters is being promoted.

# c. Countermeasures against Sediment-related Disasters to Protect Those Requiring Assistance during Disasters

People requiring assistance during disaster such as the elderly and children who cannot evacuate by themselves are liable to suffer the damages by sediment-related disasters. Among the dead and missing of sediment-related disasters, the percentage of people requiring assistance is high. So, in order to protect social welfare facilities, medical facilities, etc.,

for people with special needs, construction of sedimentrelated disaster prevention facilities such as sediment control dams is promoted in a focused manner.

Also, based on the "Act on Promotion of Sediment Disaster Countermeasures for Sediment Disaster Prone Areas (Sediment Disasters Prevention Act)", the construction of facilities where people require special assistance is restricted in special sediment-related disaster hazard areas, and also matters concerning facility names, locations and information about sediment-related disasters are defined when making municipal disaster prevention plans. Considering the above, combination of structural and non-structural measures are being promoted.



#### d. Countermeasures against Sediment-related 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-related disaster safety and maintain and create urban environments and landscapes with abundant greenery.

### e. Sediment Disaster Measures for Slopes Near Roads

Slope disaster prevention measures are taken for the slopes which have a risk of landslide near roads.

### f. Countermeasures against Sediment-related Disasters to promote Regional Disaster Prevention

In hilly and mountainous areas at high risk of sediment-related 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.

- g. Promoting the Countermeasures against Sediment-related Disasters Based on the Sediment Disaster Prevention Act
- (a) Promoting the Sediment Disaster Prevention Measures through Designation of Sediment-related Disaster hazard Areas

In accordance with the "Sediment Disasters Prevention Act", areas vulnerable to sediment-related disasters that cause harm to residents are designated as sediment-related disaster hazard areas, warning and evacuation systems will be developed. Also, areas vulnerable to sediment-related disasters that cause damage to architectural structures and serious harm to residents are designated as special sedimentrelated disaster hazard areas, and non-structure measures are taken to restrict certain development activities and restrict on building structures. Also, guidelines and case studies are released for the development of warning and evacuation systems as well as the creation of hazard maps, further the development of warning and evacuation systems as well as the creation of hazard maps against sedimentrelated disasters are being promoted in the municipalities.



prompted to relocate using the program for relocating at risk housing located near cliffs. In FY2014, this program decreased risky houses by 17 and new 7 houses were built to replace risky houses.

#### (b) Amendment of the Sediment Disasters Prevention Act

Houses near cliffs vulnerable to slope failures are

Sediment-related disasters occurred in Hiroshima City in August 2014 due to heavy rain clarified the problem with the evacuation systems related to sediment-related disasters, that is, there were many areas which had not been designated as sediment-related disaster hazard areas or finished with baseline survey and the residents were not well-informed of the risk of sediment-related disasters.

To cope with such problems, the "Sediment Disasters Prevention Act" was partially amended and came into effect in January, 2015.

The amended Act forces prefectures to disclose baseline survey results, forces the governors of prefectures to deliver Sediment Disaster Alert to the mayors of municipalities and disseminate the information to ordinary people, and forces the municipal governments with sediment-related disaster hazard areas to take actual actions according to the description items in the regional disaster prevention plan.

# Column Amendment of "Sediment Disaster Prevention Act"

Early on August 20, 2014 morning, Hiroshima City suffered concentrated localized rainfall, and debris flows and slope failures occurred in Asakita-ward and Asaminami-ward resulting in tremendous damages (74 deaths) due to sediment-related disasters.

This sediment-related disasters revealed the problems such as insufficient systems for evacuating from dangerous areas, for example, (1) the residents are not properly informed of the risk of sediment-related disaster, (2) evacuation warnings and orders were not given in advance, and (3) evacuation shelters and routes are in dangerous areas. To cope with these problems, the bill to revise the "Sediment Disaster Prevention Act" was submitted at the 187th Diet session (extraordinary Diet session) and the bill was enacted in November 2014, coming into effect in January 2015. [Outline of Revision]

# a. Clearly indicating the areas at risk of sediment-related disasters

In order to inform residents of the risk of sediment-related disasters and promote designation of sedimentrelated disaster hazard areas, prefectural governments must publicize the results of baseline survey. The baseline survey is scheduled to be completed within about 5 years.

# b. Delivering the information contributing to the smooth issuance of evacuation warnings and orders

In order to contribute to the appropriate issuance of evacuation orders by municipal governments, Sediment Disaster Alert is stipulated in laws, the prefectural government must deliver the relevant information to the municipal government and ordinary people. Upon receipt of the information concerned, the municipal government basically need to issue an evacuation order immediately. When a municipal government asks for an advice on cancellation of an evacuation order, the national or prefectural government must give a necessary advice.

# c. Improving and strengthening the evacuation systems

In order to improve and strengthen the evacuation systems such as securing the places for evacuation, municipal disaster prevention plans will be created to define evacuation shelters, routes and disaster drills for individual sediment-related disaster hazard areas. In addition, transmission way of Sediment Disaster Alert to the social welfare facilities, schools, and medical facilities will be determined.

Also, in order to promote creation of hazard maps by municipalities, prefectural governments will support the creation by providing municipalities with electronic maps, prepare a report summarizing the progress of the creation, and submit the report to the national government.

# d. Assistance from National Government

The national government will have to help prefectural and municipal governments take sediment-related disaster measures by giving the advice necessary for them.

The recent revision of the law allows the residents to know the risk of sediment-related disasters as early as possible and made the relation among national, prefectural, and municipal governments more concrete. With the abovementioned points in mind, sediment-related disaster prevention measures will be promoted further by promoting close collaboration between administrative organs and by strengthening the warning and evacuation system.

Disaster situation of Yagi area



### h. Countermeasures for Large Scale Sediment-related Disasters

In order to reduce the damages caused by deep-seated catastrophic landslide, combination of structural and nonstructural measures are taken by, for example, development of sediment-related disaster prevention facilities as well as strengthening of the warning and evacuation system by use of deep-seated catastrophic landslide risk evaluation maps.

If there is a risk of a natural damming of a river (landslide dams) or debris flows following volcanic eruptions, urgent survey are conducted in accordance with the "Sediment Disaster Prevention Act" to provide municipalities with information on the land areas vulnerable to sediment-related disasters as well as the timing of occurrence. In recent years, sediment-related 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 urgent survey and strengthening cooperation with relative organizations are promoted.

In FY2014, urgent survey was conducted at Ontakesan (Mt. Ontake) erupted in September and provided information obtained in urgent survey.

# i. Issuing Sediment Disaster Alert

When the risk of sediment-related disasters increases due to heavy rainfall, Sediment Disaster Alert is jointly issued by prefectures and the Japan Meteorological Agency in each municipality. Sediment Disaster Alert is used as reference for evacuation orders announced by municipalities and voluntary evacuation of residents. In addition, the grid data indicating the risk of sediment-related disasters as well as precipitation data are provided in detail.



# (3) Volcanic Disaster Countermeasures

a. Countermeasures for Sediment-related Disasters Following Volcanic Activity

In preparation for the volcanic mudflow caused by volcanic eruptions and the debris flow caused by rainfall, sediment control dams, training dike and so on for preventing or reducing damages are being constructed. In addition, for facilities which 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-related disasters following volcanic eruptions could lead to large-scale disasters. In addition, it is very difficult to predict the position or scale of the eruption with good accuracy beforehand, causing serious damage. For these reasons, "Volcano Eruption Emergency Mitigation SABO Plans" are being prepared to develop facilities in advance and reduce

Development level of volcanic hazard maps, real-time sediment-related disaster prevention hazard maps and volcanic alert levels of volcanoes specified as "Volcanoes in Figure II-7-2-8 need of more intensive monitoring and observation for volcanic disaster mitigation" by the Coordinating Committee for Prediction of Volcanic Eruptions Volcanoes with hazard maps (37 volcanoes) Usuzan Volcanoes with real-time Volcano sediment-related disasters hazard maps in addition to Esan volcano hazard maps (18 volcanoes) Volcanoes where volcanic alert levels are in effect (30 volcanoes) Vakadaka E144 N32⁹ N28 N24 As of March 2015 Source) MLIT

damage by immediate measures in accordance with the volcanic activities changing from moment to moment. The plans are being prepared for 29 volcanoes which are active and have a large social impact in case of eruption. Also, to ensure that residents and others can smoothly evacuate from volcanic eruption, MLIT supports municipalities to prepare the "Volcano Hazard Maps".

When the Ontakesan (Mt. Ontake) erupted in September, 2014, the situation of volcanic ash fall was assessed using helicopters and through field investigation as the urgent survey based on the "Sediment Disaster Prevention Act", and provided the results of simulation related to the debris flow. In addition, monitoring cameras and sensors were installed and temporary sediment control dams with a block masonry structure were constructed.

#### b. 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.

#### c. 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 47 volcanoes in need of more intensive monitoring/observation for volcanic disaster mitigation selected by the Coordinating Committee for Prediction of Volcanic Eruptions, observation facilities have been deployed and volcanic activity is being monitored around the clock.

Also, volcanic alert levels are being applied and improved through coordination of evacuation planning at local Volcanic Disaster Mitigation Councils (applied to 30 volcanoes as of the end of March 2015).

# **Column** Eruption of Ontakesan (Mt. Ontake) on September 27, 2014 and Response by Japan Meteorological Agency

Ontakesan (Mt. Ontake) erupted at about 11:52, September 27, 2014. The smoke emitted from this volcano flowed eastward and rose to an estimated height of about 7,000 m above the crater rim. In addition, the survey conducted by a relevant organization showed that large cinders were scattered about 1 km from the crater row and pyroclastic flows reached about 2.5 km to the southwest and about 1.5 km to the northwest. This eruption of the Ontakesan is the first one after the very small eruption occurred in March, 2007.

In consideration of the eruption, the Japan Meteorological Agency (JMA) issued Near-crater Warning at 12:36 on the same day, and raised the volcanic alert level from 1 (Normal ^{Note}) to 3 (Do not approach the volcano). After that, on January 19, 2015, in consideration of the Coordinating Committee for Prediction of Volcanic Eruption's opinion that the volcanic activity had reduced, JMA reduced the area in which caution is required against eruption to the 3 km area around the crater.

Since the eruption occurred around noon during the tourist period, a lot of climbers visited the area near the mountaintop. The Fire and Disaster Management Agency reported that the total number of missing and dead was 63 persons (as of October 23, 2014) and it was the greatest among the numbers of missing and dead due to volcanic disasters after World War II.

JMA took special notice of loss of many lives due to this eruption, and therefore conducted study about the observation framework for grasping the symptoms of phreatic eruptions and changes in volcanic activity as well as provision of easy-to-understand information to climbers and sightseers in the "Conference for Reviewing Volcano Observation Framework, Etc." and "Conference Concerning Provision of Volcano Information" under the Coordinating Committee for Prediction of Volcanic Eruptions. The committee summarized an urgent proposal in November 2014 and a final report in March 2015. In response to this, JMA is making efforts to strengthen the volcano observation framework by installing volcano observation facilities for the volcanos requiring constant observation throughout the country as well as provide easy-to-understand information.

#### Note This keyword has been changed to "Be mindful that the volcano is potentially active".



# d. Japan Coast Guard Initiatives

As a precursor to the eruption of oceanic volcanoes, phenomenon such as discolored water in the surrounding sea area is observed and the information is relayed to sailing vessels. Also, to serve as basic data to predict the eruption of oceanic volcanoes, comprehensive studies will be implemented to gather basic information on seabed terrain, geological structure, and other information as well as implement GNSS continuous observation of the Izu Islands sea area to monitor crustal movements.

For Nishinoshima Volcano started to erupt in November 2013 for the first time in 39 years, its area has increased to 2.5 km² (including former Nishinoshima) as of March 2015. The status of volcanic activity and change in the island form are continuously monitored using aircrafts.

## e. Geospatial Information Authority of Japan Initiatives

# (a) Improved Observation and Monitoring of Volcanic Activities

At active domestic volcanoes, continuous observation by GNSS-based control stations (GNSS Note 1 successive observation facilities called GEONET), volcanic deformation survey by automatic distance and angle measurement devices, and continuous observation by Remote GNSS Monitoring System (REGMOS) are implemented to continuously monitor the three dimensional deformation of the earth's crust. Also, the GNSS observation data conducted by other institutions are integrated into the analysis to monitor the crustul deformation in the surrounding area of volcanoes in more detail. In addition, the Advanced Land Observing Satellite-2 (DAICHI 2) started to observe the change in shape of surface of volcanos through use of SAR Note 2 interferometry. Observation such as aerial photography was conducted when Ontakesan (Mt. Ontake) erupted.

# (b) 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



Movements of Japan Archipelago Cap-

Note 1 Global Navigation Satellite Systems

Note 2 Technology that monitors changes in the earth's surface from artificial satellites in space.

by analysis of the abovementioned observation data.

# (4) Storm Surge and Denudation Measures

#### a. Promoting Storm Surge and High Wave Measures

To protect human lives and assets from storm surges and high waves caused by frequently occurring storm surges, a combination of structural and non-structural measures are being promoted such as the development of coastal levees and the issuing of flood prevention warnings.

# b. Promoting Coastal Erosion Measures

Since a variety of factors contribute to coastal erosion across the nation, the administrators of rivers, coasts, shipping ports, and fishing ports are coordinating to implement measures such as sand bypasses Note 1 and sand recycling Note 2.

# c. 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

# a. Promoting Tsunami Measures

In preparation for the large scale tsunami disasters created by earthquakes such as the massive earthquake which occurs along the Nankai Trough, 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 flooding projections, designating warning areas, and drafting evacuation plans.

For the tsunami measures for coasts, structural measures are taken to develop coastal levees and so on necessary for resisting tsunami with relatively high frequency of occurrence, take earthquake and liquefaction measures, enable automatic/remote operation of floodgates, and develop coastal levees and seawalls with a tenacious structure including various structures such as "green coastal levees" in addition to non-structural measures taken to assist creation of tsunami and storm surges hazard maps and manage and operate floodgates and others effectively. In June 2014, the "Seacoast Law" was amended to improve the coastal disaster prevention and mitigation measures by locating disaster-mitigating forests at the coastal protection facilities which are developed integrally with coastal levees and forcing stipulation of operating rules of floodgates and so on. For the three major harbors where population and functions are concentrated, a study is conducted to ensure a sufficiently high protection level considering the height of tsunami which exceeds the tsunami with a relatively high frequency of occurrence.

For the tsunami measures for harbors, in order to maintain the harbor functions when a large-scale tsunami occurs, development of seawalls 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.

Also, specified ports (86 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.

For fluvial tsunami measures, in consideration of the liquefaction of levees and tsunami river reversal damages by the Great East Japan Earthquake as well as floodgate operators stricken by disaster, measures such as raising river levees, earthquake resistance and liquefaction measures for levees, automation and remote operation of floodgates are being 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.

For the four river systems in the Tohoku Region, the lessons learned from the Great East Japan Earthquake will be applied to the formulation of earthquake and tsunami measures, geographic changes to the surrounding river mouth area such as land subsidence following earthquakes will be reflected in changes to the "Basic Policy for River Improvement" and the "River Improvement Plan" that follows the basic policy will be formulated and changed, and initiatives for regional reconstruction and town planning such as the development of river levees in the river mouth area are being promoted in coordination with the region.

Regarding tsunami measures for airports, in preparation for large-scale tsunami disasters caused by events such as the Nankai Trough Mega Earthquake, 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 continue to 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.

For the tsunami measures of railways, the conditions of evacuation guidance when tsunamis occurred after the Great East Japan Earthquake are being inspected and fundamental thinking for evacuation (speedy evacuation is the most effective and important measure, etc.) for the largest scale tsunamis following something like the Nankai Trough Mega Earthquake is being reflected in the response guidelines and case studies compiled for passenger railways to secure safety when tsunamis occur to promote initiatives by railway companies.

# **Column** The "Seacoast Law" was amended for the first time in 15 years.

In preparation for large-scale tsunamis and other disasters following the Nankai Trough Mega Earthquake with an occurrence probability within the coming 30 years is 70% which, the "Seacoast Law" was amended in June 2014 for the first time in 15 years to improve coastal disaster prevention and mitigation measures, cope with dilapidation of coastal protection facilities such as a lot of coastal levees and so on developed during the period of high economic growth, and promote appropriate maintenance of coasts. Main Points of the Amendment

1. Locating the Coastal Levees, Etc. with a Disaster Mitigation Function at Coastal Protection Facilities

When the Great East Japan Earthquake occurred, coastal levees were destroyed by overtopping waves resulting in tremendous damage to the areas behind the coastal levees. After the Great East Japan Earthquake, coastal protection facilities have been developed basically for protection against tsunamis with relatively high frequency of occurrence. On the other hand, for tsunamis higher than the designed height, it has been determined to provide coastal protection facilities with a disaster mitigation function so that the effect of the coastal protection facilities are exerted tenaciously. The act amended this time expressly defines coastal levees with a "tenacious structure" such as foot protection works or forest ("green coastal levees") provided integrally with coastal protection facilities in order to further promote disaster mitigation measures against tsunamis and storm surges.

Also, parties concerned have been allowed to form a council to discuss the adjustment between enterprises and so forth in terms of coastal disaster prevention and mitigation measures.

# 2. Developing the Rules for Operating Floodgates and Land Locks

When the Great East Japan Earthquake occurred, in keeping with the fact that a lot of people in charge of operation of floodgates and so on died, the managers of facilities have been obliged to develop the rules for operating floodgates and land locks and conducting trainings. In addition, provisions concerning emergency measures have been developed so that coast administrators can remove obstacles in the case where they prevent land locks from being closed at the time of disaster.

# 3. Developing the Standards for Maintenance and Repair of Coastal Protection Facilities

In order to keep the coastal protection facilities likely to deteriorate rapidly in satisfactory condition, the responsibility of coast managers for maintenance and repair of coastal protection facilities has been jurally

clarified, and set up the maintenance and repair standards on the premise that coastal protection facilities are inspected in a planned manner and repair is appropriately carried out according to the inspection results.

# 4. Stranded Vessel Removal Order

Coastal managers could not order to remove the vessels, etc. stranded in the sea areas within the coastal protection areas. However, coastal managers have been legally allowed to order to remove stranded vessels, etc. that can damage coastal protection facilities.

# 5. Establishing the Coastal Cooperation Organization Framework

Recently, private corporations and organizations have implemented a variety of activities at coasts. In order to improve coastal management according to the region-specific circumstances, the coastal administrators have been legally allowed to assign corporations and organizations that voluntarily carry out various activities such as cleaning, planting, protection of endangered animals and plants and perform coastal management appropriately and securely as coastal cooperation organizations.



Stranded Vessel Removal Order

Locating the Levees, Etc. with a Disaster Mitigation

Developing the Standards for Maintenance and Repair of Coastal Protection Facilities





Establishing the Coastal Cooperation Organization Framework









Source) MLIT

# b. Providing Disaster Prevention Information Regarding Tsunamis

In order to strive for the prevention and mitigation of disasters caused by tsunamis, the Japan Meteorological Agency (JMA) is monitoring seismic activities across the nation around the clock in order to make quick 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 such as use of the word "huge" for Major Tsunami Warnings in the case of large earthquakes with magnitude 8 or more to emphasize that it is an emergency situation from March 2013.

As of March 2015, JMA monitors tsunamis with 38 Ocean-bottom tsunami meters, 18 GPS wave gauges, and 172 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 a tsunami disaster prevention information map for the expected behavior of tsunamis in port areas based on new assessments of the massive earthquake which occurs along the Nankai Trough (Cabinet Office, August 2012).

### c. Tsunami Evacuation Measures

Because there are concerns for tsunami disasters caused by large earthquakes such as the massive earthquake which occurs along the Nankai Trough in the future, a technical guidance was created to compile methods for ensuring the appropriate placement of evacuation and other facilities utilizing the basic data of urban plans which was released in June 2013.

Efforts are being made to make a tsunami evacuation plan taking into account the special characteristics of ports so that workers and others active on waterside land can safely evacuate and retreat during disasters such as tsunamis. Also, for tsunami evacuation facilities developed by local governments, grants for disaster prevention and safety as well as other instruments are utilized to promote development. In addition, the Organization for Promoting Urban Development (general incorporated foundation) is assisting private enterprises in developing distribution facilities with a function of evacuating from tsunami and other disasters.

# d. Development of Parks and Greenery that Effectively Function to Reduce Tsunami Damages

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.

# e. 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

# a. Improving the Earthquake Resistance and Safety of Housing and Architecture

Based on the amended "Act on Promotion of Seismic Retrofitting of Buildings" which went into effect in November 2013, established goals of making at least 95 percent of housing and architecture used by many people earthquake-resistant by 2020 as well as make the reporting of earthquake-resistance diagnosis results for large-scale architectural structures and others used by an unspecified number of people mandatory along with the creation of display requirements for the earthquake-resistance of architectural structures 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 diagnosis, intensive and emergency assistance is being implemented in addition to usual subsidies.

# b. Promoting the Earthquake Resistance of Housing Land

To prevent or reduce damages due to rock falls and slides during large earthquakes, the technical standards for creation of new earth fill is being strengthened as per the amended "Act on Regulation of Residential Land Development" and other regulations. Also, to prevent damages to the existing residential land due to rock falls and slides as well as liquefaction, the residential land earthquake resistance promotion project is supporting the local government in implementing studies to survey changes and preventative measures.

# c. Implementing Danger Assessments for Housing Land in Disaster Stricken Areas

To prevent secondary disasters and ensure the safety of residents for housing land, 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 swiftly and accurately after disaster strikes.

# d. Development to Improve Densely Built-Up Areas

Densely built-up areas with issues regarding disaster prevention and living environment are an urgent issue that requires immediate improvements through development, and the minimum safety is planned to be secured by 2020 for the "land

area of densely built-up areas that are conspicuously dangerous when earthquakes occur" (approximately 6,000 ha).

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 integrated housing and urban development projects will be used to eliminate decrepit architecture and joint rebuilding of fireproof architecture, expansion of narrow roads to improve evacuation and firefighting efforts.

# e. Securing Open Space

То improve disaster prevention functions and strive for more safer and comfortable town building, 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 living supplies, and as an evacuation area to protect the lives of evacuees form urban fires. Also, a disaster prevention block improvement project that integrates the implementation of developing a disaster prevention park and the surrounding urban area is being implemented in eight regions including Shinkawa Disaster Prevention Park (Mitaka City, Tokyo Metropolis).



# f. Promoting Construction and Improvement of Government Buildings as Disaster Prevention Centers

Government buildings need to secure comprehensive seismic performance to ensure the safety for visitors and to be able to function fully as centers for disaster emergency activities in the occurrence of large-scale earthquakes. Therefore, MLIT is setting a target to improve their seismic resistance and promoting construction and improvement of government buildings in a systematic and prioritized way, and in FY2014, Central Government Building No.4 (Chiyoda-ku, Tokyo) was renovated for earthquake resistance.

# g. 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 damages 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 the earthquakes along Nankai Trough occurs.

For road works, to ensure smooth emergency and rescue activities, transport emergency supplies, and deploy emergency transport essential to recovery efforts when earthquake disasters occur, seismic strengthening of bridges and undergrounding of cables are implemented with priority given to important roads, such as emergency transport roads.

For port works, for the Nankai Trough Mega Earthquake and Tokyo Inland Earthquake where extensive damages are expected, to secure an economic and social system that does not succumb to functional failure, increase Japan's competitiveness, and gain international trust, the earthquake resistance of port facilities, that serve as the base of wide area networks both domestically and internationally as well as port complexes are being strengthened.

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. In addition, studies are being conducted as to how structural and non-structural measures should be taken for airport facilities when widespread large-scale disasters such as the Nankai Trough Mega Earthquake occur.

For railway works, in preparation for the Nankai Trough Mega Earthquake and Tokyo Inland Earthquake, earthquake measures for major stations, elevated bridges, and other railway facilities are being promoted. Also, the fortification of the Honshu-Shikoku Bridge's (Hon-Shi Bisan Line) earthquake resistance is being steadily implemented to avoid and reduce damages due to the Nankai Trough Mega Earthquake and other events and secure the railway network that connects Honshu and Shikoku.

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" which aims to minimize damages in anticipation of disasters striking are being combined for the promotion of integrated earthquake measures.

