

# Chapter 6 Building Competitive Economy and Society

## Section 1 Constructing Traffic Networks

### 1 Developing Trunk Road Networks

#### (1) Developing Trunk Road Networks

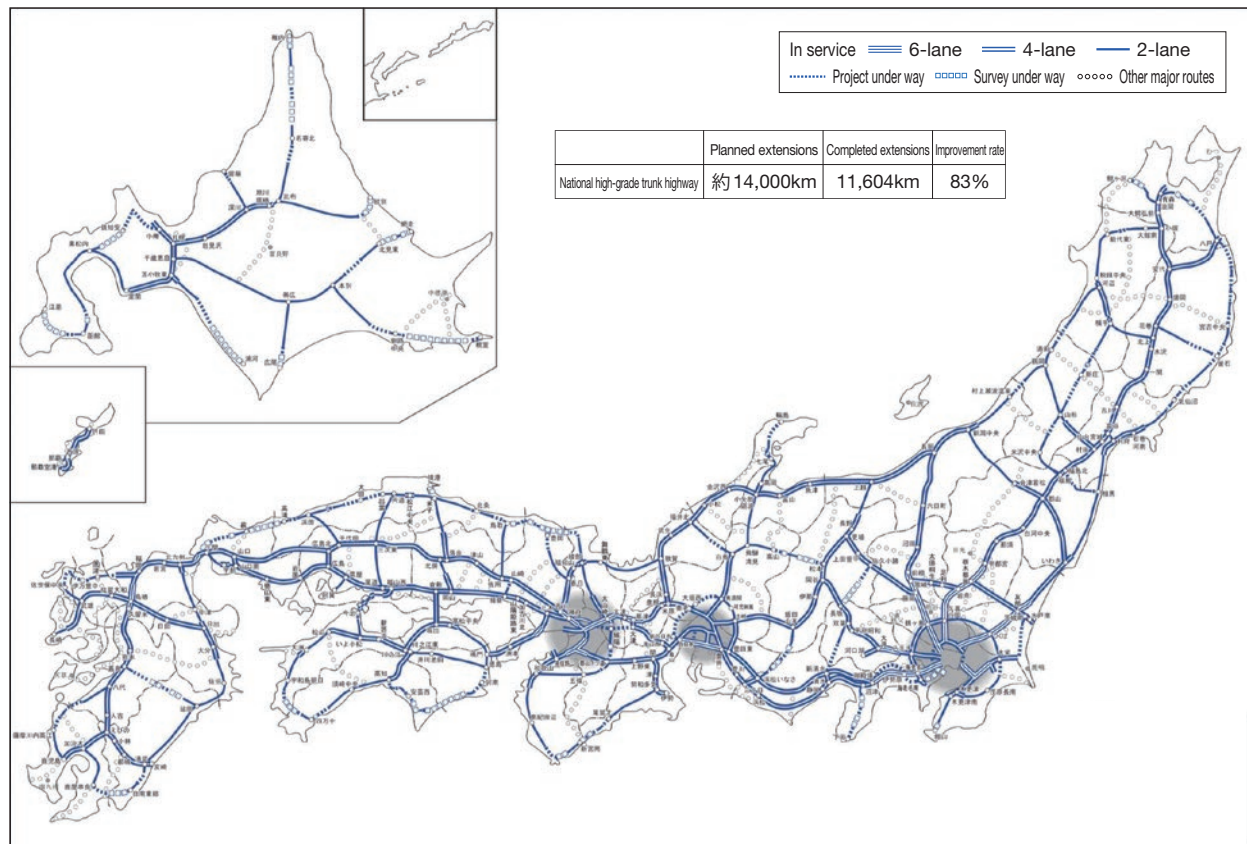
Since the First Five-Year Road Construction Plan formulated in 1954, Japanese highways have been continually constructed. For example, the construction of national highway networks, including expressways, has provided a major impetus in the rejuvenation of regional economies by encouraging plant locations near expressway interchanges. Additionally, it has helped enhance the quality and safety of national life by making broad-area medical services accessible to rural areas and allowing broad rerouting to avoid highway disruption by natural disasters.

Examples are seen in Shin-Meishin Expressway where a total of 44km was connected, including a section between Jyo JCT/IC and Yawata-Kyotanabe JCT/IC opened on April 30, 2017, a section between Takatsuki JCT/IC and Kawanishi IC opened on December 10, 2017, and a section between Kawanishi IC and Kobe JCT opened on March 18, 2018. This development is expected to attract more companies and tourists and have other stock effects.

The MLIT will continue to advance the development of Japan's trunk road network in order to maximize stock effects of this type, with a focus on accelerating development of the metropolitan ring roads that form the core of the nation's logistical networks utilizing the current low interest rate and the Fiscal Investment and Loan Program.

Meanwhile, improvements, including expressways, are being systematically carried out to connect regions that are not yet part of the nationwide highway network.

Figure II-6-1-1 State of Current National High-Grade Trunk Highway Improvement



As of March 31, 2018

Note 1: Names for interchanges and junctions under development include pending names

Note 2: "Other major routes" shown on this map show major roads in the region (including those under development and in-service routes) and not the necessity of or order of priority for individual routes.

Source) MLIT

## (2) Promoting Smart Use of the Roads

In the interest of improving productivity and thereby achieving economic growth and improving traffic safety, efforts are under way to make intelligent use of all road network functions by developing necessary networks, as well as improving operations and small-scale enhancements. Electronic toll collection (ETC) 2.0 is one of these efforts, which started full service in August 2015.