# h. Sediment-related Disaster Countermeasures against Large-Scale Earthquakes

In preparation for large-scale earthquakes such as the Nankai Trough Mega Earthquake, implementation of effective sediment-related disaster countermeasures with combination of non-structural and structural measures are being promoted for the areas at risk of sediment-related disasters where important facilities and important transportation networks will be damaged and communities will be isolated by the landslides.

Also, after a large-scale earthquake, rainfall and aftershocks increase the risk of secondary disasters such as slope failures over a wide area. It is essential to swiftly assess a risk of slope failures according to various factors such as seismic intensity and terrain. It is also important to conduct emergency inspections at high-risk areas, and carry out emergency measures appropriately on the basis of the inspection results for preventing damage of secondary disasters. For this purpose, efforts are being made to strengthen the system for improving the accuracy of risk assessment and conducting inspections in wide area.

## i. Japan Meteorological Agency Initiatives

To prevent and mitigate disasters caused by earthquakes, seismic activities in and around Japan as well as crustal deformation in the Areas under Intensified Measures against Earthquake Disaster (Tokai Region) are being monitored 24/7 basis to provide Earthquake Early Warnings (EEWs), earthquake information, and information on the Tokai Earthquake as swiftly and accurately as possible.

For Earthquake Early Warning(EEWs), the software of the calculation systems is being improved and effective use of the data obtained by the seismometers installed offshore and deep in the ground by the relevant organizations is being promoted. These improvements lead to more accurate and more prompt issuance of the Earthquake Early Warning, even when multiple earthquakes occur at the same time as well as when a large earthquake occurs.

In addition, to provide useful information that will contribute to the initial response immediately after the earthquake such as the early detection of human and fixture damage caused by long-period ground motion, from March 2013, information on observation of long-period ground motion is being issued on a trial basis. Also, studies are being conducted to provide a forecast of long-period ground motion.

# j. Japan Coast Guard Initiatives

To contribute to research on the fundamental causes of earthquakes, crustal movements of the seafloor are being observed in the Pacific Ocean waters such as the Japan Trench and Nankai Trough where the occurrence of massive trench-type earthquakes is predicted. Also, in coastal areas and the Izu Islands, GNSS observations are being used to monitor crustal movements.

# k. 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, GNSS surveying, and leveling through about 1,300 GNSS-based control stations (GEONET). Also, monitoring of crustal movements started using the interferometric SAR of the land observing satellite "DAICHI-2".

# (b) Research on Natural Disasters Associated Following Earthquakes

From the results of geodetic observation 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. Also, national fundamental geospatial information and past disaster record as well as seismic intensity is combined and analyzed to research and develop method to promptly obtain and provide disaster information soon after disasters. Additionally, for the purpose of exchanging information on surveys, observations and research outcomes regarding earthquake prediction between relevant government organizations and universities as well as conduct academic deliberations 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.

# I. Stranded Commuter Measures

If a large-scale earthquake occurs in a major city, urban functions will be paralyzed and more commuters will be stranded compared with the Great East Japan Earthquake, therefore to secure the safety of evacuees and stranded commuters in regions where population and urban functions are concentrated; the "Urban Reconstruction Safety Protection Plan System" was newly established in 2012. Across the nation, 62 regions are designated as urban reconstruction emergency development regions to create a urban reconstruction safety protection plan, conclude agreements on urban reconstruction safety protection facilities, and loosen various regulations in order to improve the disaster prevention capabilities of urban areas in cooperation between the public and private sectors. In the same year, the "Urban Safety Protection Promotion Project" was set to comprehensively assist creation of the urban reconstruction safety protection safety protection suffy protection safety protection suffy protection safety protection between the public and private sectors. In the same year, the "Urban Safety Protection Promotion Project" was set to comprehensively assist creation of the urban reconstruction safety protection plan and implementation of non-structural and structural measures based on this plan. In 2013, the system for providing subsides was expanded to cover the areas around major stations, and special taxation measures were created for storage warehouses listed in the urban reconstruction safety protection plan.

# m. Safety and Security Measures of 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

### a. Securing Winter Road Traffic (Snow and Winter 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. In case of unusual snowfall, traffic will be stopped at an early stage and concentrated snow removal will be carried out. where large vehicles are stalled, they will be moved swiftly in accordance with the "Disaster Countermeasure Basic Act", amended in November 2014, to ensure quick restoration of traffic. When large snowfall occurred mainly in Chugoku and Shikoku regions on December 5, 2014, the "Disaster Countermeasure Basic Act" was applied for the first time to move vehicles stalled on Route 192 on the border between Ehime and Tokushima Prefectures. Furthermore, unifying the sharing and dissemination of snow removal conditions and other information, as well as improving the efficiency of snow removal, is being promoted, along with the establishment of measures for relaying headquarters information to the relevant organizations of road administrators.

# b. 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.

# c. Implementing Snow Clearing Waterways Projects

In heavy snowfall regions, in addition to securing flood control functions, water conveyance channels are being developed for rivers with abundant water volume to supply small and medium-sized rivers flowing through the city with water for snow clearing waterways.

# Column

# MLIT's Response to Heavy Snowfall

Vehicles stalled in various locations due to the record snowfall that occurred in the Kanto and Koshin Regions in February, 2014. These stalled vehicles disturbed the snow clearing work. While clearing snow off the roads was delayed, vehicles in other locations stalled, causing the large-scale closing of roads for several days.

The large-scale closing of roads often occurs due to the stalling of a large-sized vehicle which can be caused by the use of summer tires or not installing chains.

The MLIT is reinforcing the snow cleaning system for such an unusual amount of snowfall, as well as improving the provision of information for road users, to secure winter road traffic.

# Establishment of Unusual Snowfall Countermeasures Headquarters of MLIT

To minimize the damage due to unusual snowfall, the "Unusual Snowfall Countermeasures Headquarters of MLIT" (General manager: Ohta, Minister of MLIT) was established as a permanent organization in December 9, 2014. The Headquarters created for the first time the disaster prevention action plan (timeline) indicting the disaster prevention action to be taken against snow damage on a time series basis, and the Ministry proper, the Regional Development Bureau, and transportation service providers will act in cooperation with each other on the basis of the information, such as the weather information provided by the Japan Meteorological Agency, to minimize the damage.

# Intensive Implementation of Snow Clearing Work Along with Early Closing of Roads

Once the stalling of vehicles occurs, the stalled vehicles block the passage of snow clearing vehicles and it takes time to remove stalled vehicles, resulting in prolonged traffic closing.

To cope with the problem, in the road sections where vehicle stalling can occur, the standby locations of road cleaning vehicles and a personnel distribution plan are determined in advance to make preparations for quick initial response.

Since 2014, efforts have been made to reduce the total time of traffic closure by closing off the traffic at an early stage and clearing snow effectively before the occurrence of a vehicle stalling rather than after its' occurrence, particularly in the cases of unusual snowfall when a vehicle will likely stall.

# Movement of Vehicles by Road Administrators Based on the Disaster Countermeasure Basic Act

Based on the experience obtained from the heavy snowfall that occurred in Kanto and Koshin Regions in February, 2014, the "Disaster Countermeasure Basic Act" (hereinafter referred to as the "amended disaster countermeasure act"), amended in November 2014, allowed road administrators to specify road sections and order drivers of vehicles to move their vehicles out of roads when it is necessary to secure passage for emergency vehicles. In addition, the "amended disaster countermeasure act" allows road administrators to move vehicles and other obstructions by themselves when the drivers do not follow orders to move their vehicles or if they are absent.

When heavy snowfall occurred in 2014, the "amended disaster countermeasure act" was positively applied to quickly remove stalled vehicles for effective snow clearing work, as well as to reduce traffic closing times. In 2014, only 48 sections of highways and national roads were specified and eight vehicles were forcibly removed by road administrators (as of March 31, 2015).





Source) MLIT

Forced removal of left vehicles (January 2, 2015)



Source) MLIT

# Appealing to Drivers

To secure winter road traffic, cooperation of drivers in attaching winter equipment is essential. For this reason, drivers are asked to pay attention to weather and traffic information provided at *Michi-no-Eki*, service areas and parking areas, as well as to attach appropriate equipment such as winter tires and chains.

Regional development bureaus and expressway companies announce in advance the road sections that could be closed early when unusual snowfall occurs and they appeal to the vehicles without appropriate winter equipment to avoid passing through these sections.

* Road sections scheduled to be closed (http://www.mlit.go.jp/road/bosai/road_closed/)

Where unusual snowfall can occur, the "Unusual Snowfall Countermeasures Headquarters of MLIT" will make an urgent announcement. On December 31, 2014, during the New Year period when heavy snow was expected, the "Unusual Snowfall Countermeasures Headquarters of MLIT" showed drivers the damages and impacts that occurred in the past under similar weather conditions in order to call for caution, such as refraining from going out unless necessary. As a result, this was reported on the evening TV news, Web news, and so on.

# (8) Sophistication of Disaster Prevention Information

# a. Aggregation of Disaster Prevention Information

The "MLIT Disaster Prevent 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.

# b. Development of Hazard Maps

For residents to take appropriate evacuation actions when disasters occur, the creation and distribution of hazard maps by municipalities is being promoted in addition to creating an Internet portal site ^{Note 2} where various hazard maps from all over the country can be searched and browsed.



# c. Improvement of Disaster Prevention Weather Information

The Japan Meteorological Agency issues warnings and advisories by municipality as well as provides distribution maps, which are named "nowcasts", indicating up to an hour forecast for extreme meteorological phenomena affecting a small area such as tornadoes, thunder, and heavy rains. In August 2014, provision of "High-resolution Precipitation Nowcasts" started to allow the half-hour forecast of precipitation distribution to be seen at 250-mesh resolution (four times higher than before). The "High-resolution Precipitation Nowcasts" is compatible with smartphones. For Hazardous Wind Watch, since September 2014, improvements have being made to provide the information indicating that there is an increasing possibility of occurrences of strong gusts such as tornadoes in the vicinity of the area where a tornado was witnessed in the case where a report of sighting of the tornado was obtained.

# (9) Strengthening the Crisis Management System

In response to natural disasters, forecasting natural phenomena that could lead to disaster (Japan Meteorological Agency), in addition to conducting inspections and emergency rehabilitation of facilities during disasters (departments in charge of facility management), and rescue operations at sea (Japan Coast Guard), there are many places with established initial response systems such as the emergency assembly of staff and the establishment of disaster measure headquarters but in light of the disaster response during the Great East Japan Earthquake, the crisis management system needs to be strengthened further. Additionally, using the equipment, manpower, expertise and other resources of MLIT and relevant organizations to support local governments stricken by disaster will be promoted more actively.

Note 2 "MLIT Hazard Map Portal Site": http://disaportal.gsi.go.jp/

## a. 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 (Technical Emergency Control Force) was established in FY2008 and is available for deployment to smoothly and rapidly implement technical support for the local government of the affected area to carry out various emergency disaster measures such as rapidly assessing the extent of the disaster, prevent or contain damages, and rapid recovery of affected areas. In FY2014, approximately 1,600 members were dispatched to 32 prefectures and 129 municipalities for a total of 4,400 man-days in response to Typhoon Neoguri and rainy front in July, Severe Tropical Storm Nakri and Typhoon Halong in August, heavy rainfall started on



August 16, Hiroshima sediment-related disasters caused by heavy rainfall started on August 19, eruption of Ontakesan (Mt. Ontake) in September, earthquake centered in the north of Nagano Prefecture in November, and other disasters to carry out technical assistance such as assessment of damages and minimization of further damages immediately after occurrence of the disaster.

# b. Improving Business Continuity Systems

Following the ratification of the government-wide operational continuity plan (government operation continuity plan), previous undertakings of the Ministry of Land, Infrastructure, Transport and Tourism Operational Continuity Plan (Second Edition) were followed up to create the Ministry of Land, Infrastructure, Transport and Tourism Operational Continuity Plan (Third Edition) on April 1, 2014. Also, the operational continuity framework is being strengthened through such measures as the stockpiling of supplies and securing support systems from other regions without awaiting orders from ministry headquarters (immediate dispatch of TEC-FORCE).

# c. Deployment of Information Communication Systems and Equipment in Preparation for Disasters

To secure information communication systems in the event of a disaster, MLIT headquarters, local branch offices, 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, to rapidly respond to disasters, the deployment of disaster response helicopters, satellite communication vehicles, drainage pump vehicles, illumination vehicles, and other disaster response machinery is being developed at regional development bureaus and local offices across the nation, so that in the event of a large-scale disaster, the framework will be able to execute rapid deployment.

# d. Implementing Practical and Wide-Area Disaster Prevention Training

Assuming the worst-case scenario that can occur, realistic and wide-area training was actively carried out including coordination with relevant organizations and wide-area dispatching of the TEC-FORCE from Regional Development Bureaus. Also, mainly in flood fighting months (particularly in May), in addition to realistic trainings in flood fighting activity conducted by flood prevention teams, integrated and realistic evacuation trainings combining together the evacuation training, information communication training, and other trainings were conducted by various organizations such as self-defense flood control organizations.

Additionally, the Great East Japan Earthquake reaffirmed the importance of coordination between relevant organizations during large-scale disasters, therefore efforts to improve and strengthen a wide-area disaster prevention framework in preparation of massive earthquakes and other large-scale disasters through the implementation of various joint exercises between multiple organizations centered around regional offices and bureaus including designated local government agencies, fire fighting organizations, and the Japan Self-Defense Force is being promoted to promote initiatives to enhance and strengthen wide-area disaster prevention readiness in preparation for large-scale disasters such as great earthquakes.

# e. Preparing for Initial Response at Sea

The Japan Coast Guard deploys patrol vessels and aircraft around the clock to allow for rapid responses in the event of a disaster. Also, in accordance with the scale of the disaster a countermeasure headquarters is established to implement damage assessment surveys and rescue operations through patrol vessels and aircraft for an immediate and appropriate response.

# (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, to speed up and consolidate the control of

floodgates and other facilities, the development of tsunami and storm surge disaster prevention stations to prevent tsunami and storm surge damages is being supported through disaster prevention and safety grants and other means.

#### (11) Disaster Recovery of Public Works Facilities

In 2014, damages to public works facilities under the authority of MLIT (rivers, roads, coast, sewage, etc.) came to roughly 181.9 billion yen (9,085 cases) of reported damages due to many domestic large-scale disasters such as the sediment-related disasters caused by the short-duration downpour in Hiroshima City in August and the earthquake occurred in northern Nagano Prefecture in November.

Regarding these natural disaster damages, TEC-FORCE was deployed immediately after the disaster. In addition, since FY2014, the disaster restoration technical experts dispatch system has been used to give technical advices and other assistance on the request of the affected local government such as dispatching the experts enrolled in the National Association of Disaster Prevention to pursue swift restoration and reconstruction as well as prevention of secondary disasters.

Also, for municipalities where damages were concentrated in particular, the general price unit of spending limits for disaster assessments was removed and for assessments involving only desk work, the monetary limit for assessments was raised from the usual less than 3 million yen to less than 10 million yen to simplify assessments and greatly reduce the administrative paperwork leading to project adoption in the interest of facilitating rapid disaster recovery to support early recovery.

Furthermore, the districts (40 cases) affected by natural disasters such as heavy rainfall caused by Severe Tropical Storm Nakri and Typhoon Halong and rainy season; strong winds, heavy snow, avalanches and waves from low pressure were granted emergency project promotion grants for disaster measures to ensure the safety and comfort of residents and urgently implemented measures to prevent recurrences of disasters.

# (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.

# **Column** Efforts to Improve Functions of Disaster Prevention Application Software

Since the Great East Japan Earthquake occurred in 2011, public awareness on disaster prevention has been improved. In recent years, local governments and private enterprises have created and supplied a lot of disaster prevention application software that provide various kinds of disaster prevention map information through smartphones and cell phones. To promote development of versatile and practicable disaster prevention application software that allow highly reliable disaster prevention map information to be used anywhere at any time, it is essential to provide people with much more various kinds of disaster prevention map information. For this purpose, in 2014, the Geospatial Information Authority of Japan and the MLIT Water and Disaster Management Bureau advertised for disaster prevention application software in cooperation of the Cabinet Office.

As part of these efforts, various kinds of disaster prevention map information were created and provided to the public for the model district Kainan City in cooperation of Wakayama Prefecture and Kainan City, and a lot of useful applications for disaster prevention application software were developed using the information. In addition a review committee consisting of academic experts was held to select disaster prevention application software with superb functions with comprehensive consideration given to availability, user-friendliness, and so on. Further validation test for evacuation guidance with the cooperation of citizens, using some of the selected disaster prevention application software which are useful in the case of evacuation (especially, for searching and mapping the information of evacuation routes and evacuation area), was carried out with a disaster drill in Kainan city, Wakayama Prefecture.

Regarding the efforts stated above, the developers (applicants) of the applications expressed the opinion that the efforts are ambitious, forward-looking and stimulating and that they want to develop more practicable applications on the basis of the result of the validation test. The participants in the validation test expressed the opinion that they want to use disaster prevention map information easily on a routine basis through such efforts and that the disaster prevention map information should be utilized for disaster prevention learning.

The disaster prevention application software were developed using lots of information such as evacuation areas and hazard maps; however, the information needs to be highly utilized to contribute more to evacuation guidance and so on. Also, the users have many opinions about improvements in user-friendliness and functions, and it is necessary to provide more disaster prevention map information and develop and spread disaster prevention application software. Based on the above-mentioned results, further efforts will be made to improve provision of disaster prevention map information to the people.

Validation Test for Evacuation Guidance Conducted in Kainan City, Wakayama Prefecture



Source) Geospatial Information Authority of Japan



# 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 functions as emergency transport during disasters to facilitate early relief, fulfilling its function as a "lifeline".

# (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. In June, 2013 the Road Law, was amended to promote the conclusion of disaster alliances with private sector businesses to implement swift road openings and the establishment of a council for road administrators to create a framework that keeps roads open. 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, big data such as ETC2.0 probe information and private probe information are used effectively to grasp early damage situations, thus enhancing initial responses.

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 sign posts to promote the provision of sea level information to road users.

# (3) Accelerating the elimination of utility poles

Utility-pole-free town development is being promoted to prevent utility poles from falling down in the event of disasters, such as earthquakes, and thus blocking the passage of emergency vehicles, etc. In addition, development concurrent with new construction or widening of roads is being promoted and studies are being conducted with the related organizations to introduce low-cost methods, such as direct burying and use of small-sized boxes.

## (4) Disaster Prevention Measures for Various Transportation Modes

For railways, subsidies are provided to partially cover the costs of improvement projects such as disaster prevention projects carried out by passenger rail companies including rockfall and avalanche measures as well as coastal protection and improvement projects carried out by Japan Railway Construction, Transport and Technology Agency (Incorporated Administrative Agency) to maintain the function of the Seikan Tunnel such as the improvement of substations and train control facilities.

For ports, in order to secure the port functions and maintain regional economic activities during disasters as well as achieve early restoration of facilities affected by disasters, a Port BCP has been created and the Wide Area Port Disaster Councils and others have been established for the national government, port authority, port users, and others to work together to promote the establishment of a cooperative framework.

For airports, in addition to serving as the base of emergency life-saving activities and emergency transport when earthquakes and other disasters occur, airports are considered important from the perspective of maintaining air transport to maintain the aviation network and ensure the continuity of hinterland economic activity. For such important airports, seismic strengthening is being carried out for government facilities critical to ensure necessary control functions as well as basic facilities that are absolutely essential. For such important airports, seismic strengthening is being carried out for government facilities as well as basic facilities that are absolutely essential.

Also, in preparation for tsunami disasters, tsunami evacuation plans were created to stipulate evacuation procedures for saving lives of airport users in the event of a tsunami. 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. In addition, studies are being conducted as to how structural and non-structural measures should be taken for airport facilities when widespread large-scale disasters such as the Nankai Trough Mega Earthquake occur.

### (5) Building a Logistics System Resistant to Disaster

The Great East Japan 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. In light of this lesson, the establishment of a logistics system that is resistant to disasters through the coordination of central government, local government, and logistics companies was evaluated and private logistics facilities that could be used as a base for supplies in the event of an earthquake were listed up (1,203 locations nationwide, as of February 28, 2015) and for applicable facilities, support was given to implement emergency power supply, communication, and other facilities to promote the establishment of a cooperative framework for coordination between the public and private sectors across the nation.

# 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 inspection regulations" the second report was compiled in February 2014. In accordance with this, the "Law for a Partial Revision to the Building Standards Law" was enacted in May 2014.

For measures concerning the architect, efforts have been made to optimize the design and construction supervision, based on the "Act for Partial Revision of the Architect Law", which was enacted in June of the same year.

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.

The year 2014 marks the 5th year of enforcement of this system, and the "Review Committee Regarding the Future of Secure Execution of Defect Warranty Liability Legislative System" was newly launched by the experts to discuss about smooth operation, dissemination and enlightenment of this system.

## (2) Ensuring the Safety of Elevators and Play Facilities

Investigation to study accident causes of conveyors (elevators and escalators) and play facilities and safety and accident measures training for local government and regional development bureau officials will continue to be done. Also, continuing initiatives to ensure safety, such as partial amendment of periodic inspection system and additions of quakeresistance standards for conveyors and safety device installation standards for luggage elevators for luggage will be taken as well.

# 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 damages but also has an enormous impact on society so various measures are being undertaken to prevent accidents from occurring.

# Building and improving the safety management system in public transportation

In October, 2006, "Transport Safety Management System" was introduced in the wake of frequently occurring troubles and accidents, which was seen to be caused by human error in each transportation mode. This is to build and strengthen the safety management system, which will be united with the organization, including the fields which are under the proactive involvement of the top management, in the transportation business, coupled with election system of "safety managers" and creation of "safety management regulations. The country has to check the system through advice and evaluation, which is intended to continuously improve the safety management system using the PDCA cycle.

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In FY2014, transportation safety management assessment was carried out on a total of 465 companies (75 railway companies, 107 automobile companies, 262 shipping companies, and 21 aviation companies).

Moreover, in the "policy vision for transportation safety", which was compiled in December, 2011, through the deliberation of transportation safety committee, under the transportation council, 1) strengthening of widespread awareness activities for small and medium- sized companies; 2) ensuring the effectiveness of safety management, with the focus on large and medium sized business; 3) promote the efforts of the three points shown to enhance the training and security of human resource, which performs the management evaluation; is the direction of the policies to ensure safety in future.





Implementation of effective evaluation in the wake of expansion of all chartered bus operators (about 4,200 people), specifically for the mandatory implementation of transportation safety management system, and spread awareness to small to medium- sized business, through utilization of certification seminar systems (private institutions that are certified by MLIT to carry out the seminars), founded in July, 2013. About 14,000 people had participated by the end of December, 2014 in these certification seminars.

For the transportation safety management system, the MLIT will improve the effectiveness of the system and disseminate it's concept to all the operators for enhancement and strengthening in the future.

# 2 Railway Transportation Safety Measures

Driving accident numbers for railway traffic show a declining trend over the long term ^{Note} due to factors like the promotion of driving assistance facilities including automatic train stop systems (ATS) and rail crossing measures, but the trend is plateauing in recent years, requiring the promotion of further safety measures.

# (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.

# a. Measures that were triggered by the JR West Fukuchiyama line derailing accident

The "Ministerial ordinance to define the technical standard related to the Railways" was revised to make the installation of Automatic Train Stop (ATS) devices, with functions to limit speed on the curves,



driver anomaly detection, and train stopping devices; and driving condition recording devices mandatory.

# b. Measures from the JR East Uetsu line derailment

A "Railway Wind Measures Council" was convened to consider both non-structural and structural measures for strong winds and in addition to installing additional wind gauges, the wind observation system for railways was strengthened, along with other measures.

c. Measures taken to ensure the safety of JR Hokkaido, from the JR Freight Hakodate Line Train Derailment

JR Hokkaido has 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 audit systems to reliably execute the same.

Note In 2005, JR Fukuchiyama line derailment accident occurred, after which, for years the number of causalities and human losses have increased due to operation accident.

# (2) Promotion of Railway Crossing Measures

"Gridlocked rail crossings Note", mainly seen in urban areas, cause crossing accidents and chronic traffic congestion, requiring immediate measures. 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 "9th traffic basic traffic safety plan".

In 2014, immediate measures were implemented for the development of safety equipment and expansion of sidewalks and drastic measures for railroad crossing disposals, through continuous steric intersection measures. This was pursued along with developing safety equipment, which was specified in all 6 railroad crossings, and structural improvements, such as widening the railroad crossing in all 36 places, as well as the creation of railroad crossings in 43 places, based on the "Railroad crossing improvement and promotion act".

In addition, the "Railroad crossing and traffic safety records" were created and published in 2015, with the aim of intensively continuing the promotion of safety measures for pedestrians crossing railroads.

# (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 615 stations as of the end of FY2014). Based on the "Basic policy to promote smoothness of transport etc." (March 2011), the "Priority plan for social infrastructure development" (August 2012) and the "Basic Plan on Transport Policy" (February 2015), structural measures, such as promoting the development of platform doors and tactile paving with boundary lines, as well as, technology development for platform doors with better carriage door alignment; and non-structural measures, such as "friendly manners campaign" calling on rail users to offer assistance to those with visual impairment, are being promoted.



# 3 Safety Measures for Maritime Traffic

In the sea areas surrounding Japan, around 2,500 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

# a. Improving Ship Safety

The International Maritime Organization (IMO) is central in stipulating international standards for safety of the ships, and in July, 2014, in accordance with the SOLAS convention ^{Note 1}, development of the national laws were carried out, along with the changes to fire protection requirements for the deck and bulkhead in passenger ships carrying not more than 36 people, and additional protection requirements for noise was implemented, while actively participating in IMO discussions.

A committee on large container ship safety is held to consider the safety measures of large container ships, in the wake of large container MOL COMFORT Pat. Breakage accident of Bahama flagged, which occurred in the Indian Ocean in June, 2013, and in March, 2015, a report on the safety measures of large container ships that are currently in service was compiled and published.

Also, Port State Control (PSC) Note 2 is being implemented, in order to eliminate substandard ships Note 3.

#### b. Ensuring Ship Navigation Safety

In accordance with the "Law for Ships' Officers and Boats' Operators" which complies with the STCW Convention Note4", the qualifications for seafarers are defined to ensure ship navigation safety from human factors. In June 2010, the revised STCW Convention (Manila Amendments) with amendments stipulating additional competencies required for seafarers was adopted and the partial amendments to domestic Ministerial Ordinances came into force in April 2014. Also, for the pilotage system, qualifications for people who can perform pilotage are defined for the safety of vessel traffic but finding successors is turning out to be challenging, therefore, securing a stable supply of human resources and the provision of necessary incubation training are being promoted.

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 2014 there were 339 cases of determinations and a total of 424 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.

As marine casualty prevention measures, Maritime Information and Communication System (MICS), provides information through weather information providing system that has lighted buoy platform, and a marine casualty prevention and liaison meeting with the relevant ministries was held with the aim to achieve effective cooperation of maritime casualty prevention measures, and the relevant organizations have cooperated and deployed "National Campaign for Preventing Marine Casualties". In addition, a marine casualty prevention workshop, in cooperation with relevant ministries and organization was held, and has implemented a variety of marine casualty prevention campaign in the region, for marine casualty prevention for small boats.

Based on the report of Council of Traffic Policy, "Initiatives for Maritime Traffic Safety" (October, 2013), when a large-scale disaster occurs, safe and smooth evacuation, and damage to ship has been minimized, and the construction of centralized maritime traffic control in Tokyo Bay has been promoted, in order to alleviate congestion and control the signal wait for the ships, during peacetime.

In addition, to improve efficiency of safety and navigation of the ship transit in the narrow water ways, Kurushima Strait was subjected to detailed and accurate tidal observation, and it provides a tidal information on the Internet through entire region simulation.

Regarding the nautical charts, efforts are being made to further enhance the electronic charts, with increased importance, along with popularizing the electronic chart information display device (ECDIS). Moreover, in 2014, for the navigation in complex water, publication for the English version of the routing guide began to promote the understanding of the navigation, along with, printing the nautical charts in just English for the foreign seafarers as part of marine casualty

Note 1 International Convention for the Safety of Life at Sea, 1974

Note 2 The oversight of foreign ships by the port of call.

**Note 3** Vessels that do not conform to the standards of international treaties

Note 4 The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978. The 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 promote the protection of the marine environment.

prevention measures. Furthermore, there is a promotion to revise the nautical charts for the major 15 ports that were affected in the Great East Japan Earthquake.

Regarding the navigation warnings and notices to mariners, visual information that is a beneficial information displayed on a map is provided over the Internet from June 2014.

For Aids to Navigation, development is performed effectively and efficiently in accordance with the vessel traffic environment as well as needs and in FY2014, improvements and renovation was carried out in 354 locations.

Also, of the 158 Aids to Navigation that were affected by the Great East Japan Earthquake, the remaining 28 Aids to Navigation (as of March 2015) awaiting restoration, these will be restored in time as the ports and breakwaters are restored.

The "Marine Accident Analysis Center" established under the National Maritime Research Institute (Incorporated Administrative Agency) 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.

The Straits of Malacca and Singapore (SOMS) is a vital and extremely important sea lane where Japan imports 80% of crude oil. In order to secure safety of navigation in the SOMS, the Government of Japan has been contributing to the Navigation Aids Facilities Fund ^{Note 1} under the "Cooperation Mechanism ^{Note 2}". In the 7th Cooperation Forum in September 2014, the Government of Japan proposed to conduct a hydro-graphic survey of the SOMS again to revise the charts of the SOMS, because 16 years past from the first survey, the seabed topography may have been changed under the influence of tides. In response to this, the literal states consists of Indonesia, Malaysia and Singapore decided to conduct the survey of the SOMS again in collaboration with Japan in the Three Literal States Technical Experts Conference. Japan will continue the cooperation for navigation safety and environment protection through public-private partnership, along with the good relationship with the coastal countries.

# (2) Promotion of safety measures for the passengers

About 55% of cases reported about the dead or missing passengers is 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. For this, the Japanese Coast Guard is working to disseminate and enlighten self-rescue measures based on the three principles: wear a life jacket at all times, ensure appropriate contact means such as a portable telephone packed in a water-proof package, and effectively use the emergency call number "118". In addition, the passenger mortality due to fall in the sea from small boats (fishing boats or pleasure boats), is 3 times higher in the passengers who do not wear a life jacket, than those who do, therefore, life jackets contributes greatly in saving the passengers from the fall. For this reason, in cooperation with relevant ministries and local government, along with specifying promotion model Marina ^{Note 3} for life jacket wearers, and support towards LGL ^{Note 4}, there has been a promotion to wear life jackets through out the year.

# (3) Strengthening the Rescue System

In order for the Japan Coast Guard to carry out swift and appropriate rescue, distress frequencies are monitored around the clock and an emergency telephone hotline, "Dial 118" is made available to quickly catch accident occurrence information. Also, along with improving the rescue technology and capabilities of those such as special search and rescue units, mobile rescue workers, and divers, enhancements and fortifications of the medical control framework to ensure 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 the costs of replacement and repair of lighthouses and other navigational aid facilities used by the Straits of Malacca and Singapore.

**Note 2** An instrument which realizes the spirit of Article 43 of the United Nations Convention on the Law of the Sea that describes the cooperation between User States and States bordering State of a strait for the first time in the world. The Cooperative Mechanism consists of the three bodies; Co-operation Forum, Project Co-ordination Committee, and the Aids to Navigation Fund.

Note 3 Marinas and fishermen's cooperatives that are actively taking the initiative to promote the wearing of life jackets at all times. Designated as centers for raising safety awareness and promoting life jacket wearing in the region.

Note 4 Local activities to promote the wearing of life jackets by the family of fishermen and others. Stands for Life Guard Ladies (female promoting life jacket wearing)
# 4 Air Traffic Safety Measures

#### (1) Strengthening Aviation Safety Measures

#### a. State Safety Program (SSP)

The Aviation Bureau, in accordance with Chapter 19 Annex of convention on International Civil Aviation, developed the State Safety Program (SSP) in October, 2013, which stipulated the measures that must be taken for civil aviation safety, as an aviation safety authority, and was enforced from April, 2014. The Aviation Bureau in SSP sets state's safety indicators and target values, develops standards related to aviation safety, conducts audit and inspection, and implement necessary disposition. In addition, the Aviation Bureau requests aviation service providers to formulate safety policies, set safety indicators and target values, report safety information, conduct safety education and training, and implement the risk management regarding safety.

Moreover, the Aviation Bureau started the aviation safety information spontaneous reporting system (VOICES) from July 2014 to further collect aviation safety information and improve safety. In the VOICES, the Aviation Bureau requests voluntary reports on "close call experience", which are hard to capture by duty reports, extensively from the aviation officials, and experts analyze the reports with information source concealed. The analysis results will be shared among aviation officials and used for the preventive measures for aviation accidents.

#### b. Air Transport Safety Measures

Although there are no fatal accidents since 1986 among specified domestic air carriers ^{Note}, to appropriately respond to safety troubles, the safety management system of airlines and others will be improved, preventative safety measures will be promoted, and preliminary audits and strict site inspections, including unannounced visits, for domestic airlines newly entering the market or expanding business along with other measures to appropriately improve systematic monitoring. 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.

#### c. Certification of Domestic Jetliners

In October 2014, the first flight test aircraft of the first domestic jetliner left the assembly line and was unveiled to stakeholders on a rollout ceremony. The MLIT, as the national government of design and manufacturing, certification is under way concerning compliance with



safety and environmental standards. To implement certification more appropriately and smoothly, the establishment and expansion of the certification organization, along with close coordination with the aviation authorities of the United States and Europe, are being carried out.

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.

#### d. Action taken for Boeing 787 Battery Trouble Measures

Battery trouble occurred on Boeing 787 in January 2013, causing a suspension of flights lasting several months. For this case, the airlines were requested to make a proper disclosure of safety information to users in addition to battery improvements. Afterwards, a similar trouble occurred with a Boeing 787 on the ground in January 2014. MLIT concluded in the assessment report on that trouble released in December 2014, it was confirmed that corrective measures taken in light of the trouble cases occurred in the previous year were effectively functioned and, from the view point of ensuring safety and security of users, it was necessary that close cooperation continue to be kept with aviation stakeholders involved including those of the United States and other relevant countries.

#### (2) Developing Air Traffic Systems for Aviation Safety

Since the majority of serious incidents concerning air traffic services originates from human error, measures to prevent human error such as miscommunication between controllers and pilots and installation of visual display and transmission systems for controllers and pilots are being promoted.

Since the demand for operation of small aircraft such as helicopters is increasing for such missions as disaster response, development of low altitude routes considering its operational characteristics is being evaluated as well.

# 5 Determining the Causes of Aircraft, Railway, and Marine Accidents/Serious Incidents and Preventing Recurrence

The Japan Transport Safety Board launched the operation of "Japan-Marine Accident Risk and Safety Information System (J-MARISIS) Global Version" from April 2014. Using this system, regarding marine accidents occurred all over the world, the accident investigation reports (English Version) that the Japan Transport Safety Board has investigated as well as the accident investigation reports released by foreign Marine Accident Investigation Authorities (Australia, the United States, France, New Zealand, the Netherlands, Canada, and the United Kingdom) can be searched from the world map.

With respect to the accidents/serious incidents investigation, 25 cases of aircraft accident investigation reports were



released, and five recommendations and two safety recommendations were issued. In January 2013, a Boeing 787-8 made an emergency landing at the Takamatsu Airport because the main battery of Boeing 787-8 caused a thermal runaway during the airplane's takeoff climb, and executed emergency evacuation on taxiway. For this serious incident, a safety recommendation was issued to the Federal Aviation Administration of the United States to review the technical standards for lithium ion battery.

In addition, 18 cases of railway accidents/serious incidents investigation reports were released. Amongst these, the MLIT held a review committee to study the effective measures to prevent uneven loading in the containers, based on the investigation report of the derailment accident that occurred in Hokkaido in April 2012. Moreover, in the investigation report of the derailment that occurred in Hokkaido in September 2013, the Japan Transport Safety Board stated measures to prevent the recurrence of accidents such as ensured implementation of inspection and maintenance of the track.

Furthermore, 1,079 cases of marine accidents/incidents investigation reports were released, and six safety recommendations were issued. Amongst these, for the fire accident happened on a vessel in Hokkaido in May 2013 which

caused six fatalities, the Japan Transport Safety Board issued safety recommendation to the owner of the vessel to try to secure the emergency escape routes regardless where a fire breaks out. The Japan Transport Safety Board also issued safety recommendation to the Cambodian authority to provide adequate instructions to the management companies and owners that are operating similar ships to the vessel.

# 6

# Support for Victims and Families of Public Transport Accidents

In order to support the victims and others of public transport accidents, the Public Transport Accident Victims Support Office was established in April 2012. The Support Office exercises such initiatives as transferring requests from victims to public transport operators and introducing appropriate authorities in accordance with the consultation content of victims.

In FY2014, when a public transport accident occurred, the Support Office made the consultation service well known to victims, as well as responded to consultation from victims. Also, during ordinary times, education and training was implemented for support staff, networks with external organizations were established and the promotion for the creation of victim support plans by public transport operators among other activities were carried out.

In the future, based on feedback from stakeholders, the Support Office's functions will continue to be improved and measures to support the victims and others of public transport accidents will be steadily moved forward.

# 7 Safety measures for road traffic

In 2014, deaths caused by traffic accidents had decreased from a peak of 16,000 people in 1970 to one-fourth 4,113 (down 5.9% compared to the previous year), but half of traffic accident fatalities (2,038 people) occurred while riding a bike or walking. Of these, half of the traffic accident fatalities occurred within 500 meters of the homes of victims, making it a very difficult situation. 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.

#### (1) Promoting Efficient and Effective Traffic Accident Measures

In recent years, in response to progress in road development, we have entered an era that needs to be able to reproduce community roads with pedestrian and bicycle-only space, by moving automobile traffic to highly safe expressways and dividing road functions in two: roads for pedestrians and bicycles, and expressways for automobiles.

For arterial roads that account for roughly 60% of traffic accident fatalities, effective and efficient accident measures are being promoted through public participation and collaboration under the "accident zero plan (strategy for concentrated relief of accident prone in sections)" order to implement concentrated measures in areas with a high degree of danger for accidents.



Meanwhile, for community roads where the proportion of accident casualties involving pedestrians and bicycle riders is high, measures are taken for the purpose of ensuring safe pedestrian spaces by suppressing the vehicle traffic and reducing speeds, as well as by converting traffic to arterial roads. Wide-ranging and comprehensive traffic accident suppression measures are being promoted in collaboration with the prefecture public safety commission. These measures include: broad speed regulations combined with narrowing the road, widening the road shoulder, developing the sidewalk, and placing humps to suppress vehicle speed.

#### (2) Promoting Safety Measures for School Commute Routes

For school-commuting roads, following 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.

#### (3) Safety Driving Support on Expressways Using the IT

The ITS Spot Service and ETC 2.0 service, which uses a vehicle-equipped device has been available on expressways across the country since August 2011. The services support safety driving by calling attention to accident prone areas or falling objects as well as forewarning of snow and overtopping wave conditions, through the car navigation system.

#### (4) Systematic Road Facilities Management to Provide Safe and Secure Road Services

There are about 700,000 bridges nationwide and they are rapidly aging. Therefore, the stakeholders, including municipalities which manage about 500,000 bridges, must maintain, repair, and renew them to ensure their safety.

Additionally, to achieve the appropriate management of the roads, clarifying the need for inspections, creating regulations to designate roads to attract the traffic of large vehicles that impact road structures the most, and persecution of vehicles that violate limits were some of the things included in the amended Road Law that was promulgated for government ordinances. The facilities subject to renovation and repairs by the agency were defined as tunnels and bridges, and technical standards were established for the maintenance and management of roads.

A ministerial ordinance was enacted on March 31, 2014 that clarified the obligations of road administrators, such as

visual inspections in close proximity of bridges and tunnels once every five years.

In addition, on April 14, 2014, the "Recommendations for the Full-Scale Implementation of Road Aging Countermeasures" was published by the Panel on Infrastructure Development Road Subcommittee for the establishment of maintenance cycles (clarifying the obligations of road administrators) and to create a framework to govern maintenance cycles.

The MLIT is working even more actively on support for measures taken against aging roads that are implemented by local governments, such as the steady promotion of routine inspections using the "Road Maintenance Conference", which was established in all prefectures by July 2014. The support includes Implementation of the bulk order placement of inspection works on a regional basis, enhancement of the training of local government staff, and technical support for direct control diagnoses.

#### (5) Steady implementation of the "Expressway and Chartered Bus Safety and Security Recovery Plan"

In response to the Kan-Etsu 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 transition 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 FY2013 and 2014, and the status of implementation has been followed up and its effects have been reviewed. 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.

#### (6) Accident Prevention Measures Associated with Bus Driver's Physical Condition Sudden Change

In response to the Hokuriku highway express bus accident occurred on March 3, 2014, conventional measures related to health care of drivers were reviewed, and the "Measures to Prevent Bus Accident Associated with Bus Driver's Physical Condition Sudden Change" was formulated on April 18, including the revision of "Health Care Manual for the Fleet Vehicle Drivers." We are working to disseminate these measures across road transport operators and to prevent accidents caused by bus driver's physical condition sudden change.

#### (7) Strengthening Research Function on Accidents Caused by Fleet Vehicles

For serious accidents caused by fleet vehicles that have a great social impact, it is required to obtain the recommendations for objective and high-quality preventive measures along with carrying out research and analysis for causes of advanced and complex accidents while achieving further clarification of structural and organizational problems behind the accident.

For this reason, we are working to strengthen the accident investigation capabilities by establishing the "Fleet Vehicle Accident Investigation Committee" in cooperation with the National Police Agency.

#### (8) 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.

#### (9) Comprehensive Safety Measures for Automobiles

#### a. Safety Measures for Commercial Motor Vehicles

An intermediate review was carried out in November 2014 for the "Commercial Motor Vehicles Comprehensive Safety Plan 2009" formulated in March 2009. To achieve the goal of reducing the accident fatalities and personal injury accidents by half in 30 years, the MLIT and stakeholders will work together to steadily implement measures of the plan after the intermediary review, and work towards ensuring safety and security of commercial motor vehicles.

In addition, 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. Moreover, we started a study on the establishment of system modalities that will bear the next

generation traffic management by integrating the evolution of various functions, such as utilization of bio sensor and cloud, and the results of progress in technologies.

#### b. Considering Vehicle Safety Measures for the Future

In the Ninth Fundamental Traffic Safety Program (established March 2011), the goal of reducing traffic accident fatalities to less than 3,000 by 2015 was established. For the achievement of this traffic accident reduction goal, the three measures of "expanding, enhancing, and strengthening safety standards, etc.", the "Advanced Safety Vehicle (ASV) Promotion Plan", and "vehicle assessment" will be coordinated in a synergistic manner to promote vehicular safety measures.

# c. Expanding and Strengthening Safety Standards

In order to improve automobile safety, four international standards related to steering and emergency spare tire, etc, have been introduced in Japan. The requirement for traveling performance at curve and required handling operation power upper limit, and braking performance with the emergency spare tires mounted, have been newly developed. In addition, mounting of advanced brake system (Anti-lock brake system (ABS)/ combined brake system (CBS) for motorcycles is required. Mounting of lane deviation warning system (LDWS) for bus and truck is required as well. These standards will be reinforced.

# d. Development, Commercialization, and Promotion of Advanced Safety Vehicle (ASV) (ASV)

We are proceeding with a study on development and practicalization of new technologies such as driver error response system as well as promoting full-scale popularization of practicalized ASV technologies such as collision damage mitigation brake under the cooperation of industry, academia and government.

#### e. Providing Safety Information Through Automobile Assessment

In order to promote the selection of safe automobiles and child seats by users and the development of safer automobiles, the evaluation results of the safety of cars is published. From 2014, we started new assessment of preventive safety technology such as collision damage mitigation brakes.

# f. Efforts Towards Realization of Automatic Driving

The Automatic Driving Sub-committee started under the World Forum for Harmonization of Vehicle Regulations (WP29) and Japan and United Kingdom were appointed co-chairs. In addition, Japan is leading international standardization of emerging technologies such as proposing the standard for lane maintaining support devices. Even in Japan, initiatives such as verification tests for the practical use of telecommunication usage type driving support system are being taken based on the Strategic Innovation Creation Program (SIP) which is the government offices and ministries collaboration program.



#### g. Swift and Steady Implementation of Automobile Recalls and Informing Users and Others

For the swift and steady implementation of automobile recalls, efforts are made to gather information from automobile manufacturers and users and during the audit of recall operations by automobile manufacturers confirmation and guidance is carried out and for automobiles with concerns for safety and environmental performance, the National Traffic Safety and Environment Laboratory (Incorporated Administrative Agency) is conducting technical verifications. Also, to strengthen the gathering of defect information, public awareness campaigns for the "automobile defect information hotline" (www.mlit.go.jp/RJ/) were actively carried out.

In addition, the information collected by 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, press releases and other measures were used to especially raise user and public awareness for "Be careful for engine stall of automatic transmission car!!" and "Must attach stud-less tires to all four wheels!!".

Also, in FY2014 the number of recalls submitted was 355 and the number of cars affected was 9,557,888.

#### h. 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.

# (10) 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 hitand-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.

# (11) Safety Measures for Mechanical Multistory Parking Garage

In light of the occurrence of fatalities and other accidents involving mechanical multistory parking garages, we have formulated the safety guidelines and requested the relevant organizations to ensure safety and use the guidelines



properly. Moreover, in response to the revision of "Parking Law Enforcement Regulations", a new minister's certification system has been introduced to conduct the examination of safety features of mechanical multistory parking garages.

# Section 5 Crisis Management and Security Measures

# 1 Promoting Crime and Terrorism Countermeasures

#### (1) Coordinating with Other Countries for Crime and Terrorism Countermeasures

### a. International Initiatives for Security

In addition to participating in meetings and projects in the field of transport security at international organizations such as Group of Eight (G8), 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.

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.

#### b. Anti-Piracy Measures

According to the International Maritime Bureau (IMB), the number of pirate incidents occurred off the coast of Somalia in 2014 was 11 cases. That is, pirate incidents had been increasing until 2011 but changed to low level in recent years due to the effect of anti-piracy measures by international society such as the continued anti-piracy activities by the navy of each country, implementation of self-defense measures through Best Management Practices (BMP) Note implemented by merchant ships, and embarkation of Privately Contracted Armed Security Personnel on merchant ships. However, incidents of chasing by a suspicious ship is continuously occurring to merchant ships navigating through Somalia peripheral sea



area and unpredictable situation continues for the navigation of the merchant ships.

Under this situation, the Japan Maritime Self-Defense Force destroyers are conducting escorts of merchant ships in the Gulf of Aden as well as surveillance patrols by two P-3C patrol aircraft based on the "Law on Punishment of and Measures Against Acts of Piracy (Pirate Measures Law)". The MLIT provides a single contact point for escort requests from shipping companies and others and selects vessels to be escorted. The MLIT also appropriately applies the "Act on Special Measures Concerning the Guarding of Japanese Ships in Pirate-infested Waters" (enforced on November 30, 2013) which allows security guards employed by commercial security companies to guard Japanese-flagged vessels with which certain requirements are satisfied and ensures the complete navigational safety of Japanese-flagged vessels.

Note

A compilation of self-defense measures (avoidance measures for pirate activities, establishing evacuation areas [citadels] within vessels, etc.) created by various organizations deeply involved with shipping such as the International Chambers of Shipping to prevent or minimize damages due to Somalian pirates.

Japan Coast Guard, for anti-piracy measures in the water off the coast of Somalia and Gulf of Aden, dispatches its eight officers, onboard Japan Maritime Self Defense Force destroyers to conduct judicial police activities in case of piracy incident.

In addition, the Japan Coast Guard provides capacity building assistance towards maritime security agency officials of coastal states, such as off the coast of Somalia and in the Gulf of Aden and Southeast Asian waters, and is working on the promotion of collaboration and cooperation with relevant countries and agencies. Specifically, the Japan Coast Guard dispatched an aircraft to Djibouti to exercise pirate convoy training with country's coast guards and dispatched patrol vessels and aircraft to the coastal states of Southeast Asian water to practice joint training of anti-piracy measures with coast guard agencies of each country, and provided training and lecture, etc. In addition, the Japan Coast Guard invited coast guard agency staff of each country and dispatched experts in each country for short-term training on anti-piracy cooperation. Further, the Japan Coast Guard dispatched it's staff to international organizations such as Regional Cooperation on Combating Piracy and Armed Robbery against Ships in Asia and Information Sharing Center (ReCAAP-ISC).

Although the number of Somali piracy incidents has transitioned at a low level, yet the threat by Somali pirates still exists, so the situation might reverse if initiatives for anti-piracy measures taken so far are weaken. On the other hand, in 2014, the cases of petroleum products steeling from small tankers are increasing in Southeast Asia waters, and in recent years the armed robbery incidents in Indonesia territorial waters and its surroundings are increasing, so there is a need for continued precise measures to match with their needs such as capacity improvement assistance for the coastal countries.



#### c. Security Measures for Ports

Human resource development for port security measures is being implemented for ASEAN countries through training, expert conferences, and other measures. Also, information is being shared with other countries as a part of the initiative to further raise the level of security in international ports.

# (2) Comprehensive and Strengthened Counter-Terrorism Measures for Public Transport

In recent years, a variety of major incidents targeting public transport are occurring around the world such as the September 11 terrorist attacks in the United States of America (September 2001), the London Bombings (July 2005), and the Mumbai attacks (November 2008). Further after January this year, terrorist attack in France, killing incidents of Japanese nationals in Syria and Tunisia, are evident of a growing threat of international terrorism. In light of these circumstances, counter-terrorism measures are being developed in each respective field and counter-terrorism measures are implemented during busy seasons, thorough supervision and inspections.



# a. 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" ^{Note} as the axis of promoting counter-terrorism measures. Also, the sharing of information regarding railway counter-terrorism measures with major nations is being actively pursued.

# b. Promoting Counter-Terrorism Measures for Ships and Ports

Security is ensured through the approval of security rules and ship inspections of international voyage ships, approval of security rules for international port facilities, regulation of arriving ships, and site inspections of international voyage ships and international port facilities as well as Port State Control (PSC) in accordance with the "Act on Assurance of Security of International Ships and Port Facility". In addition, based on the inspection results for the international port facilities as well as the security standard in foreign countries, we are even more thorough in the security measures by implementation of three points of confirmation (personal identification, affiliation check, purpose confirmation) in and out of all international port facilities from July, 2014.



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.

#### c. Promoting Counter-Terrorism Measures for Aviation

In order to do every possible thing to prevent a terrorist attack involving 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 trespassing inside and outside our country, in addition to strengthening the fences for invasion preventive measures against vehicles and people, prompt measures are being taken such as installing sensors on every airport which are able to cope with invasion. Moreover, prevention of carrying explosives which can not be detected by metal detectors, is enhanced by implementing a random manual search for international passengers. 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.

#### d. 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.

#### e. 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 license is permitted before bonded area loading.

For the security system of airfreight with the purpose of protecting airfreight 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 management information 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

As the dependence on IT for socio-economic activities in general continues to grow, various cyber attacks are becoming more prevalent such as email attacks targeted toward government institutions, increasing the importance of initiatives for information security measures.

Against this backdrop, based on the policy of "cyber security strategy headquarters" of the government, the MLIT is working on information security measures for improving, strengthening and readiness to cope with cyber attacks on

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 airline companies.

information systems. In addition, as information security measures of the field of critical information infrastructures (aviation, railway and logistics), guidelines for protection from IT failure are being developed.

# 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 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 in addition to implementing joint training. Also, for pollution accidents involving oil or toxic liquid substances, response equipment is being improved to strengthen the system for a swift and effective response and environmental protection information on coastal waters needed to contain oil, etc., is being compiled and provided.

# 3 Strengthening the Coast Guard System

#### (1) Improving and Strengthening the Operational System

In order to fully respond to Chinese large government vessels which are persistently wandering around territorial waters surrounding the Senkaku Islands, the Japan Coast Guard is developing 1,000 ton patrol vessels equipped with surveillance ability to establish a full-time patrol system by large patrol vessels for the security of Senkaku territorial waters. The Japan Coast Guard will also develop mooring facilities to strengthen the base functions in Ishigaki Port and deploy boat crew for a newly commissioned patrol vessels. In addition, we promote switching of patrol vessels to alternative high-performance patrol boats to ensure the system which can precisely respond to changes in the situation. In addition, we will promote the development of new jet aircraft and regulatory capacity advanced patrol vessels, and ensure the operating costs of them from FY2015 to establish a maritime security system around the Senkaku territorial waters and all over the oceans of Japan without security holes.

#### (2) Promoting Counter-Terrorism Measures

To prevent terrorism, the Japan Coast Guard patrols around facilities that are at risk, such as coastal nuclear power plants and petrochemical complexes as well as U.S. Armed Forces facilities by patrol vessels and aircrafts. Also, during Golden Week, summer vacation, and the Year-end and New Year holidays and other periods when passenger travel is at the peak, security is especially tightened in passenger ship terminals where many people are concentrated.

In addition, we also encourage the strengthening of self-security to maritime persons and businesses and others, request to make notification reports of the suspicious information or activities to cooperate with the local community.

# (3) 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 activity, suspicious boats needs to be stopped for site 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.

#### (4) Promoting Measures against Maritime Crimes

Some major characteristics of recent maritime crime indicate that illegal fishing by foreign fishing vessels have been increasing and particularly arrests of Chinese coral fishing vessels have increased. Regarding the poaching crimes in Japan, poachers and buyers tied in organized manner are engaged in maritime poaching crimes as well as organized criminals seeking sources of funding by poaching. Environmental crimes such as illegal dumping of waste into the ocean to save processing costs are still occurring, and its characteristics are becoming more malicious and sophisticated. Also, for domestic crimes involving firearms and drugs, some are closely related to smuggling crimes facilitated by Japanese criminal organizations and international crime syndicates along with illegal transit facilitated by international crime syndicates. Regarding various maritime crimes, there is still a need for vigilance and Japan Coast Guard is strengthening monitoring and prosecution, gathering and analyzing crime information, and strengthening site inspections by effectively utilizing patrol vessels and aircraft as well as sharing information with relevant domestic and international organizations as part of the efforts to pursue effective measures and take strict yet appropriate measures against maritime crimes.

# 4 National Security and Protection of Citizen's Lives and Assets

#### (1) Responding to North Korea Issues

In response to the North Korea launching ballistic missiles and conducting nuclear tests, in accordance with the "Act on Special Measures concerning Prohibition of Entry of Specified Ships into Ports", all ships registered to North Korea are prohibited from entering Japan's ports and in light of the international situation this measure was extended to April 13, 2015. To ensure the implementation of these measures, the Japan Coast Guard is conducting the confirmation of information regarding the arrivals of North Korean-flagged ships. Also, to ensure the effectiveness of the measures banning exports to North Korea such as the United Nations Security Council Resolution 1874, in accordance with the "Special Measures Law Regarding Cargo Inspections, etc., of Japan in Accordance with the United Nations Security Council Resolution 1874, etc.", the MLIT and the Japan Coast Guard is coordinating closely with relevant administrative agencies to ensure the effectiveness of measures stipulated by the law.

Also, in light of leadership changes at North Korea, the MLIT is strengthening its readiness including information gathering and communication to thoroughly implement measures in preparation of worst case scenarios and will continue to maintain the monitoring and warning systems. Also, for the cases of missile launches referred as rocket launches for "artificial satellites" conducted by North Korea on April, 13 and December 12, 2012, and nuclear tests conducted by North Korea on February 12, 2013, information was collected and shared as part of the efforts to ensure the safety and security of citizens.

#### (2) Responding to Armed Attacks and Other Situations Under the National Citizen Protection Plan

In accordance with the "Act concerning the Measures for Protection of the People in Armed Attack Situations, etc" and "Basic Policy Regarding the Protection of National Citizens" which stipulates measures regarding the evacuation, rescue and minimization of losses due to armed attacks, etc., MLIT, the Geospatial Information Authority of Japan, the Japan Meteorological Agency, and Japan Coast Guard stipulate "Plan Regarding the Protection of National Citizens". The MLIT will implement support such as communication and coordination with designated public agencies that serve as transporters for the transport of evacuating residents in accordance with requests from local government; the Japan Coast Guard is designated to carry out the transport of evacuating residents and emergency supplies when the transport capacity of designated public agencies is insufficient and to carry out search, rescue, and emergency activities.

Section 5 Crisis Management and Security Measures

# 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, in May 2012 "the Act on Special Measures for Pandemic Influenza and New Infectious Diseases Preparedness and Response (hereinafter Act on Special Measures)" was established 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) businesses registered as requiring special inoculation 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 sector agencies are required by regulation to implement measures against breakouts of new type influenzas, etc., and designated public sector agencies 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 (hereinafter National Action Plan) 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 or 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 to ensure the segregation goes smoothly 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.

**Chapter 8** 

# Creating and Preserving a Beautiful and Healthy Environment

#### Section 1 Promoting Global Warming Countermeasures

#### Implementing Global Warming Countermeasures 1

The 5 year average of Japan's Greenhouse Gas Emission Rate for the Kyoto Protocol First Commitment Period (FY2008 - 2012) has been 1,278,000,000 (1.278 billion) t-CO₂, which although is an increase of 1.4% compared to FY1990, by taking into consideration the sinks countermeasures for greenhouse gas emissions such as tree planting, it is a 8.4% decrease compared to FY1990 which means the goal (6% decreased from FY1990 rate) set by the Kyoto Protocol has been attained.

Although Japan is not participating in the Second Commitment Period of the Kyoto Protocol (FY2013 to 2020), in order to continue promoting an approach at a level higher than thus far, new "Plan for Global Warming Countermeasures" are to be formulated for the future.

Taking into consideration this governmental movement, The Ministry of Land, Infrastructure, Transport and Tourismwith the Environmental Subcommittee of the Infrastructure Development Council and the Environmental Subcommittee of Transportation System Subcommittee of the Transport Policy Council at the center-is continuing to promote energy saving measures and deployment of renewable energy at most based on the Environmental Action Plan formulated in March, 2014.



# 2 Promoting Global Warming Countermeasures (Mitigation Measures)

# (1) Promoting Low-carbon City Development

For the cities where the population and buildings are quite concentrated, in December 2012, "The Low-Carbon City Act" was enacted from the standpoint of promoting low-carbon city development through consolidation of urban facilities and the promotion of public transportation use, efficient use of energy such as area energy networks at the district level, conservation and promotion of greenery. 19 municipalities has formulated the "Low-Carbon City Plan" by the end FY2014. Government of japan has been continually promoting "Low-Carbon City Development" through budgetary and tax measures as well as deregulation.

# (2) Promoting the Development, Distribution and Optimal Utilization of Environment-friendly Vehicles

# a. Improving Mileage of Vehicles

Based on the "Law Concerning Rational Use of Energy (Energy Saving Act)", we are formulating fuel economy standards and disclosing fuel consumption for automobiles. In 2014, the Subcommittee on Automobile Fuel Economy Standards (under committee of Council of Transportation Policy) was established and the deliberation results regarding the FY2022 Fuel Economy Standards for trucks (limited to vehicles with total weight of less than 3.5t) were summarized.

Furthermore, the average fuel efficiency rate of gasoline passenger vehicles released in FY2013 was approximately 50% higher compared to FY2004, and we will continue in the efforts to further improve fuel efficiency.

# b. Schemes to stimulate improvements in mileage capabilities and reduction in exhaust gas

In order for consumers to easily identify and select vehicles with high mileage capabilities, we have implemented systems to evaluate and disclose mileage capabilities of vehicles to stimulate their dissemination. Additionally, for vehicles that emit lower amounts of harmful substances than the latest exhaust gas standards, we are implementing the "low emission vehicle recognition system," according to how much less exhaust is emitted by the vehicle. The indication for mileage capabilities are marked by a "2020 Mileage Standard Fulfilling Vehicle" sticker.

# c. Promoting the dissemination of environment-friendly vehicles

In promoting the distribution of environment-friendly vehicles, such as putting into place tax incentives such as EcoCar Tax cuts (vehicle weight tax and vehicle excise tax) for vehicles with superior environmental performance (EcoCar) and the special provision for fuel reduction (vehicle tax), the number of vehicles sold in 2014 that are subject to the EcoCar tax cuts are approximately 87% (approximately 4,340,000 cars) of all vehicles sold.

Furthermore, to promote measures against global warming, MLIT has been facilitating city development that uses environment-friendly vehicles by providing assistance in introducing the use of electric cars and ultra-compact vehicles, and also helping Automobile Carrier Businesses introduce CNG Automobiles^{Note}, hybrid cars, and advanced environment-friendly diesel trucks.

# d. Development, application and creating a usage environment for next generation heavy vehicles

In order to promote the development and application of next generation heavy vehicles, from 2011, the technology development has been moving forward for things such as high efficiency hybrid trucks, electric plug-in hybrid trucks and high performance electric buses. We also began undertaking efforts to make possible the actual use of such vehicles, such as substantive driving tests under actual use conditions for experimental cars and the preparation of the necessary standards.

#### e. 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}.

#### (3) Promotion of traffic flow improvement

Japanese cars have the top-level cataloged gas mileage rates in the world, but actual driving gas mileage rates are about the same as the USA rates. For this reason, various traffic flow measures are being tried, since improving the driving speed by smoothing the traffic flow will improve the actual gas mileage rate and decrease the carbon dioxide emissions from automobiles. Specifically, in order to alleviate traffic congestion in urban areas, we are arranging the arterial expressway network with belt highways which curb the inflow of traffic to the inner-city by providing an alternative route for traffic moving through urban areas. Additionally, are promoting three-dimensional we intersections and the continuous grade separation project to eliminate railroad crossings that stop traffic, as well as promoting "Smart Use of Roads" such as utilizing the big data collected by means of



ITS technologies, undertaking the most suitable usage of existing road networks in order to realize the smooth and safe traffic services, and advancing the creation of a bicycle transit space by redistributing road space. Also, in order to improve the low carbon emissions of road infrastructure, actions are being taken such as installing LED road lighting and making use of renewable energy.

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#### (4) Promoting the use of public transportation

The shift from private vehicles to public transportation reduces travel with vehicles and is a necessary facet of global warming countermeasures. For this reason, we are automation promoting such as implementing IC cards, introduction of Light Rail Transit/Bus Rapid Transit system and improving the convenience of public transportation through better transit connections. We also encourage ecological commuting in each business establishment the Ecological through Commuting Outstanding **Business** Certification Scheme, as well as spreading environmentfriendly commuting by cooperating with regional schemes that promote ecological Furthermore, information commuting. analysis and validation results of past activities for the "Environmentally Transport (EST) Model Sustainable



Project" were provided nationwide to regions working to realize EST.

#### (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} 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  $CO_2$  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. And, to establish an even more efficient logistics system with low environmental impact, government support is being provided for joint transportation and delivery, modal shift, implementation of large CNG trucks, low-carbon logistics centers, and low-carbon emission of the port area. We implement a study on matching mechanism to promote joint transportation and delivery, survey on the promotion of railway transportation of export and import containers, aid for the deployment of 31ft railway containers of similar size to the 10-ton truck, and the demonstration experiments of a new style 12ft refrigerated railway container. We are also working to vitalize the coastal shipping and ferry industry by promoting the building of energy-saving vessels. We also work to disseminate the "Eco Rail Mark" (150 products (190 items) and 87 cooperating enterprises certified as of the end of February, 2015), and the "Eco Ship Mark" (94 consignors and 110 logistics businesses enterprises certified as of the end of February, 2015). In ports and harbors, functioning as nodal points between overland and overseas transportation, we are implementing initiatives to conserve energy within ports and harbors, implementing, facilitating, and applying renewable energies and expanding carbon dioxide sinks. Moreover, we strive to reduce overland transportation distance of international cargo by renovating facilities such as international overseas container terminals.

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.



### (6) Promoting low carbonization of railways, ships, and aviation

#### a. Initiatives contributing to further enhance environmental performance in the railway sector

Although the railway has little environmental burden in comparison to other modes of transport, in order to further reduce environmental burden, we are promoting the technological development of next generation hybrid trains as well as introduction of equipment which contributes to low carbonization and energy saving to railway related facilities and railway vehicles in cooperation with the Ministry of the Environment.

#### b. Initiatives for energy conservation and low carbonization in shipping

Efforts for conserving energy are being promoted in coastal shipping through comprehensive measure for eco-friendly ship transportation such as the dissemination of energy-saving ships and by subsidizing the deployment of new technologies and facilities that contribute to energy conservation and low carbonization of ships. For international shipping, in addition to supporting the world's leading marine environment technology development since 2013 with the goal of further decreasing  $CO_2$  emissions from ships, MLIT is leading the discussion to develop international frameworks such as stepwisely strengthening ships energy efficiency regulations and ship fuel consumption data collection system ("visualization" of fuel consumption in actual voyages) in international shipping, in order to jointly promote the establishment of international frameworks and technology development and dissemination.

#### c. 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. Furthermore, we are strengthening international initiatives, such as participating in the "Asia and Pacific Initiative to Reduce Emissions (ASPIRE)" where air traffic control authorities and airline companies cooperate to attain efficiency in flying. We are also leading the discussion to develop a global scheme to reduce  $CO_2$  emissions from international aviation. Furthermore, the efforts to promote the use of alternative aviation fuels are being conducted, collaborating 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. For this reason, the energy conservation standards were reviewed in 2013, with full enforcement of the standards for buildings being in effect as of April 2014, and full enforcement for residential housing being planned to be in effect in April 2015.

Furthermore, in order to display energy conserving performance in a way that is easy for consumers to understand, in addition to improving and popularizing the "residence performance labeling system" and CASBEE (Comprehensive Assessment System for Built Environment Efficiency), the Building Energy Conservation Performance Labeling System (BELS) was started in April 2014.

Also, in light of the fact that that as a part of the Energy Master Plan it will be mandatory for new housing and buildings to comply in stages to the energy conservation standards by 2020, in October 2014 the Minister of Land, Infrastructure, Transport and Tourism consulted the Chairman of the Panel on Infrastructure Development regarding "ways to handle energy conservation measures for housing and buildings going forward". In January 2015 the initial report was completed, and on March 24th of the same year the compliance obligation to the energy conservation performance standard for buildings other than residential housing larger than a certain size was created, and the Cabinet approved the "Bill for Improving Energy Consumption Performance for Architectural Structures", which takes steps to establish an accreditation system for the energy consumption capability improvement plan.

Aside from this, in order to promote energy saving/decreasing  $CO_2$  emissions for housing and buildings, MLIT is supporting various efforts, such as businesses that award points—which can be exchanged with various merchandise—for building new eco-housing or doing eco-reforms, the introducing of cutting-edge  $CO_2$  emissions decreasing technology and energy conserving renovation, as well as efforts by small and medium-sized contractors in building zero energy housing and certified low-carbon buildings, while also implementing a lowering of 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 meets the fuel consumption standards for major construction machinery. In addition, we support the purchasing of construction machinery that has been certified by said system by things such as low-interest financing plans.

#### (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 and private land, such as roads and ports.

MLIT is also working on public awareness regarding the meaning and effect of  $CO_2$  sink measures by making cities more low carbon and green by alleviating 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 that the introduction of re-usable energy is being expedited as much as possible for three years starting in 2013, MLIT is promoting use of the re-usable energy potential in 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

Japan that is surrounded on all four sides by the sea, and is blessed with abundant marine renewable energy.

Of these, the wind power over the ocean, which is vast compared to land and where a stable, strong wind blows, is expected to be widely used in the future and interest is increasing especially in the port and harbor areas.

Therefore, the Bureau of Port and Harbor has decided to organize the installation procedure to the port and harbor and first published in June 2012 "Regarding Wind Power at Ports and Harbors – The Manual for Coexistence with the Administration and Operation of the Port and Harbor". In March 2015, to work towards the structural stabilization of ocean wind power facilities and securing the safety of ship navigation, MLIT published the (proposed) technical guidelines that will become the technical criterion to be used in the screening for water occupancy permits.

For marine energy such as wave and tidal power, MLIT is working on guidelines to secure the safety/environmental aspects of floating power generating facilities and promoting the realization of new re-useable marine energy in cooperation with the concerned government ministries.

#### (2) Promoting small hydroelectric generation

As initiatives toward a low carbon society, 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

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 railway stations, 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.

#### a. Promotion of dissemination of fuel-cell cars

To work towards the world's fastest dissemination of fuel-cell cars, MLIT will support fuel-cell car introduction projects by private businesses. MLIT will also steadily pursue the technological development of hydrogen energy, as it is important to achieve early utilization of things like fuel-cell buses and fuel-cell forklifts, as they are projected to create a relatively consistent demand for hydrogen.

# b. Setting up the marine transportation system for liquefied hydrogen

Early construction of a liquefied hydrogen carrier that allows mass transport of liquefied hydrogen is expected. However, as this carrier will be the world's first, there are no existing safety standards which makes it necessary to determine the safety requirements as soon as possible. Therefore, in 2014 we put together the safety requirements for ships and ship crews that take into account the special qualities of hydrogen. Also, in regards to a project progressing in Australia to produce liquefied hydrogen for bulk shipment to Japan, a conference was held with Australia on proposed safety standards formulated by Japan, and an agreement was reached in February 2015. Going forward, we will be leading the international standardization of the safety standards within the International Maritime Organization (IMO).

# 4 Promotion of Global Warming Countermeasures (Adaptation Measures)

For the effects of global warming that cannot be avoided even with the most stringent mitigation measures, it is essential to have measures (adaptations) to prevent or reduce the damage to a minimum, or even take advantage of the opportunities for benefits. Therefore, we plan to formulate an "Adaptation Plan" for the entire government, to be completed by summer of 2015.

As a part of the adaptation measures, MLIT has already been proactively promoting countermeasures against water disasters such as floods, sediment-related disasters, tidal waves and draughts. Furthermore, taking into account the most recent findings on global warming that had been summarized in the IPCC's Fifth Assessment Report which was published over 2013-2014, the "Subcommittee for Flood Control Measures adapted to Climate Change under the Waterway Sectional Committee of the Panel for Infrastructure Development" held discussions regarding the kind of adaptation measures to be taken against climate change in the field of water disasters, and published the mid-term summary in February 2015. In terms of coastal areas, the "Committee to Consider the Effect of Climate Change on Coastal Areas (Harbors, Shores) and Determine the Direction of Adaptations" held discussions regarding the direction to be taken for adaptation measures. In addition to these deliberations, MLIT will summarize adaptation measures covering various aspects including transportation infrastructure and heat island as the "MLIT Adaptation Plan" (tentative name), and—along with reflecting the government's adaptation plan—work on the planning and application of comprehensive adaptation measures from both the structural and non-structural aspects.

# Section 2 Promoting the creation of a recycling society

# 1 Advancing recycling in construction

Construction waste accounts for approximately 20% of all industrial waste, 20% of final disposed amount, and 80% of all illegally discarded waste. Suppression of the generation of construction waste, and recycling and reuse of those waste are major tasks. The national construction disposal amount was approximately 73 million tons in FY2012, with a recycling/ reduction rate of 96.0% which was an improvement compared to 93.7% in FY2008. However, there are still issues such as maintenance and renewal construction for the aging social infrastructure, increase in construction by-products generated from construction related to the Tokyo Olympics and Paralympics, and increase in construction generated soil from the

construction of large-scale tunnels.

Sewage sludge also accounts for 20% of all industrial waste, reaching approximately 76 million tons in FY2012. We are working on reduction and recycling of sewage sludge.



# (1) Advancing recycling in construction

Based on the "Construction Material Recycling Act (Construction Recycling Law)", we are working to enforce proper measures through a simultaneous patrol throughout Japan.

In the "Construction Recycling Promotion Measures Subcommittee" that have been formed in both the Environment Committee of the Panel of Infrastructure Development and the Environment Committee of the Transport System Section of the Council for Transport Policy, the relevant parties involved in construction recycling put together the "Measures related to the Promotion of Construction Recycling", a recommendation to promote mid-term objectives for the recycling and appropriate disposal of construction by-products for the future, and MLIT formulated the fourth action plan, the "2014 Construction Recycling Promotion Plan" in September 2014.

According to this plan, MLIT will be promoting construction recycling by working on fortifying the monitoring of construction by-products distribution, inhibiting occurrence before the start of construction, promoting recycling/reduction by thorough on-site sorting and delivery to recycling facilities, promoting use of recycled materials, and promoting the efficient use and appropriate disposal of construction sludge.



# (2) Reducing sewage sludge and promoting recycling

MLIT is promoting the recycling of sewage sludge (2012 recycle rate 58%) and moving forward with the use of sewage sludge made into solid fuel for energy, as well as the recovery and use of phosphorus from sewage sludge. 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 resource recycling logistics system

### (1) Forming a resource recycling logistics system by utilizing shipping

In order to form the "cycling" of reusable resources for creating a recycling society, we have specified 22 ports throughout Japan as Recycle Ports (Integrated Reverse Logistic Base Port) for wide-spread flows concerning reusable resources. At the Recycle Ports, they undertake activities such as securing coastal facilities like wharfs, aiding in establishing facilities for handling reusable resources, promoting the cooperation between civilian and government sectors, and operations related to handling reusable resources. Furthermore, from 2014, MLIT has begun the "Project to Promote Low Carbon-Type Reverse Logistics by Modal Shift/Transport Efficiency" and started efforts to make reverse logistics more low carbon and low cost by promoting modal shifts and transport efficiency.



#### (2) Systematic acquirement 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. Particularly in the Osaka Bay, regional waste disposal sites are being improved through the Osaka Bay Phoenix Project ^{Note 1} to receive waste from the 168 municipalities in the 6 prefectures of the Kinki region. In addition, based on the Super Phoenix Plan ^{Note 2}, surplus soil produced from construction in the Tokyo Metropolitan Area is being shipped to various ports and harbors and being widely used as landfill material.

# 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 scrapped, is being implemented. When deleting vehicle registrations from the "Road Transportation Vehicle Law," the scheme for returns in vehicle weight tax is also conducted, in order to promote the proper disposal of end-of-life vehicles and prevent illegal dumping. Based on these systems, 1,501,084 vehicles were confirmed to have been scrapped in 2013.

Note 1 Business to promote the orderly development of the port by properly disposing in the sea landfill the waste generated from the 2 cities, 4 prefectures and 168 municipalities of the Kinki region.

Note 2 Mechanism for adjusting at the national level, the soil from construction in metropolitan areas to use it effectively as resources for port construction in ports that need landfill materials.

#### (2) Recycling marine vessels

The recycling of large vessels (ship recycle) ^{Note 1} has generally been conducted in developing nations such as Bangladesh and India, where the frequent occurrence of human casualty accidents and marine pollution in the 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. Various guidelines to supplement the implementation of this convention were formulated under the initiative of Japan and were all adopted in October 2012.

With the goal of an early enforcement of the Ship Recycling Convention, Japan is moving forward by reviewing domestic legislation that will be necessary to ratify the Ship Recycling Convention. As a condition of enforcing the Convention, the ratification by a major recycling country is necessary. India, the world's largest recycling country—in the meeting between Prime Minister Abe and Prime Minister Modi, as well as the meeting between MLIT Minister Ohta and Shipping Minister Gadkari held in September 2014—made a request that Japan provide support for improving the ship recycling facilities in India. MLIT will be providing technological support to India's ship recycling facilities and working towards the cooperation of the two countries for the ratification of the Convention.

On other fronts, because privately owned 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. As a result, approximately 600 FRP vessels are properly recycled yearly under the leadership of the Japan Boating Industry Association throughout Japan since 2005.

# 4 Efforts in Green Procurement Note 2

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 1Vessels that have reached the end of their operational use are dismantled, and the majority of the parts are re-used as steel.Note 2Procuring eco-friendly goods that are defined under Article 2 in the "Green Purchasing Law" is called Green Procurement here.

# 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 in May 2011, 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 addition, to promote the development of wooden houses and buildings that utilize local materials, the Ministry is working to support building of wooden longterm quality housing and certified low carbon buildings that use local materials, and the development of large-scale wooden buildings which will make use of cutting edge design and construction technology, as well as the development of leaders and wooden house production system in the region. Figure II-8-2-4

Examples of the Use of Wooden Building Material

Entrance Hall of Central Government

Building No.8

Image: Comparison of Compariso

Source) MLIT

# Section 3 National land development that revives and preserves the natural environment

# Initiatives for preserving biodiversity

As efforts towards the Strategic Plan 2011 to 2020 (objective for the Aichi prefecture), adopted at the COP10 held in Nagoya city in Aichi prefecture in October of 2010, we are currently advancing activities for its achievement. Furthermore, the "National Biodiversity Strategy 2012 to 2020" was formulated in September of 2012, and we have decided to continue the advancement in activities for preserving, reviving and creating animal habitats in rivers, urban green lands, coastal regions and harbors, and roads.

In October 2011, as reference material for municipalities formulating a basic plan for greening, the "Items for Technical Consideration in Securing Biodiversity in the Basic Plan for Greening" which summarizes the items that need to be considered in securing biodiversity, was formulated. Further, in May 2013, MLIT formulated the "Urban Biodiversity Index (draft)" to evaluate the progress of the conditions and enforcement of biodiversity by the local governments, and is promoting the efforts of local governments to secure urban biodiversity. In March 2015, the Ministry of the Environment, together with the Ministry of Agriculture, Forestry and Fisheries formulated the "Non-native Species Damage Preventative Action Plan" in order to comprehensively and effectively promote Japan's non-native species countermeasures as well as to protect and continually enjoy the rich biodiversity of Japan.

# 2 Creating rich and beautiful river environments

#### (1) Creating and conserving a healthy river environment

#### a. Creating a rich river environment and stimulating revival

In river development, based on the "Basic Guideline for Rich River Development (established 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 a 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.

#### b. 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 of Countermeasures for Non-native 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 and improve river environment downstream of dams, we are implementing flexible dam operation and tests for flexible operation (conducted in 20 dams throughout Japan as of 2014) to efficiently utilize a portion of the flood control capacity without hindering flood regulation. 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.

**Note** Using districts which have excellent natural conditions as core areas and by connecting them organically to ensure the appropriate placement and connections between habitat spaces.

#### (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 flow, 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 flowing down from mountains to coastal areas. Specifically, in order to deal with the problem caused by the sediment flowing in mountain streams, dams, waterways and the coasts, in cooperation with the relevant organizations, MLIT is working on projects such as formulating comprehensive sediment management plans for effective sediment management and building check dams, making existing dams permeable so that sediment can be effectively washed



downstream, 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.

#### (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.

#### Ochildren'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. 298 locations are registered as of March 2014.

#### ORiverside Fun School Project

Utilization is encouraged for riversides that are registered as Children's Riversides and undergo riverside improvements required for enhancing experiential activities. 285 locations are registered as of March 2014.

#### ONational Aquatic Organism Study

Conducted with the goal to increase interest in rivers through a survey of life forms found in nearby rivers. In 2013, 59,053 people participated. 59% of the inspection points (2,258 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 billows, we are proceeding with maintenance and conservation that balances between "defense," "environment," and "usage."

Due to beached waste originating from foreign countries, in recent years, the diminishing coastal functions and deterioration of the environment, scenery, and ecosystem, and the effects on safe navigation for ships and the fishing industry have become severe. In response, 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 plan to implement effective measures for beached waste

in close cooperation with relevant institution in the future.

In addition, we are advancing the "Emergency Large-Scale Disposal Project for Beached Waste related to Disaster", where personnel from "Multiple Beaches" from a wide area work to integrally and efficiently dispose of waste, especially for emergency disposal of large amounts of beached waste, which disrupt the functions of coastal protection facilities. With the goals to secure the functions of coastal protection facilities, to protect the coastal environment and to promote the appropriate use of the coast by the public, the Infrastructure Maintenance Comprehensive Fund is providing aid to dispose of grounded ships that have been abandoned and to remove sludge that is accumulating in unusual amounts in the coastal waters.

Furthermore, in June 2014, the Coast Act was revised to make it possible to issue a removal order to the owner of vessels that become grounded in the coastal conservation area in order to protect the coastal conservation facilities from damage.

# 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.



#### (2) Actively preserving, reviving, ad creating a healthy 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. After the projects have been started, we will continuously monitor the status after maintenance by implementing adaptable management methods. 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

Because illegally parked boats affect the navigation and anchorage of vessels, coastal recreation, and fishing activities, as well as raising concerns over secondary damages from tsunamis, regulatory measures are being implemented for the specification of parking prohibited zones and the enhancement of mooring capabilities for small vessels.

In May 2013, the Ministry developed the "Promotion Plan for comprehensive measures for the proper management of pleasure boats and the improvement of their use environment" in working towards the elimination of abandoned boats.

# 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. For this reason, the technology standards relating to greening roads are being reviewed to promote favorable greening of roads as well as their efficient maintenance. In addition, we strive to preserve and revive the environment by avoiding road construction, even in the planning stages, in areas that are valuable natural environments, or to try to minimize the effects or implement alternative measures if it cannot be avoided.



Source) MLIT

# **Section 4** Maintenance or Recovery of a Healthy Water Cycle

# Becoming a society that can enjoy the blessings of water

Thus far, the development of water resources development facilities were promoted because of the priority placed on ensuring the balance of water supply and demand in response to the rapid increase in water demand in the post-war high-growth period. On the other hand, there is pressure to respond to the various challenges that have emerged such as the vulnerability of water infrastructure like the occurrence of long-term, wide-area suspension of water supply resulting from large-scale disasters and aging facilities, the risk of climate change due to global warming, societal demands for maintaining and recovering a healthy water cycle as well as strengthening Japan's presence in contribution on an international level and competitiveness over international markets.

Based on the above conditions, on October 22, 2013, the Minister of Land, Infrastructure, Transport and Tourism submitted a queried the National Land Development Council regarding the "Direction to be taken on future water resources policies". The response to this query was given on March 25, 2015.

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Taking into account that a long-term vision is vital for the first year of the next-generation water policy, the response made the recommendation to switch from the current demand-based water resources policy—which responds to an increase in water demand by facilitating the increase in supply quantity with the building of new water resources development facilities—to policies that aim to facilitate further advancement, one with a "social system with bandwidth" to secure a stable water supply, and countermeasures against the aging water infrastructure, so that the blessings of water will be secured for the future against all kinds of risks such as large-scale disasters like earthquakes and critical droughts. The response also included a summary of the action items.

# 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).



#### (2) Water Quality Survey and Water Quality Accident Response

Water quality surveys are vital in conserving and maintaining a favorable water environment. In 2013, surveys were done at 1,074 locations on 109 water systems of Class A rivers.

MLIT is creating of water quality survey maps and conducting surveys of aquatic organisms in cooperation with citizens. As a result of surveys—which were based on the new water quality index with a multi-faceted evaluation of the river such as amount of garbage and odors—being conducted on Class A rivers in cooperation with the local residents, in 2013 approximately 26% (79 locations/ 308 locations) were judged to be "rivers that look clean enough for swimming."

On the other hand, in 2013 there were 1,233 water quality accidents in Class A rivers due to spillage of oils and chemical substances. 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 90% in 2013.
- Of surveyed locations in the rivers, 94% of the locations had good water of 3.0mg/L of BOD 75%, in which salmon and sweetfish can thrive.
- 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.



#### (3) Improving the water environment of enclosed coastal seas

Regarding the enclosed coastal seas of the Tokyo Bay, Ise Bay, Osaka Bay, and the Seto Inland Sea, because of the polluting load draining from land and deterioration of purification capacity in ocean areas duo to the loss of tidal flats and seaweed forests, the fishing industry has suffered damages from the occurrence of red and blue tides. In addition to this, there have been occurrences of environmental deterioration, as well as navigational obstacles to vessels, due to drifting debris and oil.

To resolve the current state, we advance activities to revive beautiful 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, and (4) reducing the amount of pollutants released into the ocean by improving sewage treatment facilities.

#### (4) Stimulating sewage maintenance to improve the water environment

We will appropriately formulate and review the comprehensive basin-wide planning of sewage systems, and promote high temperature incineration to remove nitrogen and phosphates which contribute to the eutrophication of enclosed bodies of water. In addition, we are working for early advancement in improving water quality and stratified advanced water treatment by partially renovating equipment and facilities in treatment plants that have not yet reached their scheduled renewal period.

As for the combined sewerage system, we plan to complete implementation of measures by 2022 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 various policies corresponding to the situation of communities from both standpoints of supply and demand. Specifically, in the facet of demand, there are measures to strengthen the recovery and reuse of water, and increase awareness for conserving water. In supply, there are measures to build and maintain facilities to supply water which are water resource development facilities such as dams, implement countermeasures for aging facilities, and develop crisis management measures, etc. In addition to the sustainable conservation and use of groundwater, and promotion of utilizing rainwater and recycled water, based on the "Special Measures for Water Source Area Act", work is being done to develop the living environment of the water source area and the industrial infrastructures, along with prevention of water pollution of the dam reservoirs.

Furthermore, the effect of climate change due to global warming has been noted, and has lead to predictions that there

will be a rise in the number of droughts, resulting from an increase in the number of days with no precipitation and the decrease in the amount of snowfall. For this reason, 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

#### a. 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 1.5% 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.

#### b. Promoting the utilization of rain water

In order to efficiently utilize water resources, initiatives are being promoted to treat and use rainwater and waste water from facilities for sanitation of toilets and sprinklers. There are approximately 2,000 facilities utilizing treated water as of 2013, and they use over 800 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 delicious water

With the spread of the waterworks systems, the demand from citizens for safe, delicious water has increased in recent years, making even greater efforts that emphasize water quality vital.

#### (4) Promoting measures concerning the permeation of rainwater

Due to the spread of impervious areas in recent years by urban development of drainage 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, improvement to rainwater storage penetration facilities are being promoted through tax measures, for cultivating groundwater, contributing to the revival of springs, and building a healthy water cycle system.

#### (5) Promoting measures concerning groundwater

As a result of excessive utilization of groundwater for industrial purposes during the period of high economic growth, adverse affects emerged in various locations such as land depression and salination of water supplies. In the Noubi plain, Chikugo and Saga plains, and the Northern parts of the Kanto plain, where ground subsidence has widely occurred, activities for preventing land depression and preserving groundwater are being conducted by considering the actual situations in those regions, based on the Guideline on Measures for Prevention of Ground Subsidence.

# 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, new demands are being made of sanitary drainage, including forming a low carbon, recycling society and a healthy water circulation system.

#### (1) Dissemination of sewage processing with sanitary drainage

Although the dissemination of sewage treatment plants reached around 89% (dissemination of sanitary drainage systems of around 77%) of Japan as of the end of FY2013 (total of 46 prefectures, excluding Fukushima due to effects from the Great Eastern Japan Earthquake), there is a large gap between regions. 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 76% (dissemination rate of sewage systems approximately 49%). 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.



#### a. 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, MLIT is promoting an immediate reexamination of prefectural schemes and the creation of mid-term (action plan)/long-term equipping plans, in order to work towards an septic system overview in roughly 10 years. In addition, efficient means of maintenance are also being actively promoted through the implementation of cooperative schemes between other waste water treatment facilities such as cross-jurisdictional waste water treatment.



#### b. 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 FY2013, 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 is in progress to make nationwide usage possible.



#### (2) Attaining durability in sewerage projects

### a. Proper stock management

With the progress of sewage systems, at year-end of 2013, there is a vast stock of approximately 460,000km of sewer line extension facilities as well as approximately 2,200 sewage treatment plants.

Because these sewerage facilities were built rapidly starting around the high economic growth period, the number of aging facilities is expected to increase rapidly from now on. Although in 2013, mainly small scale issues were arising, road collapses have occurred in 3,500 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 introduction of stock management that practices preventative maintenance, while at the same time considering the introduction of comprehensive private consignment and efficient pipe inspection methods.

#### b. Reinforcement of business infrastructure

In the operation of sewerage projects, although it is a fundamental rule to cover costs (excluding portions covered by public expense) for treating waste water with money acquired from usage fees, the initial establishment requires a lump sum of funds. Due to the business characteristic in which income begins to stabilize as sewerage systems develop, there are cases where funds fall short during construction. Therefore, with the "Guide for restoring financial health in sewage management" we are pushing initiatives in each municipality for the restoration of financial health in sewage business management.

#### c. Consigning facility management to private sectors and acquiring technical capabilities

Deliberations for the introduction of public facilities governance method for sewerage projects, and efforts for making further use of private sector consignment ^{Note} for the maintenance management of sewage treatment plants, are both moving forward. 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.

Note

A method of facility management that reflects original ideas of private contractors by consigning details of operation methods in order to optimize operation while charging the responsibility to secure a specified level of capabilities such as sustaining the quality of released water to optimize operation.
#### (3) Revitalizing communities through sewage

The proper treatment of waste-water through improvements in sewage, and the preservation or creation of healthy water environments, stimulates promotion of tourism and industry. In addition, by creating river fronts using recycled water from advanced waste water treatment, stimulating regional activities through the operation and management of water amenity spaces by citizens, utilizing space above waste water treatment facilities, transferring sewage heat to be used as district heating, utilizing bio-gas as energy and efficiently using sewage resources, sewage contributes to regional vitalization in numerous facets.

## (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 wellsuited 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 Note 1." Additionally, subsidies are granted to each elementary and middle school for supporting environmental education on sewage.



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), which checks if vessels meet standards, by conducting on-site inspection of vessels that enter Japanese ports. As for systems for audit if flag state governments are fulfilling their duties in monitoring and supervising ships from their own country, an arbitrary system proposed by Japan was authorized for establishment by the IMO Convention. However, in light of progress in initiatives, the system is now scheduled to be mandatory by January, FY2016. In order to enhance the effectiveness of audit, Japan will participate in discussions in reviewing the manner of operation.

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. As for large scale oil spillages that occur in domestic waters, measures have been established for prompt and precise response through the utilization of large-sized trailing suction hopper dredgers. On January 5, 2015, an emergency dispatch of "Kaishomaru", a dredger-cum-oil recovery vessel, was made to recover oil from an oil spill found offshore of Shimane Prefecture.

Moreover, the amount of allowable oil and waste excreted from vessels is regulated by the MARPOL Treaty ^{Note 2}. The regulation over waste generated by vessels was further reinforced in January 2013 with the amendment on annexes of the protocol. In order to attain proper disposal measures in ports and harbors, Japan is providing support for improving reception facilities for waste oil generated by vessels by means of tax policies and the formulation of the "Guideline for Reception Facilities of Ship Generated Waste for Ports and Harbors (Plan)".

Note 1 "The Path of Recycling Sewerage Environmental Education Portal Site" http://www.jswa.jp/kankyo-kyoiku/index.html

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Note 2 International protocol for preventing pollution by marine vessels.

## (2) Control measures on air pollution from ships

As nitrogen oxides (NOx) would cause acid rain and provide adverse impacts on human health, the International Maritime Organization (IMO) regulates the NOx emissions from ships based on the MARPOL Convention. Currently, NOx Tier II limits are in effect, which reduce the NOx emissions by 20% compared to NOx Tier I limits. Further, the MARPOL Convention provides NOx Tier III limits which reduce NOx emissions by 80% compared to the NOx Tier I limits for emission control area. The NOX Tier III limits was proposed by Japan, as one of the world's leading engine manufacturing countries. In proposing NOx Tier III limits, Japanese engine manufacturers conducted developments of exhaust gas after-treatment devices (SCR equipment) which significantly reduce NOx emissions from ships as well as in-engine combustion technologies and demonstrated availability of those technologies through onboard tests. As the results of the technological developments, it was shown that reduction of NOx emissions for Tier III limits could be achieved.

The MLIT has contributed to reduce NOx emissions from ships by retaining the effective date of NOx Tier III standards as 1st January 2016 in accordance with the MARPOL Convention, while some countries claims it should be postponed.

## (3) Responding to issues of invasive aquatic species carried by ships

Control measures on invasive aquatic species carried by ships It is pointed out that the transfer of aquatic species via ships' ballast water ^{Note 1} and ships' biofouling would threat 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 "the 2011 Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species in 2011" were adopted at the IMO. With the necessity to take action to prevent the disruption to the ecosystem caused by the harmful ballast water from international shipping and to fulfill the international responsibility under the international cooperation, the Government of Japan proposed the law to implement the Ballast Water Management Convention to the 186th ordinary session of the Diet and it passed with an unanimous vote. Moreover, Japan concluded the Convention in October 2014 ^{Note 2}.

## Section 6 Improving living environments by preventing atmospheric and noise pollution

## Policies for environmental issues related to road traffic

## (1) Measures for individual vehicles

## a. Reinforcing exhaust gas regulations

For exhaust gas measures of new vehicles, seeking to further reduce nitrogen oxides and particulate matter emitted by vehicles, Japan established the most stringent regulations among global standards (post-new long-term regulation) in 2008, and began its consequent enforcement beginning in October 2009. In addition, for diesel heavy vehicles, new Off-Cycle measure was deployed and regulations have been sequentially enforced since October, 2013. For diesel special vehicles, in January 2014 the regulations related to the further reduction of nitrogen oxides and measures for blow-by gas were newly revised and have been sequentially enforced since October 2014.

Meanwhile, exhaust gas measures for in-use vehicles (vehicles already in usage) such as those based on the "Amendment Act on Reduction of Total Amount of Nitrogen Dioxide and Particulate Matters Originating from Automobiles in Designated Areas (Automobile NOx PM Law)" are being implemented; Japan is working to bolster exhaust gas measures.

Note 2 Also, a proposal to obtain the approval for conclusion of the Convention was submitted to the 186th ordinary session of the Diet, and the proposal passed with unanimous vote.

#### b. Development and practical application of next generation heavy vehicles

In order to promote the development and practical application of next-generation heavy vehicles, from 2011 the technological development of high efficiency hybrid trucks, electric/plug-in hybrid trucks, and high performance electric buses was started. Efforts for practical application was also started, such as driving tests of prototype vehicles under actual use conditions, and formulation of the necessary standards.

## (2) Promotion of Railway Crossing Measures

## a. Countermeasures for Air Pollution

As the emission of particulate matter (PM) and nitrogen oxides (NOx) from automobiles is increased by the number of starts and stops, as well as the decrease of running speed, traffic flow improvement measures are being promoted from the standpoint of improving the roadside environment by, for example, building trunk networks, road pursuing countermeasures for bottlenecks, and instituting transportation demand management (TDM) measures.



#### b. 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

The most effective means of curbing aircraft noise is the implementation of low-noise equipment. In comparison to the past DC8, the current B767 only produces 80dB (A) ^{Note} of noise which has an approximately 90% smaller range of noise impact. For the areas where there is still noise impact in spite of the use of low-noise equipment, measures such as insulation work for private residences and relocation compensation projects are necessary. Most of the sound insulation work for housing, excluding continued maintenance, has been completed. Although the issues related to aircraft noise are progressing towards improvement and noise control zones in each airport are being sequentially reviewed, further measures are needed to reduce noise pollution in the future in order to promote harmonious development around airports and surrounding areas.

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## 3 Countermeasures for Railway Noise

In terms of the noise control for Shinkansen bullet trains, countermeasures for noise are being taken, such as the installation of sound barriers, the raising of track level, etc. For the construction of new railways for Shinkansen bullet trains, for regions where the measures mentioned are difficult to implement, Japan is providing financial aid for sound insulation work in already existence housing.

As for noise control measures for existing lines, each railway company is instructed to lower noise levels below a fixed value when constructing new railways and renovating already existing railways, more than previously in large-scale improvement projects, based on the "Guidelines for Noise Abatement Measures in the Construction of New Lines and Large-scale Improvement of Conventional Railways."

## 4 Countermeasures for urban heat islands

Heat island effect refers to the phenomenon where a metropolitan area is significantly warmer than its surrounding rural areas. Though the global temperature has only elevated around 0.7oC in the last century, Japanese metropolitan areas have seen elevations of around 2 to 3oC, indicating the significant progression in heat island phenomena compared to the global warming trends. The main cause of this phenomenon is said to be increases in artificial heat from air-conditioning, the reduction of greenery and water surface, and the modification of land surface by urban development.

In order to promote comprehensive and effective countermeasures against urban heat islands, Japan is administering improvements to the "Heat Island Monitoring Network", a collection of specific measures systematically compiled in 2013 by relevant ministries and agencies. Improvements included the addition of the four objectives for promoting policies to alleviate health effects on people: reducing artificial heat emission, improving land surfaces, urban morphology, and lifestyle. The MLIT focuses on promoting policies for the swift acquirement of greenery and open spaces.

## 5 Countermeasures for sick building syndrome and soil contamination

## (1) Countermeasures for sick building syndrome

Sick building syndrome describes a situation where materials used in the interior of a building disperses 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 FY2013, the sediment of all locations and the water quality of 97% (215 locations out of 221) of the locations satisfied environmental standards.

For rivers and harbors where sludge containing dioxin levels exceeding environmental standards were found, basic concepts over measures for rivers and harbors were integrated, and measures are being implemented based on the "Manual for countermeasures against contaminated sediment with dioxins encountered in harbors (revised edition)" and the "Manual for countermeasures against sediment with dioxins encountered in rivers and lakes", which were revised in April

2008. In addition, Japan is supporting pollution prevention projects in rivers and lakes with dioxins levels detected to be exceeding standards. In addition, support is being provided for pollution prevention enterprises for harbors and rivers for which dioxins exceeding the standards have been detected in the bottom sediment.

#### (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 2013.

Also, based on the "Building Standards Law," the removal of sprayed asbestos when renovating a building is required, auxiliary system 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 (NOx, 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

## 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  $CO_2$  trends in the atmosphere at three stations in Japan. $CO_2$  concentrations in the marine atmosphere, as well as those in the sea surface water are being observed in the northwest Pacific by research vessel. GHGs in the upper troposphere in the northwest Pacific is also being observed. Furthermore, JMA is not only monitoring climate changes, but also observing solar and infrared radiation at domestic five stations in order to reduce an uncertainty of global warming projections.

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.

In addition, in order to improve the accuracy of seasonal weather forecasting and monitoring of climate change, JMA produced the Japanese 55-year reanalysis (JRA-55), a historical global atmospheric data with homogeneity in space and time.

Moreover, "Climate Change Monitoring Reports" and "Report on Climate Change and Extreme Weather" (in Japanese) are compiled based on results from observation, and future projection of climate changes, extreme weather events and global warming is disclosed to the public. Serving as the World Data Center 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

The Japan Meteorological Agency (JMA) monitors the extreme weather that occurs in Japan and many parts of the world to compile and then report on a regular basis their observations regarding areas with extreme high and low temperatures or rainfall as well as weather disasters. Also, when extreme weather conditions are occurring that significantly affect the public, progressive reports are given summarizing the information regarding features, factors and the outlook.

Furthermore, as a Regional Climate Center 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) Initiatives aimed to operate next-generation geostationary meteorological satellite

On October 7, 2014, the next-generation geostationary meteorological satellite "Himawari-8" was launched, and it is expected to start observation operations in mid-2015. There are also plans to launch "Himawari-9" in 2016. 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, starting with global warming.

# **Column** The launch of next-generation geostationary meteorological satellite "Himawari-8" and capturing the first images

The next-generation geostationary meteorological satellite ^{Note} "Himawari-8" was launched on October 7, 2014, and on December 18, the first images were successfully captured. It is expected to start observation operations in mid-2015. In 2016 "Himawari-9" will be scheduled to be launched, and after its role as the backup to Himawari-8 is completed, it is expected to start observation operations in 2022.

"Himawari-8" is the world's most advanced next-generation geostationary meteorological satellite and compared to the current satellite "MTSAT-2", its observation functions have been extensively strengthened. For example, MTSAT-2 makes an observation of the East Asia/Western Pacific area every 30 minutes, but Himawari-8 will make an observation every 10 minutes and further, it can concurrently observe the Japan area and tropical cyclone vicinities every 2.5 minutes. The number of image types will also increase from 5 types to 16 types, and will be able to create color images by combining 3 types of visible images (images that observe light in the 3 colors of red, green and blue). The horizontal resolution will become double. With these improved functions, its contribution to the field of Earth's environment can be anticipated for not only the live monitoring of tropical cyclones and cumulonimbus clouds that bring heavy rains and volcanic ash, but also for things such as sea surface temperature, sea ice, yellow dust, etc.

Note Japan Meteorological Agency website "Meteorological Satellites -JMA-" http://www.jma.go.jp/jma/jma-eng/satellite/index.html 

Exterior Appearance of "Himawari-8 & Himawari-9"



Source) Japan Meteorological Agency

First image from "Himawari-8"



(Note) Color image combining 3 types of visible images. Source) Japan Meteorological Agency

Source) Mitsubishi Heavy Industries, Ltd.

## (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  $CO_2$  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 Ocean along with using data from satellites and Argo floats, or profiling floats to automatically observe the ocean interior.

JMA website "Marine Diagnosis Report" provides information on the present status of the ocean such as ocean temperatures, ocean currents, sea level, sea ice, as well as the prospect for the future.

#### Figure II-8-7-2

Monitoring the Global Environment by research vessels

The long-term changes in hydrogen ion exponents (pH) in 10, 20, 30 degrees latitude north along the 137th longitude line (left) and the analysis results (right). The numbers in the graph indicate the variation ratio per 10 years. The progression of "oceanic acidification" is indicated by how much the pH decreases.



In order to supplement data obtained from Argo floats, the Japan Coast Guard constantly monitors fluctuations in the Kuroshio Current in waters surrounding the Izu Islands, using high-frequency radar, and publishes the observation data. 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.

#### (5) Observing and monitoring the ozone layer

The Japan Meteorological Agency annually publishes the outcome of observations on ozone and ultraviolet radiation. According to these studies, the global amount of ozone continues to be low from a long-term perspective. Additionally, in order to prevent adverse effects to the human body by ultraviolet radiation, information on the topic is published daily using a numerical index (UV index) for easy comprehension of the intensity of ultraviolet radiation.

#### Figure II-8-7-3

Source) Japan Meteorological Agency

Example of a "Marine Diagnosis Report" published on the Japan Meteorological Agency Website

[Sea ice outflow in southeast waters past Cape Erimo in April 2014] • In April 2014, sea ice was observed in the waters southeast of Cape Erimo. This was the first occurrence in April since 1971 when the use of the current method of sea ice analysis was started.



## (6) Promoting routine operational observation in the Antarctic

The Geospatial Information Authority of Japan is conducting geodetic observation of the Antarctic regions, creating and updating topographic maps, and developing satellite image views. The achieved results contribute to the smooth and safe activities of Antarctic research expeditions, and contribute to the research of global environmental changes etc., as well as international activities related to, geodetic surveys and geospatial information.

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 topological studies on the sea floor. The observation data is being used for creating hydrographic charts and also 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 and Prediction 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 Program (WCRP). The Meteorological Research Institute conducts research on global warming predictions as well as development of Earth System Models including the carbon cycle processes, and actively contributed to the Fifth Assessment Report (published 2013 – 2014) of the Intergovernmental Panel on Climate Change (IPCC). In addition, the Japan Meteorological Agency published the "Global Warming Projection Volume 8 in 2012, which showed a warming prediction around Japan more detailed than any in the past by using a sophisticated regional climate model.

In 2013, the National Institute for Land and Infrastructure Management published the results of research conducted

thus far as the "Research on Climate Change Adaptation Policy (Interim Report)" that presented the technical infrastructure that is required in order to consider and establish measures, from a multi-faceted standpoint of irrigation and flood control as well as the environment, which can respond to future climate change.

## 3 Promoting Global Mapping Project and the world geodetic network

Japan serves as the secretariat for the International Steering Committee for Global Mapping, collaborating with the national geospatial information authority of various nations to sketch the Global Map (digitalized geospatial information on global terrain), leading Global Mapping Project (183 participating nations and regions as of January 2015), and advancing the utilization for understanding and analysis of the global environment through the United Nations Committee of Experts on Global Geospatial Information Management (UNCE-GGIM) and others. In addition, by participating in international observation, utilizing VLBI (Very Long Baseline Interferometry is a type of ranging method using radio waves from quasars) and SLR (Satellite Laser Ranging is a method for measuring the range of an orbit by deflecting laser off of retro-reflectors on an artificial satellite), tide observation, observation of absolute gravity, and International GNSS service (IGS), Japan is conducting observations and research on global scale tectonic activity. Furthermore, the analysis of satellite data is being used to conduct "National Environment Monitoring", which shows land use and change in vegetation.

# Strengthening International Expansion and Contributions

## **Section 1** Promoting the Export of Infrastructure Systems

## 1 Trends of the World Infrastructure Market

**Chapter 9** 

The global infrastructure market is expected to continue growth due to rapid urbanization and economic growth. For example, according to the report of the Organization for Economic Cooperation and Development (OECD), system demand for transportation infrastructure averages JPY 38 trillion a year at the present, but is expected to increase more

than 50% from 2015 through 2030 and rise to JPY 59 trillion. An increasing amount of infrastructure projects in emerging countries are utilizing the private sector to take advantage of private sector project participation schemes and funding under strict budget restrictions. In light of Japan's economic and social situation, the overseas expansion of infrastructure systems has become an important pillar of our policy, as we believe that utilization of Japanese technology and know-how can meet the infrastructure needs of the world, while strengthening our contribution to the growth of emerging countries.

On the other hand, international competition for project commission is fierce; therefore, the public and private sectors need to work closely to create an environment that enables Japanese companies to be competitive in project commissions.



## 2 General Direction of Government Policy

The government established the "Infrastructure Strategy Economic Cooperation Meeting" in March 2013, and compiled the "Infrastructure System Export Strategy" based on the deliberations regarding government policies, which were discussed by relevant ministers, including the Minister of Land, Infrastructure, Transport and Tourism. A revised edition of this strategy was developed in June 2014, and this 2014 revision of the "Japan Revitalization Strategy" and its active implementation was approved in a Cabinet meeting in the same month.

The "Infrastructure System Export Strategy" aims to secure approximately JPY 30 trillion worth of infrastructure system project commissions in 2020 (approx. JPY 10 trillion in 2010) for Japanese companies. The main pillars of these measures are: (1) Promote public and private sector cooperation to strengthen the global competitiveness of companies, (2) Support the discovery and training of companies, local governments, and human resources that will lead overseas expansion of infrastructure, (3) Acquire international standards utilizing advanced technology, knowledge, etc., (4) Support entry into new frontiers, (5) Promote the securing of stable and inexpensive overseas energy and mineral resources.

## 3 Initiatives of the Ministry of Land, Infrastructure, Transport and Tourism

The Ministry of Land, Infrastructure, Transport and Tourism has decided to strongly promote the overseas expansion of infrastructure systems in the land, infrastructure, transport and tourism sectors based on the above strategy. In order to successfully overcome competition from foreign countries and win bids for Japanese companies, we must play to Japan's strengths, such as building safe and reliable systems that combine structural and non-structural aspects, while addressing the needs of the recipient country with flexibility. Therefore, we are planning to promote three pillars of the measures as follows: a. "Upstream" planning and information sharing, b. Support companies engaged in overseas development of infrastructure systems, c. Overseas development of soft infrastructure.

## a. 'Upstream' Planning and Information Sharing

Japan will take advantage of opportunities for information sharing in the joint public-private sector's top sales and international conferences to promote participation in the concept stage of the project ("Upstream") with the cost-effectiveness, safety and reliability provided by Japanese technology.

## b. Support Companies Engaged in Overseas Development of Infrastructure Systems

We established the Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development (JOIN) to reduce business risks incurred—such as the huge amount of initial investment, long-term maintenance, and demand risk—for companies expanding into downstream (management and operation) in transportation and urban infrastructure fields. In addition to opening the "Overseas Construction Hot Line" consultation office in order to help solve problems encountered by companies that are expanding businesses abroad, efforts are underway to provide multifaceted support to Japanese companies involved in overseas infrastructure systems, such as improving the overseas construction and real estate market database, collecting pertinent information through diplomatic missions, and introducing overseas construction and real estate market information from private human resources (known as "private attaché"), like seasoned Japanese general contractors who are experts concerning local conditions.

## c. 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 and/or become the "de facto standard" of partner countries, support for institutional development of partner countries to improve the business environment for Japanese companies, and support for training engineers and skilled workers that contribute to sustaining administration and maintenance of infrastructure in partner countries.

## (1) Promotion of Top Sales

In FY2014, the Minister of Land, Infrastructure, Transport and Tourism visited countries like Mongolia, Malaysia, Cambodia, India, Vietnam for discussions and exchange of opinions with the heads of state as well as ministers of land, infrastructure, transport and tourism to conduct top sales for Japanese infrastructure systems. In addition, the Vice Minister and Secretary visited a total of 12 countries including stops in Africa and Latin America to promote Japan's infrastructure systems to meet the infrastructure needs of those countries. Additionally, opportunities such as the visits of foreign ministers and dignitaries to Japan, hosted seminars, and invitation of dignitaries were actively used to spread the superiority of Japanese infrastructure systems.

#### (2) Promotion of Talks with Partner Countries

In addition to top sales, there have also been vice-ministerial level bilateral meetings and signings of memorandums of cooperation. Also, to spreading information about Japan's infrastructure, international public and private sector councils were established for the infrastructure fields of water, roads, railways, ports, and "Eco-cities" as a forum for the private and public sectors to coordinate on the promotion of infrastructure exports. The "Japan Disaster Prevention Platform" was established in 2014 by industry-academia-government collaboration in the disaster prevention sector.

## a. Indonesia

The "5th Japan-Indonesia Vice-Ministerial Level Meeting on Transport" was held in Indonesia in May 2014 to share the latest status about cooperative projects that are underway between the two countries in the transport sectors of logistics, railway, automobiles, ports, maritime traffic and aviation. New topics were also taken up, including the sharing of views about the possibility of new cooperative projects, and further close cooperation and extension of bilateral talks including private citizens in future was confirmed.

The progress of each project in railway, ports, aviation, etc. was reviewed and information was exchanged regarding bilateral efforts to solve problems at the "Jakarta Metropolitan Priority Area (MPA) 9th Technical Committee ^{Note}" held in Indonesia in June 2014.

The "2nd Japan-Indonesia Vice-Ministerial Level Meeting on Construction" was held in Indonesia in November, focusing on the two themes of "Promotion of PPP Projects" and "Strengthening Infrastructure for Climate Change." In addition, information was exchanged in a separate bilateral working group concerning efforts and challenges in technology for roads, disaster prevention, sewers, construction and underground construction sectors.

## b. Thailand

The "3rd Japan-Thailand Vice-Ministerial Level Working Group on Railways" was held in Bangkok on January 14, 2015. In addition to discussion on bilateral cooperation on Thailand's railway projects, Thailand sounded a Memorandum of Intention (MOI) on railway cooperation. Following this, at the Japan-Thailand talks held in Tokyo on February 9, 2015, Minister Ohta of the MLIT and Minister Pulajin of the Thai Ministry of Transport signed the MOI in agreement on future cooperation on Thai railway projects.

## c. Vietnam

In January 2015, the Vietnam Ministry of Construction decided to strengthen bilateral cooperation in the construction and urban development sectors, and entered into a comprehensive cooperation memorandum. In addition, the "4th Japan-Vietnam Vice-Ministerial Level Meeting on Transport" and the "8th Vietnam Highway Seminar" was held in Japan to discuss transportation infrastructure projects including railway, ports, airports and roads in Vietnam; progress updates were shared, issues were reorganized and the direction of future cooperation was confirmed.

## d. Myanmar

The "2nd Japan-Myanmar Vice-Ministerial Level Meeting on Transport" and the "2nd Japan-Myanmar Senior Officials Meeting on Land Transport" were held in Myanmar in June 2014. Dicussions included an update on the current status, such as the progress of each transport infrastructure project including railway, automotive, maritime, port, aviation and meteorology sectors, and confirmation of future close bilateral cooperation and coordination.

In addition, the "2nd Japan-Myanmar Vice-Ministerial Level Meeting on Construction" was held in January 2014 in Myanmar to exchange information regarding the initiatives, challenges, and technology of both nations for road, city, and housing building and construction industry sectors.

Note

A framework based on the "Memorandum of Cooperation on the Collaboration for Establishing Metropolitan Priority Areas" (Signed in October 2010 by the Ministry of Foreign Affairs; Ministry of Economy, Trade and Industry; and MLIT) to discuss Indonesian infrastructure projects and investment policies at the ministerial level with relevant Indonesian ministers in order to accelerate infrastructure development and other aspects of the Jakarta metropolitan area under the coordination of Japan and Indonesia.

#### e. Laos

Minister Ohta held talks with Laos' Public Works Minister of Transport in October 2014 in Japan, and concluded a memorandum of cooperation about the collaborative relationship in the transport sector. During the talks, opinions about maintenance of Laos' transportation infrastructure were exchanged, and the content of memorandum agreed to further strengthen the cooperative relationship.

## f. India

The "8th Japan-India Joint Working Group on Urban Development" was held in Tokyo in November 2014 for the purpose of greatly contributing to the further growth and development of economic and social aspects of the cities of Japan and India. Information and opinions were exchanged on urban transportation, urban development, and the water environment sector.

## g. Kuwait

Minister Ohta exchanged opinions with the Minister of State for Planning and Development of Kuwait during an October 2014 visit to Japan about future development programs, and signed a memorandum of understanding concerning cooperation in the transport sector (technical cooperation, etc.) and public works sector (infrastructure sector information exchange, etc.).

## h. Russia

Based on the Memorandum of Cooperation in the transport sector which was signed between the MLIT and the Russian Ministry of Transportation, an exchange of opinions was conducted regarding navigation safety measures of the Arctic passage in the "Japan-Russia Transportation Taskforce." The "Japan-Russia Urban Environmental Issues Taskforce" was founded in December 2014 to extend cooperation on Russia's urban environmental issues; a summary meeting of this task force and the subcommittee was held to ensure the participation of private enterprises. In addition, the "Japan-Russia Urban Environment Council,"—the Russian branch of the same Japanese council—has steadily increased the number of participating companies, and has resulted in the participation of a large number of Japanese companies at the seminar cohosted by the MLIT and JETRO in Moscow in March 2015.

## i. Mexico

A memorandum of understanding was signed in July 2014 between Japan and Mexico in order to promote cooperation in the transport sector, which included provisions to share bilateral experience and to utilize Japanese technology.

## j. South Korea

The "10th Japan-South Korea High-Level Talks on Transport" was held in South Korea in March 2015 to exchange information on case studies of logistics policies, safety measures for the transport sector, and automated driving systems for automobiles. An agreement was reached to continue bilateral cooperation in the transport sector.

#### k. Mongolia

Minister Ohta held a meeting in Mongolia with the Minister of Roads and Transport and Minister of Construction and Urban Planning of Mongolia in April 2014. A memorandum of cooperation was signed to promote and strengthen bilateral cooperation in the support needed for developing infrastructure systems in both countries.

П

## (3) Establishment of the Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development (JOIN) Note

The sectors of transport and urban development come with expectations of long-term returns but there are also characteristics which are significant issues for the participation of Japanese companies, such as long development periods, demand risks during the operations phase, and the influence of local governments, all of which require appropriate solutions.

For this reason, JOIN was established as part of the "Japan Revitalization Strategy" in October 2014 to address the demand risks of both "investment" and "participation at project planning stage" as one, to better promote the entry of

Japanese companies into overseas transportation and urban development business markets. An industry investment of JPY 37.2 billion was allocated in FY2015 through treasury investments and loans (see chart below).

JOIN will provide funding and other investments to local project owners in cooperation with Japanese companies, dispatch skilled personnel including executives and engineers, and conduct negotiations with the partner country. Furthermore, because the international promotion of infrastructure systems is an important national policy, the Minister of Land, Infrastructure, Transport and Tourism, along with other relevant ministers, will coordinate to manage this agency appropriately.



## (4) Development of Soft Infrastructure

Japan aims to establish Japanese specifications and standards as international standards through active participation in the discussions, while also promoting the progress of Japanese standards becoming the "de facto standard". In addition, through the deployment of experts, cooperation in JICA training, and seminars, Japan is supporting the training of technicians responsible for maintenance, operation and management of infrastructure in partner countries.

## **Column** The Establishment of the Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development (JOIN)

## **1.The Foundation of JOIN**

The Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development (JOIN) was established on October 20, 2014. JOIN provides investment and business participation for overseas transportation and urban development business. It is expected that JOIN projects will strengthen the competitiveness of Japan by encouraging Japanese businesses to participate in the overseas infrastructure market.

Approximately JPY 5.4 billion yen from the private sector (infrastructure related industries, etc.) and JPY 5.4 billion from the government were contributed when JOIN was established. An additional JPY 58.5 billion was allocated in FY2014 as part of the government financial investment plan budget, and a JPY 37.2 billion budget was reported for 2015. In the future, depending on the progress of the projects, JOIN will receive additional government investment.

## 2. About the Inauguration Ceremony

The inauguration ceremony was held at JOIN's Marunouchi office on October 20, 2014 and included the

Note The English name of the Japan Overseas Infrastructure Investment Corporation for Transport & Urban Development is abbreviated as JOIN.

unveiling of its sign.

The MLIT Minister Ohta expressed expectations for overseas expansion by infrastructure-related companies through this venture. Along with expressing his gratitude to the agency's partners, he also stated, "Overseas development of infrastructure is a challenge that this country is working towards by collective effort; I am acutely aware of the importance of this support. Under these circumstances, I believe that the establishment of this organization will be a great strength."

President Hatano of JOIN stated, "We are keenly aware that the system has a role to play, the responsibility is very serious, and we are faced with a very challenging task. I will work my hardest to take the words of encouragement I received from the Minister to heart and contribute to the future growth and development of Japan. Following the Minister's example of leading the overseas development of infrastructure, we as a company promise to work together and do our best."



#### **3.About Early Project Support**

JOIN was founded with only 18 employees. Since its establishment, JOIN has received a lot of information regarding overseas infrastructure projects. Currently, all employees are engaged in a unified project review to work towards the realization of supporting its first project. Every employee is involved in careful investigation of each project's business characteristics and effects of policy, in order to support as many projects as possible, as soon as possible.

## **Section 2** Promotion of International Cooperation and Negotiations

## Initiatives in the Field of Economic Partnerships

## (1) Entering into Economic Partnership Agreements/Free Trade Agreements (EPA/FTA)

Japan has been strategically promoting the economic partnership between the Asia-Pacific region, Southeast Asia, Europe etc., and have entered into EPA with 15 countries and regions as of March 2015. These arrangements will serve to strengthen international competitiveness of Japan's transport, construction, and other industries, as well as promote international development and opening of the service sector in partner countries including the abolition or deregulation of foreign capital restrictions, and promote the expansion of participation opportunities related to government procurement.

## (2) World Trade Organization (WTO)

In the WTO Doha Round Negotiations which was started in 2001, Japan aims to promote the opening of markets, and chaired multilateral meetings in the maritime transport and construction sectors in addition to other efforts, to actively participate in negotiations regarding land, infrastructure, transport and tourism. Furthermore, discussions have been

underway for the purpose of creating a Trade in Services Agreement (TiSA) by countries and regions—including Japan eager to further open trade in the service sector, with negotiations having started in June 2013. In addition, the Government Procurement Agreement aimed to promote the extension of ensuring transparency and market access in the procurement process came into effect on April 16, 2014 in Japan.

## 2 Contributions to and Strategic Utilization of International Organizations

## (1) Asia-Pacific Economic Cooperation (APEC)

MLIT is actively involved with APEC Ministerial Meetings and Working Groups in transport and tourism sectors.

At the "8th APEC Transportation Ministerial Meeting" which took place in Tokyo during September 2013, discussions took place based on the theme of "Enhancing Connectivity Through High-Quality Transportation in the APEC Region." Results that were adopted as part of the "Ministerial Joint Statement" included the following initiatives: 1) Develop a transportation "Connectivity Map" to visualize the ideal transport network within the APEC region to be completed by the year 2020, 2) Promote cooperation and sharing of sound practices regarding transportation infrastructure investment, financing and operations in each economy, and 3) Develop a "Quality Transport" vision encompassing convenience, efficiency, safety, security, and sustainability as priorities. A report of progress will be made regarding the three initiatives listed above in the Ministerial Joint Statement at the "9th APEC Transportation Ministerial Meeting" to be held in the Philippines in 2015.

In the tourism sector, the "8th APEC Tourism Ministerial Meeting" held in Macau, China in September 2014 included presentations on tourism strategy in each economy, as well as collaboration and "smart tourism" in the Asia-Pacific market, and discussions on promoting low-carbon tourism.

## (2) Association of Southeast Asian Nations (ASEAN)

The MLIT is involved in various cooperative projects under the "ASEAN-Japan Transport Partnership," a cooperation framework in the transport sector founded between Japan and ASEAN in 2003. The "ASEAN-Japan Transport Partnership" is held every year under the "ASEAN-Japan Ministerial Conference on Transport" to monitor the progress of current projects and to discuss new projects and future direction.

The "12th ASEAN-Japan Ministerial Conference on Transport" was held in Myanmar in November 2014. In addition to project implementation planning for the "ASEAN-Japan Transport Partnership Work Plan 2014-2015," four other new collaborative projects were approved: 1) The development of a new environmental action plan, 2) The ASEAN-Japan cruise promotion strategy, 3) Investigation for the realization of a land bridge, and 4) Maritime safety. Also, the results of the "ASEAN-Japan Transport Partnership" included the approval of four documents: 1) Port EDI introduction guidelines, 2) The ASEAN-Japan cruise promotion strategy, 3) "Eco Airport" investigation reports in ASEAN countries, and 4) The land bridge preliminary investigation report.

## (3) Organization for Economic Co-operation and Development (OECD)

The MLIT participates in activities of multiple OECD organizations, including the International Transport Forum (ITF), the Council Working Party on Shipbuilding, the Territorial Development Policy Committee (TDPC), the Tourism Committee, as well as the Joint Transport Research Centre (JTRC), which was jointly established by OECD and ITF.

The ITF is an international framework in which transport ministers from 54 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 globalization. The May 2014 ministerial meeting on the theme of "Transportation in a Changing World" resulted in discussions on how transportation is affected by demographic changes, urban concentration of economic activity, changes in the supply chain, climate change, the emergence of new technology, and digitalization.

The "OECD Council Working Party on Shipbuilding" implements policy review to evaluate the soundness of shipbuilding policies to ensure fair competitive conditions in the shipbuilding market, as well as the creation of policy assistance lists that compile the status of financial assistance in partner countries to carry out policy coordination and mutual monitoring among major shipbuilding nations. Research and other efforts are actively underway at the TDPC, including policy review of member countries concerning national land and regional policies, evaluation of urban policies

concerning "green growth" strategies, research of compact city policies, and sustainable urban policies in an aging society. In addition, we are in the process of preparing for the second review by each country to be conducted on Japan's land and regional policies over FY2014-2015.

The Tourism Committee conducted maintenance and analysis of tourism data for the purpose of cooperation to promote and support international tourism, including review and and recommendations of tourism-related policies in each country. The "13th Global Forum on Tourism Statistics," held by the Tourism Committee in Japan in November 2014—the first time this forum was hosted in Asia-included the utilization regional tourism statistics and "big data," as well as discussion on the challenges and prospects in the field. In addition, OECD Deputy Secretary-General Stefan Kapferer, who was in Japan for the Global Forum, made a courtesy call to MLIT's Vice-Minister Nishimura to exchange ideas regarding the strengthening of the cooperative relationship between OECD and Japan.

At the JTRC, research studies on common political issues among member countries are underway concerning road

operations, such as maintenance and management, optimization of financial resources for development, and infrastructure that can be adapted for climate change and extreme weather events, etc. Japan is participating in working groups on infrastructure adaptation to extreme weather and climate change, etc.



Source) MLIT

#### Column Bridging Southeast Asia and the OECD - Contributions of the Ministry of Land, Infrastructure, Transport and Tourism

2014 marks the 50th year milestone of Japan's membership in OECD. Japan displayed leadership as the chair country of the Council of Ministers, and pushed an agenda to strengthen its relationships with Southeast Asia. As the 50th anniversary is celebrated through a variety of events, here are two events that the MLIT sponsored to bridge itself with fast-growing Southeast Asia:

## (1) ASEAN-Japan-ITF Urban Transport Seminar

This ASEAN-Japan-ITF Urban Transport Seminar was a joint venture of the MLIT, the International Transport Forum (ITF) and ASEAN, held in concurrence with the Japan-ASEAN Vice Ministerial Transport



Source) MLIT

Policy Meeting. This seminar was attended by Deputy Masuno of MLIT, Secretary-General Viegas of ITF, and transport secretaries from 10 ASEAN countries.

Under the theme of "Urbanization and Transportation that Support Developing Asia," three session that included speakers from private industry took place, resulting in active debate on the following topics: 1) Addressing Increasing Demand for Urban Transport, 2) Improving the Quality of Urban Transport, and 3) Important Traffic Problems in Asian Cities.

These debates resulted in linking the experience of developing countries of ITF and the future growth expected in ASEAN policy needs, and demonstrated the value of Japan's contributions.

## (2) Japan-OECD Policy Forum on Urban Development and Green Growth

This forum was held together with OECD to discuss sustainable development in rapidly developing ASEAN urban centers. This forum was attended by Vice Minister Kitagawa of MLIT, Public Governance & Territorial Development Director Alter of OECD, the Vice Minister of Construction of Vietnam, the Mayor of Yangon, Myanmar, and representatives from central and regional government authorities of ASEAN countries.

This meeting included a presentation of efforts and examples of the realization of OECD's "Urban Green Growth" proposal. In particular, development examples of Japan's Transit-Oriented Development (TOD) were presented by participating industry Japan-OECD Policy Forum Leaders Vice Minister Kitagawa of MLIT and Public Governance & Territorial Development Director Alter of OECD



Source) MLIT

representatives. The following day included a guided tour of urban development locations, and served as an opportunity to demonstrate OECD's urban development aims and Japan's role as an example of sustainable urban development for ASEAN countries.

#### (4) United Nations (UN)

## a. International Maritime Organization (IMO) and International Labor Organization (ILO)

The IMO is a specialized UN agency that establishes international rules on boat safety and the environment. Japan, in addition to producing the Secretary General of this agency, is an active participant in major shipping and shipbuilding work worldwide. In 2014, Japan actively contributed to the discussions on reduction of greenhouse gasses from ships, steps towards ballast water management regulation enforcement, and to the development of international rules on vessels passing through high-profile new routes in the Arctic Ocean and polar regions, as well as recent progress in low environmental load through efficient gas-fueled ships.

In addition, a briefing conference was held for relevant officials to ensure effectiveness of the "2006 Conventions on Maritime Labor," adopted by the ILO, which had gone into effect in August of the same year.

## b. International Civil Aviation Organization (ICAO)

The ICAO is an international organization run by the United Nations to define rules to facilitate the safe and orderly development of international civil aviation as well as the healthy and financially sound operation of international aviation transport activities. Japan's financial contributions are second among member countries, and as a Governing Council country under PART I (states of chief importance in air transport), actively participates in various ICAO activities and contributes to the development of civil aviation.

Japan also actively contributed to the construction of the International Aviation Field Greenhouse Gas Emission Reduction System that was established in March 2014, including chairing a task force for discussion of recommended proposals.

## c. United Nations Human Settlements Programme (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 land, regional, and residential environment improvement experience to contribute to improving human settlement issues worldwide, with particular focus on the Asian population explosion.

In October 2016, the 20th annual UN conference "HABITAT III"—a UN conference held to discuss international efforts related to human settlements and to summarize the international agenda—is scheduled to be held in Ecuador. A domestic committee (co-chaired by the Ministry of Foreign Affairs and the MLIT) was established in April 2014 to create and release news reports on other countries (mid-term reports) to be submitted to UN-HABITAT Office.

#### d. United Nations Secretary-General's Advisory Board on Water and Sanitation (UNSGAB)

UNSGAB is the Secretary-General's advisory board for policy and technical advice to address water issues. At the 23rd conference held in October 2014 in Tokyo, special sessions concerning water recycling and water disasters were held. The Minister of Land, Infrastructure, Transport and Tourism highlighted the necessity for international cooperation to ensure clean water supply and contributed to the debate regarding water problems, including ongoing discussion concerning water and natural disasters. In addition, Japan also attended the 3rd session (May 2014) and 4th session (October 2014) of the Water Disaster High Level Panel for strengthening water disaster efforts across countries, and shared information about adaptation to climate change and lessons learned from the Great East Japan Earthquake.

#### e. World Conference on Disaster Risk Reduction (WCDRR)

The United Nations World Conference on Disaster Risk Reduction is an international conference hosted by the United Nations to discuss international disaster prevention strategy; the conference has been hosted twice by Japan (1st Yokohama, 1994 and 2nd Kobe, 2005). At the third conference held in Sendai in March 2015, the "Sendai Disaster Prevention Framework" was presented as a follow-up to the "Hyogo Action Framework," the international disaster prevention effort guidelines from the second conference, and the Sendai document was adopted as a political declaration.

At this conference, the Minister of Land, Infrastructure, Transport and Tourism Ohta attended the Ministerial Round Table Meeting "Recovering Well from Disaster (Build Back Better)," and presented Japan's lessons learned from the Great Hanshin Earthquake, the Great East Japan Earthquake, and water disasters, sharing his experience and knowledge concerning disaster prevention, mitigation, and reconstruction, and emphasizing the importance of "Taking prevention, mitigation, and reconstruction measures that combine structural and non-structural aspects to prepare for worst-case scenarios," and "Using the lessons learned from the past to further develop safer communities by making preventative investments." The "Sendai Disaster Prevention Framework" was adopted on the final day of the conference, and established the following four items as matters to be prioritized worldwide going forward: 1) "Understanding Risk of Disaster", 2) "Strengthening Disaster Risk Management Governance", 3) "Creating a Strong Society by Investing in Disaster Risk Reduction," and 4) "Strengthening Pre-occurrence Preparation for Effective Emergency Response, and "Build Back Better' for Disaster Recovery/Restoration".

MLIT itself also plans to work on necessary measures based on the "Sendai Disaster-Prevention Framework" going forward.

## 3 Multilateral and Bilateral Initiatives in Individual Sectors

## (1) National Land Policy Sector

At the regular director-level bilateral meeting held with South Korea, information is exchanged concerning similar issues between the two countries, such as national land policy, regional redevelopment policy, and the promotion of appropriate land use. With France, we exchange opinions and ideas regarding national land policy and regional redevelopment policy with The Inter Ministerial Delegation for Regional Development and Attractiveness, French Republic (DATAR, CGET, General Commission for Territorial Equality). In addition, as of 2013, policy dialogue began for national development planning support in Kuwait, and August 2013 brought a new signed memorandum of policy dialogue for national development planning, and in October 2014 a policy dialogue was held with the Minister of State for Planning and Development during his visit to Japan.

## (2) Land and Construction Industry Sectors

A construction conference was held in Vietnam with the aim of supporting the overseas expansion of land and construction industry sectors. Construction conferences were also held in Singapore and Turkey to promote government and industry cooperation for the third country expansion in the field of infrastructure.

Furthermore, seminars were held in Vietnam and Myanmar with the goal of introducing related Japanese systems to establish construction and real estate business environments in ASEAN countries.

## (3) Urban Sector

In order to promote overseas expansion of environmentally-friendly urban development, urban transportation systems and multi-story parking garages, there are initiatives underway for public-private partnerships like "Japan Conference for Overseas Development of Eco-Cities (J-CODE)" and "Study Group for Overseas Development of Urban Transport Systems," and Urban Transport Seminars being held in the Philippines and Indonesia, emerging Asian countries with top sales.

In addition, in order to promote city sales in Japan's urban areas, MIPIM JAPAN (a domestic version of the MIPIM International Real Estate Trade Fair) was given support for its May 2015 event. There were also bilateral urban policy talks held with both China and South Korea.

## (4) Water Sector

Under the common understanding that water issues are a global problem, discussions for finding a solution are taking place at international conferences and other occasions. Japan actively participated in the discussions held at various international conferences, including the special session on water recycling and water disasters at the October 2014 "23rd United Nations Advisory Board on Water and Sanitation" in Japan, the November 2014 "OECD Meeting of the Water Governance Initiative" in France, and the March 2015 "3rd UN World Conference on Disasters" in Japan, to call for improvements in efforts related to water, sanitation and disaster prevention.

Furthermore, Japan is coordinating efforts with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and Network of Asian River Basin Organizations (NARBO) to support the creation of Integrated Water Resources Management (IWRM) plans—considered an effective means to solve water issues—by creating materials such as the "IWRM Guidelines at River Basin Level", training, and other efforts to contribute to the dissemination and promotion of IWRMs.

With South Korea and the United States, bilateral meetings were also held regarding issues such as rivers, erosion control, and water resource management to promote information exchange, technical cooperation, etc.

With Vietnam, a workshop on promotion of cooperation in the water sector was held in December 2014, based on the memorandum of understanding on cooperation in water resource facilities management signed with Vietnam's Ministry of Agriculture and Rural Development in June 2012. The Ministry of Construction updated the 2010 cooperation memorandum on sewage in March 2014, and in addition to the January 2015 7th Government Conference, support was given for developing standards in sewer development construction methods, establishment of sewer-related legislation, and propagation of pipe rehabilitation methods.

With Indonesia, the cooperative relationship was deepened through various activities, including an exchange of

opinions on the water resources and sewerage sector at the Japan-Indonesia Vice-Minister Level Meeting on Construction held in November 2014.

In addition, the "Water and Environment Solution Hub," a federation which includes Kitakyushu City, Osaka City, the Tokyo Metropolitan Area, Yokohama City, Kobe City, Fukuoka City, Kawasaki City, Saitama Prefecture, Shiga Prefecture, the Japan Sewage Works Agency and MLIT, is providing experience and expertise on sewerage projects through seminars, field studies, and training.

## (5) Disaster Prevention Sector

Efforts are underway to improve the disaster prevention functions of partner countries and contribute to the international development of infrastructure, utilizing Japan's advanced technology and knowledge on disaster prevention, gained from past experiences with disasters.

In particular, emerging countries facing issues in disaster prevention are targeted for joint efforts through the working cooperation of the private sector, academia, and the public sector of both countries to pursue technology and solutions that satisfies both parties' needs through "Talks for Cooperation in Disaster Prevention." The coordination of relevant organizations will capture a variety of opportunities in expanding to each individual country in relation to the "Infrastructure System Export Strategy". As part of the "Talks for Cooperation in Disaster Prevention," public and private sectors held workshops in Turkey in April and July 2014, in Indonesia in November 2014, in Vietnam in December 2014, and in Myanmar in February 2015.

In addition, the private sector, academia, and public sector worked together to establish the "Japan Disaster Prevention Platform" in June 2014 for the purpose of promoting the development and overseas sales of internationally competitive products and services in the disaster prevention sector. This organization serves as a receptacle for "Talks for Cooperation in Disaster Prevention" in cooperation with private sectors and works to make introductions and proposals of Japan's technology to partner countries.

On the other hand, to reduce the occurrences of water disasters in the world, in addition to disseminating Japan's experiences and technology, efforts are being made to establish international solidarity regarding the strengthening of water disaster prevention in order to build an international consensus that disaster prevention is the key to sustainable development. Meanwhile, the Public Works Research Institute's (Independent Administrative Institution) International Center for Water Hazard and Risk Management (ICHARM), which is recognized as a UNESCO cooperative organization, is developing projects such as the Integrated Flood Analysis System (IFAS), which uses satellite information and analysis technology like the Rainfall-Runoff-Inundation Model, and researching risk management in developing countries. The fruits of these efforts are used for human resource development efforts, including the awarding of doctorate and master's degrees in water-related disaster risk management, as well as accepting trainees for short-term training in water-related disaster risk management. Furthermore, technical cooperation and international assistance is being implemented jointly with UNESCO and the Asian Development Bank, including the construction of a flood forecast and warning system and hosting workshops for Asian countries and regions vulnerable to water disasters.

In addition, the European Commission's Humanitarian Aid and Civil Protection department and MLIT exchanged letters in March 2013 regarding disaster prevention cooperation, and based on these letters, held both ministerial-level and expert-level meetings in February 2015. The "3rd Japan-Switzerland Science & Technology Joint Committee" held in December 2014 included discussions on landslide disaster risk management, and confirmed the importance of bilateral cooperation in developing technology in this field. That same month, Japan also attended the "OECD High Level Risk Forum" and contributed to the discussions by introducing case examples of calculation of disaster prevention investment and disaster damage assessment. In addition, experts dispatched by the MLIT is providing technical advice on understanding disaster circumstances and future countermeasures.

#### (6) Road Sector

In order to create an environment that makes it easier for Japanese companies to enter ASEAN regions, the use of the Japan-ASEAN Transportation Alliance framework, pavement technology for international road networks, and ITS' joint research on large vehicle management were proposed. This allowed for them to partner with other countries in August, 2014 and additional studies were started concerning the development of technical standard. ITS technology, traffic safety measures, and pavement management systems. Model projects were conducted in Malaysia, Myanmar, and Vietnam with the aim of improving the trust and understanding of Japanese road technologies in these partner countries. Additionally, surveys were conducted in Myanmar and the Philippines, in order to find new projects that may utilize Japan's specialized road technology. Furthermore, in various countries in Asia—including India, Indonesia, Myanmar, and Vietnam— seminars were held on policies and technology in the road sector, with the cooperation of expressway companies and road-related private companies, to promote Japanese road technology that meets the needs of each of these countries. Finally, Japan actively participated in the World Road Association (WRA) general assembly and technical committees, while also leading future policy development, which promotes technology and information exchange within both the policy and technology sectors.

## (7) Housing and Building Sector

Japan attended the world conference of the Inter-Jurisdictional Regulatory Collaboration Committee (IRCC) and exchanged information with partner countries concerning trend in building standards.

Bilateral talks were held with South Korea, China, France, Myanmar and Indonesia concerning housing policy, lowenergy buildings, and housing for the elderly.

The talks with Myanmar had a wide field of technical cooperation, including domestic building standards seminars and invitations to government officials.

Building standards seminars were held with both Mongolia and Laos by request from government ministers.

#### (8) Railway Sector

In the high-speed railway sector, MLIT initiative are underway to introduce the Shinkansen (high-speed) technology in India, Malaysia-Singapore and other countries. The export of urban railways overseas is also being promoted. In 2014, Minister Ohta of MLIT visited Malaysia, India and other countries to conduct a "top sales" drive to promote the introduction of Japanese railway systems abroad. In addition to sales meetings with foreign dignitaries in Japan, actual site visits were also conducted. Furthermore, the State Minister and Parliamentary Vice-Minister of MLIT has been appealing to the respective representatives of various Asian countries in this regard. In FY2014, public-private railway seminars were also held in various countries, including Malaysia, Singapore, and India.

## (9) Automotive Sector

An automobile safety standards cooperative agreement was reached with Australia in January 2014. Accordingly, the first bilateral meetings were held in September 2014 to exchange information concerning automobile certification systems, import car processing systems, and recall systems. A similar agreement was reached with Malaysia in January 2015 for a deepened bilateral cooperation in automobile standards certification in the future. In addition, the 5th Japan-China Automobile & Traffic Exchange Promotion Meeting was held in August 2014, with an exchange of opinions concerning legal framework and safety standards for work vehicles and vehicles that transport dangerous materials, as well as status updates and introduction of measures concerning the Bus Rapid Transit System (BRT).

#### (10) Maritime Sector

In the maritime sector, in addition to responding to the IMO global agenda, bilateral talks were held at the Director level. FY2014 brought director-level talks between the USA, Panama and South Korea, including an exchange of information and opinions concerning new energy marine transportation routes, extension of the Panama Canal, and safety measures for coastal and passenger ships. Additionally, at the November 2014 Japan-ASEAN transportation minister's meeting, Japan enriched cooperative efforts for waterway re-surveying and chart maintenance projects in the Malacca-Singapore Straight, and approved of cruise promotion programs.

## (11) Ports Sector

Promotion of worker training practices enhancement and exchange of information and opinions as part of the "Overseas Port Logistics Projects Council" is underway to support projects like port development and management in Myanmar, Kenya and Mozambique, the introduction of an international port EDI system in Myanmar, and introduction of port technology standards in Vietnam. The "15th Northeast Asia Port Director-General Meeting" involving Japan, China, and South Korea was held in November 2014 to exchange information on promoting cruises and other issues regarding recent port policies, etc. International conferences including the World Association for Waterborne Transport Infrastructure (PIANC) and the International Association of Ports and Harbors (IAPH) were also used as opportunities to promote the international expansion of Japanese technology standards and to exchange information.

## (12) Aviation Sector

In May 2014, Japan co-signed a "Memorandum on Technical Cooperation in Civil Aviation Sectors" with France to continue future cooperation and hold regular meetings. At the "51st Asia Pacific General Meeting on Aviation" held in November 2014 with the theme of "Addressing future issues in civil aviation through close cooperation and coordination," and covered an exchange of opinions on Asia Pacific region aviation projects like expansion of air traffic safety and environmental measures in the aviation sector.

#### (13) Logistics Sector

The "5th Japan-China-South Korea Logistics Ministers Meeting" was held in Yokohama in August 2014. The framework of these talks allowed for progressive cooperation between the three nations in the field of logistics, addressing issues like the expansion of the multi-direction chassis and the start services of the Northeast Asia Logistics Information Service Network (NEAL-NET).

In addition, under the framework of the Japan-ASEAN Transportation Alliance, bilateral policy talks were held with Vietnam in December 2014 and with Myanmar in January 2015 to consult on how to improve the logistics environment. In March 2015, worker development training of students was held in Vietnam to secure superior human resources in the ASEAN region. Furthermore, three demonstration projects were implemented towards the overseas development of high-quality Japanese logistics systems, including the start of surveys to prepare for railroad cargo containers in Myanmar as the pilot business of an Asian cargo project.

#### (14) Geospatial Information Sector

The MLIT participated actively in the United Nations Committee of Experts on Global Geospatial Information Management (UNCE-GGIM) and International Federation of Surveyors (FIG) to contribute to the creation of a global geodetic reference system, as well as serving as Secretary of the Regional Committee of United Nations Global Geospatial Information Management for Asia and the Pacific (UN-GGIM-AP), and promoted international cooperation in tectonic activity monitoring. In addition, as the Global Mapping Project ^{Note} continues, the work expands to include technical support to developing countries through international conferences. In addition, government representatives participated in the United Nations Conference on the Standardization of Geographical Names (UNGEGN) and International Hydrographic Conference (IHC) to discuss proper geographical names. South Korea and others have insisted on "either renaming the Sea of Japan as the East Sea or listing both names". MLIT along with the Ministry of Foreign Affairs and other relevant

**Note** A fundamental geographical information database (Global Map Data) project needed to analyze global environmental problems, to be developed under the voluntary cooperation of the geospatial information authorities of various countries.

ministries are working together to promote the correct understanding and support of the name "Sea of Japan" within the international community.

## (15) Meteorological and Earthquake/Tsunami Sector

Under the framework of the World Meteorological Organization (WMO), Japanese technology has provided tropical cyclone tracking information as well as meteorological data and exchange of technical information. Also, under the framework of the United Nations Educational, Scientific and Cultural Organization/Intergovernmental Oceanographic Commission (IOC), tsunami information from the Northwest Pacific Ocean is provided to various countries to contribute to tsunami disaster prevention.

## (16) Research Sector

Anticipating the spread of the utilization of Japan's superior infrastructure-related technology, joint research based on road maps to increase locally adaptive traffic safety and create environmentally appropriate paving standards are being conducted in cooperation with regional government institutes in Vietnam and Indonesia. Joint workshops were hosted with Vietnam and Indonesia in 2014 for technical discussions regarding coordinated research projects and exchanges of opinion regarding research cooperation. Other initiatives include the promotion of coordinating with local JICA experts and invitating mid-level and young researchers.

## (17) Coast Guard Sector

Coordination and cooperation between 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 the six countries of Japan, Canada, China, South Korea, Russia, and the United States), the Heads of Asian Coast Guard Agencies Meeting (18 Asian countries and one region), and bilateral top-level meetings with South Korea and India, as well as coordinated training exercises.

Active participation in international organizations is also being carried out through activities like formulation of the guidelines related in the Automatic Identification System (AIS) Aids to Navigation at International Maritime Organization (IMO), the establishment of standards regarding the creation of hydrographic charts in the various committees of the International Hydrographic Organization (IHO), leading the Northwest Pacific Ocean region for the International Cospas-Sarsat Programme, participating in the development of next generation AIS at the various committees of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA), and dispatching coast guard staff to the Information Sharing Centre under the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships in Asia (ReCAAP). In addition, international contributions are being made through initiatives such as improving the capability of the coast guard sector in developing countries.

## Section 3 Efforts for International Standardization

## (1) Internationalization of Automobile Standards and Certification Systems

To promote the early and cost-efficient adoption of safe automobiles with high environmental performance, Japan is actively participating in activities such as the World Forum for Harmonization of Vehicle Regulations (WP29), and while promoting international harmonization of safety and environmental standards, is also promoting the international spread of Japanese automobiles with superior safety, 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 standards, 2) Realization of international vehicle certification system (IWVTA), 3) Promoting participation of Asian countries in international harmonization of regulations, and 4) Establishing a framework to handle globalization of standards certification, is being steadily realized to promote the internationalization of automobile regulation and certification systems.

#### (2) Internationalization and Other Initiatives in the Railway Sector

As Europe actively promotes international standardization of European standards, if Japan's superior technology is excluded from the international standards, the possibility of significant obstacles in overseas expansion of railway technology is increased. Because this will affect global competitiveness in the railway sector, it is important to actively promote international standards in railway technology. For this reason, under the Railway Technical Research Institute, the Railway International Standards Center was founded in April 2010 to be the centralized organization that handles railway related international standards for further advancing domestic railway safety and expansion of the railway industry, and is working proactively.

As a result, Japan has had a central role in contributing to the proposal of individual standards and committee activities in the Technical Committee for Railway applications (TC269) of the ISO founded in 2012, and are seeing successful results. Furthermore, efforts to promote international standardization of railway technology are underway to increase presence in international conferences like ISO/TC269 and the Technical Committee for Electrical equipment and systems for railways of the IEC. The National Traffic Safety and Environment Laboratory (Independent Administrative Institution), Japan's first certification body of international standards in the railway sector, has acquired solid certification experience following the establishment of the Certification Office, and contributed to the international expansion of Japan's railway systems.

#### (3) International Standards Regarding Ships and Mariners

While aiming to improve safety and reduce environmental impact of marine cargo, in order to also spread Japan's superior low-energy technologies worldwide, Japan has led discussions on the creation of international standards in the International Maritime Organization (IMO). In addition, Japan is cooperating in the development of coastal vessel safety standards in ASEAN countries with the aim to promote the export of Japanese ships and marine equipment, and in January 2015, gathered ASEAN countries to hold an officials meeting which included the participated of IMO members.

## (4) International Harmonization of Standards and Certification Systems in the Civil Engineering and Construction Sectors

In recent years, in the civil engineering, architecture, and housing where internationalization of the market is evolving, by enforcing legislative operations like imported building materials performance certifications and approval rating agencies, enlisting technical cooperation with organizations like JICA, and participating in establishing the ISO for design and construction technology, we are working to promote international harmonization of standards and certification systems in the civil engineering and architecture sectors. Likewise, as part of the efforts to reflect Japan's accumulated technology in international standards, discussions are in progress to develop and revise domestic technical standards with consideration to trends in the creation of international standards.

## (5) International Standardization of Intelligent Transport Systems (ITS)

In order to promote the development of efficient applications, international contributions, and the development of the related industries in Japan, the international standardization of ITS technology is progressing within international standardization bodies, including the ISO and the International Telecommunication Union (ITU).

In particular, standardization activities, related to the utilization of routing information from ITS probe data via ETC2.0, are being conducted through participation in the Technical committee (ISO/TC204) for the international standardization of ITS. In addition, lead by Japan's initiative, an automotive subcommittee was formed under the UN World Forum for Harmonization of Vehicle Regulations (WP29), and co-chaired by Japan and the UK. Furthermore, Japan is leading international standardization initiatives related to advanced technology, such as proposing standards for lane-keeping assistance devices, an automated driving technology.

#### (6) Standardization of Geographic Information

For the purpose of ensuring compatibility for the interoperability between Geographic Information System (GIS) with differing geospatial information, Japan is actively participation in the formulation of international standards by the ISO technical committee for Geographic information/Geomatics (ISO/TC 211). Likewise, initiatives are taking place to standardize domestic geographic information.

## (7) Mutual Recognition of International Technical Qualifications

The APEC Engineer mutual recognition project aims to provide mobility to qualified technical personnel based on the mutual recognition of technical qualifications between participating countries and regions. Through the APEC Architect Project (architect registration system), the "APEC Architect Bilateral Agreement on Reciprocal Recognition of Registered/ Licensed Architects in Japan and Australia to Facilitate Mobility of Architects in the Provision of Architectural Services" with Australia was signed in July 2008, and the "APEC Architect Memorandum of Cooperation on Registered/Licensed Architects in Japan and New Zealand to Facilitate Mobility of Architects in the Provision of Architectural Services" with New Zealand was signed in July 2009, to promote the mobility of qualified architects.

## (8) Sewerage Sector

Based on the "2010 Intellectual Property Strategic Program (established on May 21, 2010)," strategic international standardization is being promoted for the purpose of creating an international market where Japanese companies looking to expand internationally in the sewerage sector can be highly competitive. Currently, participation in the technical committee on "Water reuse" (ISO/TC282) and the technical committee on "Recovery, recycling, processing and disposal of sludge" (ISO/TC275) is underway to ensure that Japanese sewerage technology has an advantage. In terms of securing international competitiveness, the ISO550001 "Infrastructure Asset Management System," adopted in 2013, supports certification of domestic businesses.

## Chapter 10 Utilizing ICT and Promoting Technology Research and Development

## Section 1 Promoting Innovation in the Field of National Land and Transport Utilizing 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" (Revised on June 24, 2014) are being promoted in coordination with the IT Strategic Headquarters (Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society) headed by the Prime Minister.

## 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.

Also, in order to realize a road traffic society that is the safest, most environmentally friendly, and economical in the world, initiatives for the gathering and dissemination of road traffic information, which will be effective for traffic safety measures, congestion measures, disaster countermeasures, etc., are being actively promoted. This is being pursued in accordance with the "Declaration to be the World's Most Advanced IT Nation" that was promulgated by the Cabinet in June, 2013 and revised in June, 2014.

## a. 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 47.56 million as of September 2014 and its usage rate on all national expressways is roughly 89.6%. 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  $CO_2$  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 September, 2014, roughly 44.11 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  $CO_2$  emissions.

#### b. Technological Development and Popularization of New ITS Services

## (a) Deployment of Smartways

Industry, academia, and government have been working together to deploy Smartway as the next generation of roads. They utilize ITS technology to connect people, vehicles, and roads with information for the purpose of traffic safety, congestion measures, and environmental measures. In 2011, the world's first road-to-vehicle communication service was established with a focus on the expressways of the entire country, providing two-way communication at high speed and

high capacity between the on-board units and the ITS spots.

## (b) Deployment of ETC2.0 Service

In addition to the present electronic toll collection, a new service "ETC2.0" that uses the installed ITS spot and onboard units and can provide driving assistance on the expressways, was introduced in October, 2014. The ETC2.0 service provides information services, such as Congestion Avoidance Support (provides an image of the road ahead that is visually easy to understand and has highly accurate real-time, wide area information on congestion), Safe Driving Support (provides information related to hazardous events, such as information about fallen objects and back end of traffic queue, as well as still pictures of weather ahead, etc.), and Post-Disaster Information Support (provides relevant information to user when roads are closed to vehicle traffic). As a new service that uses the route information obtained from ETC2.0, there is a future



plan to develop an 'Operation Management Support' for commercial vehicles and to take measures to provide preferential treatment to the drivers who use detour routes to avoid congestion. In addition, private services, such as 'Private parking lot payments' and 'Drive-through payments', are also being considered.

## (c) Consideration on use of big data

To achieve safe, comfortable, and smooth road traffic, in addition to promoting the spread of ETC2.0 services, the collection and analysis of big data consisting of large volumes of probe information, such as travel record and driving behavior record of vehicles, will promote initiatives that contribute to more fine-tuned road management and other improvements.

## (d) Promotion of the Advanced Safety Vehicle (ASV) Project

Regarding the ASV promotion plan, efforts are underway for the development, commercialization, and widespread adoption of Advanced Safety Vehicles (ASV) that assists the drivers to drive safely by using advanced technology such as ICT technology. Specifically, investigations are underway for the promotion of technical development in areas of driver irregularity response system, driver overconfidence, system consolidation, and safe driving support systems using vehicle-to-vehicle / pedestrian-to-vehicle communication among others.

## 2 Realizing a Society that Utilizes Geospatial Information in a Sophisticated Manner

In order to utilize the location and spot information or "geospatial information ^{Note}" in a more sophisticated manner through ICT, following the new "Basic Plan for the Advancement of Utilizing Geospatial Information" enacted by Cabinet Decision on March 27, 2012, initiatives are being promoted to realize a "G Spatial Society (Sophisticated Utilization of Geospatial Information Society)" where the necessary geospatial information can be utilized by anyone at anytime and anywhere.



**Note** Information that indicates 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).

## (1) Maintaining and Updating Geospatial Information as the Foundation of Society

The Digital Japan Basic Map ^{Note 1} and Fundamental Geospatial Data ^{Note 2}, which can be commonly used by the entire society as the basis for utilizing various geospatial information, is being rapidly developed and updated with the coordination of various administrative organizations. Various types of information regarding national land are being developed, such as aerial photographs, geographical name information, digital national land information, and continuous monitoring of crustal movements with GNSS-based control stations. In addition, the system is being constructed, enabling prompt assessment and provision of the information on national infrastructure, such as maintenance of information on the topographical classification used as the basic material for developing hazard maps prepared for future disasters, and urgent photography of aerial pictures during disasters.

#### (2) Initiatives to Promote the Utilization of Geospatial Information

Most of the geospatial information developed is widely provided through the Internet. Also, initiatives are being taken by the industry, academia and government to further promote Geospatial information library that allows for the searching, browsing, and downloading of various information as well as improving GSI Maps ^{Note 3}, which allows for the layering of various information on the web, and further promote the sharing and mutual use with society as a whole. In addition, in order to raise public awareness and to create new industries and services, the industry, academia, and government collaborated and hosted the "Geospatial EXPO 2014"in November 2014, while also carrying out the verification project to effectively use the geospatial information for disaster prevention, disaster mitigation, and regional activation.

## 3 Realizing an Electronic Government

Following the "Declaration to be the World's Most Advanced IT Nation", various initiatives are being carried out to realize an electronic government. In particular, regarding the online usage, initiatives are being taken to improve convenience for citizens as well as making administrative operations simple and efficient, based on the reform policies to improve the convenience of online procedures.

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, and is currently being implemented for the new registration of brand new cars in 11 municipalities. Based on the "Basic Policy Regarding the Reform of Independent Administrative Institutions" approved by the Cabinet on December 24, 2013, initiatives are underway to realize nationwide deployment and increase the procedures handled by the OSS by the end of FY2017. The examination of the convenience improvement plans using the MY NUMBER in the automobile inspection registration procedures is being promoted based on "Japan Revitalization Strategy" revision 2014 (Cabinet decision in June, 2014) and "Process Schedule of Declaration to be the World's Most Advanced IT Nation" (Cabinet decision in June, 2014).

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Note 1 New electronically compiled maps that serve as our nation's basic maps instead of the traditional paper maps including the 1:25,000 scale topographic maps. In addition to depicting our national territory appropriately, it serves as the most fundamental information of our national land's conditions with geospatial information developed by the Geospatial Information Authority of Japan.

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 Web maps operated by the Geospatial Information Authority of Japan (http://maps.gsi.go.jp/). System renewal for smartphone compatibility done in January 2015.

## 4 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 October 2014, the total extent of the optical fiber controlled by the government for river and road management was about 37,000 km, and of this a portion of core cable roughly 18,000 km that does not interfere with the facilities management was opened to private sector business, and in 2014 there were new applications for additional use of about 300 km.

## 5 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, a new type radar, XRAIN (MLIT X Band MP Radar Network), which allows for near real-time observation of local rainfall, is being implemented for rainfall observations. For the observation of flow amount and water levels, the introduction and practical application of new technology such as the ADCP (Acoustic Doppler Current Profiler) and image analysis (Figure II-10-1-3 Diagram-1) that utilizes CCTVs among other images is being promoted. Also, to assess the extent of inundation when disasters occur, utilization of big data including the use of Synthetic Aperture Radars (SAR), postings to the Social Networking Service (SNS), and various location information are being investigated.

In addition to obtaining high precision topographic data through aerial laser profiling (LP), initiatives to improve the efficiency and effectiveness of maintenance and management by utilizing the image data obtained through Mobile Mapping Systems (MMS) are being promoted.

Further crisis management is being promoted by initiatives like flood simulation and risk understanding (Figure II-10-1-3 Diagram-3) based on "Distributed Rainfall-Runoff Model", an advanced flood prediction model compared to the conventional one, that uses the information obtained through such rain volume, water level, and high precision topographic data.

Also, for the sediment-related disasters caused by heavy rains and other causes, unusual condition are always monitored through means such as rainfall radar that can observe the rainfall situation over a large area at high accuracy, volcano monitoring cameras, and landslide monitoring systems. Additionally, in preparation for the occurrence of deep-seated catastrophic landslide, the development of the "Deepseated Catastrophic Landslide Monitoring and Warning Figure II-10-1-3

Example of ICT Utilized for Sophisticated Water Management and Flood Prevention



Diagram 1 Measuring the Water Level and Flow Rate Using Image Analysis of Video Source) Fujita Lab, Kobe University Faculty of Engineering



Diagram 2 Flood prediction by distributed hydrological model Source) MLIT



Diagram 3 Deep-seated Catastrophic Landslide Monitoring and Warning System Source) MLIT

System ^{Note}" which detects the location and scale of an occurrence at an early stage is being promoted for rapid emergency restoration measures as well as the prevention and mitigation of damages through appropriate warnings and evacuations.

In the sewerage field, investigation to implement improvements in the sophistication and efficiency of site investigations by sensors and robots, efficient drainage management by the consolidation of big data and analysis techniques, and precise facilities operation using simulation technology and prediction techniques are being promoted.

## 6 Use of Big Data

## (1) Public Transportation Activation using Information and Communication Technologies

In the suburban cities, the number of users of public transportation facilities keeps decreasing due to such issues as the declining birthrate, growing proportion of elderly people and depopulation, resulting in the efficiency of public transportation deteriorating from efforts to maintain business, and the regional residents' dependency on private vehicles increasing. On the other hand, public transportation continues to play an important role for users like young and old people requiring a means of transportation.

Facing such a situation, the possibility and the problems of using the big data and Information and Communication Technologies (ICT) were investigated and examined and in FY2013 the "Investigation concerning the Public Transportation Activation using Information and Communication Technologies" advisory committee was started with a 3 year plan to create a new and highly convenient transportation service, as well as to promote the use of ICT in the field of inbound tourism. In FY2014, in addition to sorting data type and use methods, an examination was carried out of the analysis evaluation and "Visualization" methods related to the migration data of people, and of the questionnaire survey technique using ICT, and then the effectiveness of these were verified by doing case studies using actual data in Tsukuba city of Ibaraki Prefecture and the Fukushima Prefecture region. In FY2015, along with providing suggestions for efficient data collection and analysis techniques that can be utilized by the local government and public transportation entrepreneurs, a generic and new business model using the big data is being proposed to support the local route bus operation.

#### (2) Utilization of Automobile Related Information

Based on "Declaration to be the World's Most Advanced IT Nation" in the "Japan Revitalization Strategy Revision 2014" decided by the cabinet in June 2014, driving information was acquired using the automobile traceability service and telematics that "makes visible" and provides the vehicle history not physically visible, such as the number of owners, repair and maintenance history, accident history. Priority theme status was then given to the Safe Driving Promotion Insurance, which provides incentive by reducing insurance premiums for safe driving practices, and concrete strategies for implementation including the creation of new services that utilize such Automobile Related Information were examined. The "Future Vision Related to the Utilization of Automobile Related Information" was drawn up in January 2015.

In future, the environmental considerations to advance the utilization of Automobile Related Information will be actively promoted, by verifying the effects of introduction of the new service and examining the information handling guidelines, to plan for the achievement of the priority themes, based on the "Future Vision Related to the Utilization of Automobile Related Information".

1) vibration sensors to estimate the location and scale of collapses from the ground vibrations by deep-seated catastrophic landslide,

²⁾ satellite image analysis to confirm the location of the collapse and measure the scale, and

³⁾ rainfall radar technology and provides the information to relevant organizations. (Figure II-10-1-3 Diagram-3)

## Section 2 Promoting the Research and Development of Technology

## The Position of Technological Research and Development in Technology Policies and Comprehensive Promotion

In the "Japan Revitalization Strategy" revision 2014 (Cabinet decision, June 2014), one of the pillars of the revitalization plan for Japanese industry is the "promotion of science, technology and innovation" and expectations for the role played by "science, technology and innovation" is increasing as seen by the intent to vigorously promote the "Comprehensive Strategy on Science, Technology and Innovation 2014" (Cabinet decision, June 2014).

The Ministry of Land, Infrastructure, Transport and Tourism takes into account the government's overall policy including the "Fourth Science and Technology Basic Plan" to further improve the framework for coordination between the industry, academia, and government as well as comprehensive promotion of cross-sectoral technology research and development in accordance with the Third Ministry of Land, Infrastructure, Transport and Tourism Technology Basic Plan and is actively adopting the resulting outcomes in public works, the construction and transport industry among others.



## (1) Initiatives of Facility Organizations, Special Organizations, External Bureaus, and Incorporated Administrative Agencies

Facility organizations, special organizations, external bureaus, and incorporated administrative agencies under MLIT which are mainly tasked with research are as shown in this figure. Incorporated Administrative Agencies serve the public interests and possess transparency and independence; research that meets the society and policy needs respectively are being conducted with priority and efficiency, while striving for further coordination with relevant organizations including the private sector, and fully based on the sense of carrying out tasks appropriately and efficiently.

#### (2) Initiatives of Regional Development Bureau

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.

Figure II-10-2-2 Major Initiatives for FY2014 by Incorporated Administrative Agencies under MLIT with a Primary Focus on Research		
Incorporated Administrative Agency		Summary
Public Works Research Institute		Conducted research and development to contribute to the efficient creation of quality social capital and the development of Hokkaido such as "Research on prevention, mitigation, and early recovery from more intensified and diverse natural disasters", "Research on strategic maintenance and management of social capital stocks, and "Research on innovative technology for greener social infrastructure".
Building Research Institute		Conducted research and development on technologies related to housing, building, and urban planning such as "Research and development related to the promotion of low-carbon housing, building, and cities", and "Research and development on technology to improve the safety of buildings against earthquakes, etc."
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 Maritime Research Institute		Conducted research on ensuring the safety of marine transport, preservation of marine environment, marine development and advanced marine transport including, "Research for advanced analysis technology for high precision reproduction of marine accident occurrence conditions", "Research on green evolution of ships that contribute to revolutionary technology to reduce the environmental burden", and "Research on advancing and developing a safety evaluation method on renewable marine energy production systems".
Port and Airport Research Institute		Conducted research and development to contribute to the formation of a safe and secure society, the maintenance and creation of excellent environment in coastal areas, and the creation of an energetic economic society including "Research on community protection from large scale earthquake and tsunami", "conservation and recovery of ecological system along coastal areas and CO ₂ absorption, and "Environmental improvement of enclosed coastal seas", and "Research on strategic maintenance and management of ports and harbors and airport facilities".
Electronic Navigation Research Institute		Implemented research and development for advancing air traffic management systems such as "Expanding the capacity of airways", "Expanding the processing capacity of congested airports", and "Safety and technology that connects air and land".

## (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 FY2014, research and development was conducted for a total of five issues including the "Development of function continuity technology for the disaster site buildings."

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 and in FY2014 the "Promotion of comprehensive technology development for advanced control and management systems in the field of transport" is being undertaken.

## (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 experiment and research expenses.

## (5) Promoting Public Invitation Type Research and Development Subsidy Systems

To promote technological innovation in the construction sector, for the "Construction Technology Research and Development Subsidy Program" that invites the public to make proposals for technological research and development that contributes to the sophistication and strengthening of international competitiveness of construction technology under MLIT's authority as well as the further promotion of research and development conducted by MLIT, two types of public invitations are made, public invitations for technology development that solves policy issues (aiming to implement in 2-3 years) and public invitations for technology development in response to earthquakes (aiming to implement in 1-2 years), and 6 new issues were adopted and 11 ongoing issues were selected in FY2014.

In regards to the traffic and transportation field, under the "Traffic and Transportation Technology Development Promotion System," which broadly mobilizes the collective knowledge of the Industry, Government and Academia with an emphasis on conducting the truly necessary fundamental research for the country, public offering for 5 research topics of "Aging measures, prior disaster prevention, disaster mitigation measures, and adequate operation, maintenance and update in transportation infrastructure" etc. was made with 2 new issues were adopted and 5 ongoing issues were selected in FY2014,.

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## 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 21 recommended technologies and 47 runner-up recommended technologies 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 provide great utilization benefits are designated by the ordering party when the construction is contracted. Also, for new technology that the contract ordering office is actively considering, a provisional unit price that helps with streamlining the contracting process was created for seven technologies from FY2012 to FY2014.

## Section 3 Improving Construction Management Technology

## 1 Improving Costing Technology for Public Works

For the purpose of ensuring the transparency of public works, various price data standards are made public. In FY2014, a rate revision was made for the administrative expenses based on "Revised quality assurance law" to secure reasonable profits, to be applicable from April 2015. The trial of the "Construction package type cost estimation formula" to improve the efficiency of estimation was started from FY2012, and then extended to FY2013. In response to the no-bidder/over-budget issue of recent years, the overhead cost correction for road maintenance projects in large urban areas and costing formulas that allows the reflection of the bidder's estimates in expected pricing is being implemented on trial basis.

Additionally, the civil engineering work standard percentage was set along with the provision for the civil engineering work estimation points and estimation standards and in FY2014, taking into consideration the change in economic and social environment, the revision of percentage reviewed by the construction division corresponding to small-scale construction for the percentage for maintenance and repair as well as the revision of percentage reflecting the improvement in the construction efficiency based on the latest construction realities were executed.

Also, for construction machinery depreciation costs, field studies were carried out for the construction machinery owned by the contractors and the base value, maintenance and management costs, and operation costs were assessed and revisions are being implemented.

## 2 CIM and BIM Initiatives

A three-dimensional model is introduced from the planning, research, and design stages of public works, and it is also linked and developed at each stage of subsequent construction, maintenance, and management so that by sharing information among all the concerned parties of the project, the construction productivity system is made more efficient and sophisticated, while initiatives are being carried out to introduce CIM (Construction Information Modeling) for the improvement of quality assurance and environmental performance of public works, as well as to reduce lifecycle costs. A trial of 11 direct control businesses from all over the country was started from FY2012 as a model business, and its effect and issues are being advanced from the aspects of both system and technology through the cooperation of industry, academia and government.

From FY2010, BIM introduction is being trialled in 3 businesses, to verify the effect and issues of BIM (Building Information Modeling) introduction which can integrate and unify building information as well as visualize design content for the Government building projects. In addition, "Guidelines about Development and Use of BIM models in Government

Buildings Projects", the basic principles and considerations when using BIMs for government buildings projects, was compiled and published in March 2014. In FY2014, the guidelines were applied in 4 businesses and BIM was introduced.

## Section 4 Technology Development for Construction Machinery and Mechanical Equipment

## (1) Development and Supply of Construction Machinery

In order to carry out appropriate maintenance and management of rivers and roads managed by 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 FY2014, an extra 30 machines were added and 284 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. Because such machinery and equipment are expected to function reliably during floods, the "Dam and flood gates facilities technological standard (Draft)", was revised and the "Standards related to bags for flood gates that use a rubber bag in the gate or derricking mechanism" was newly formulated,.

## (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 hydraulic shovels were deployed by FY2014. Also, remote control operation, dismantling with a small crane, and airlift drills by helicopter were carried out, and a total of 258 hydraulic shovels per day were dispatched for the disaster recovery activities of Ontakesan (Mt. Ontake) eruption and earthquake relief activities in northern Nagano.

## (4) Promotion of Development and Introduction of Robots for the Next Generation Social Infrastructure

The social infrastructure of Japan is facing problems such as progression of aging, rise in the disaster risks of earthquake, storm and flood damage. Therefore, for the "5 emphasis 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 useful robots. In FY2014, robots that can handle the "5 emphasis fields" were publicly invited from the private companies and universities, then from among the applications received, verification and



evaluation was conducted on the 101 samples created by 65 people at a direct control site by the "Onsite inspection committee of robots for the next generation social infrastructure" consisting of the experts from the industry, academia, and government, and the results were published.