### (i) ETC 2.0 that supports smart use

With data communication in both ways between about 1,700 roadside units across Japan and vehicles on road, ETC 2.0 compared to the previous version of ETC is capable of:

- Sending and receiving a large volume of data
- Capturing route information, in addition to IC entry/exit data

With these much more advanced functionalities, ETC 2.0 greatly contributes to the promotion of ITS.

### (ii) Smart toll system

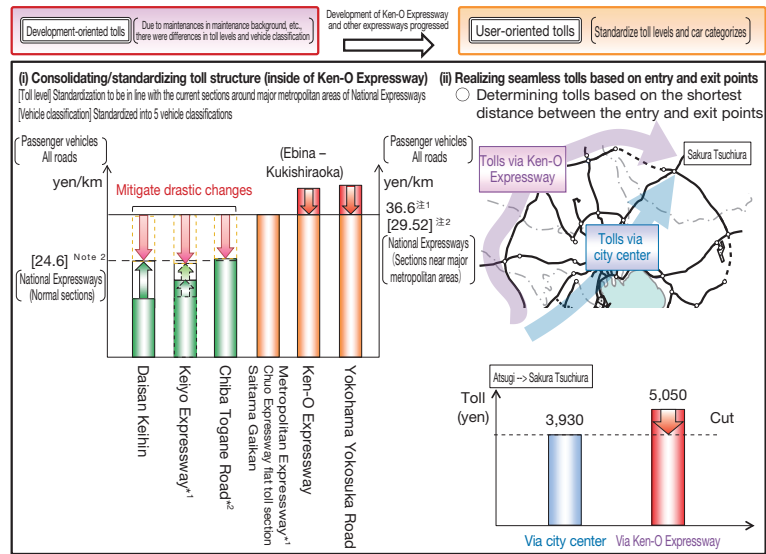
New expressway tolls were introduced in April 2016 in the Tokyo Metropolitan Area and in June 2017 in the Kinki region. These new tolls have begun to show effects including diversion of traffic to the outer ring roads to deconcentrate the inflow to the city center. We will continue to review these effects.

We have also conducted flexible toll tests at 20 locations nationwide in which vehicles equipped with ETC 2.0 devices were allowed to temporarily exit expressways to use rest facilities while being able to continue to use their original toll

payment without interruption. The intention of this initiative is to eliminate sections of road with no rest facilities or gas stations nearby in order to improve the driving environment.

Figure II-6-1-2

Toll System for Making Intelligent Use of Tokyo Metropolitan Area Expressways (Implemented April 2016)



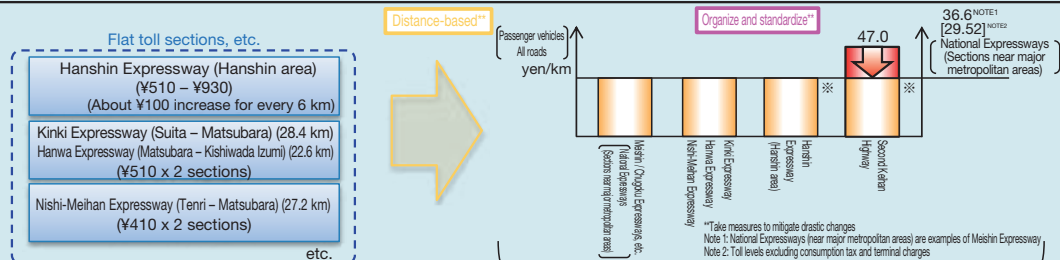
Note 1: National Expressways (near major metropolitan areas) are examples of Tomei Expressway  
 Note 2: Toll levels excluding consumption tax and terminal charges  
 \*1 In consideration of logistics impact and other factors, measures to mitigate drastic changes such as setting of upper limits on tolls were taken (however, tolls inside the district of Keiyo Expressway were unchanged).  
 \*2 To be organized after expressway networks in Chiba (Chiba Gaikan, Ken-O Expressway (between Matsuo-Yokoshiba and Daiei)) become almost complete.  
 \*Also, vehicle classifications are consolidated into five categories (to be implemented for Metropolitan Expressway in phase)  
 Source) MLIT

Figure II-6-1-3

Toll System for Making Intelligent Use of the Kinki Region Expressways (Implemented in June 2017)

(1) Consolidating/standardizing toll structure, and network improvement

(i) Implement a distance-based toll system based on sections running through major cities connected to national expressways, and create five standardized vehicle classifications.  
 (ii) In the case of the Hanshin Expressway, in order to secure the necessary funding to improve Yodogawa-Sagan Route extensions and Osaka Wangan Route western extensions in line with local government proposals, a range of initiatives are being taken and the necessary toll rates will be set so as to offset 50% of costs for toll road projects.

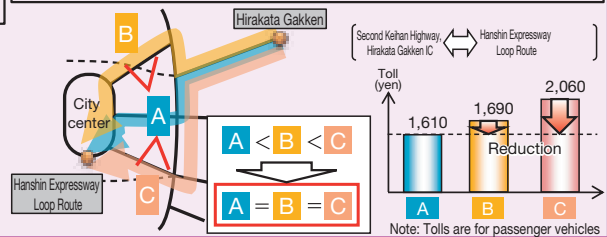


(2) Realizing seamless tolls by unifying management bodies

(iii) Sections on routes that comprise an integrated network with expressway companies and that are managed by local public road corporations, etc., will, in the interest of ensuring practical and efficient management, be centrally managed by expressway companies in accordance with regional aims.

- Osaka Prefectural Road Corporation: Minami-Hanna Toll Road and Sakai Senboku Toll Road
- Abura-Koji Route and Naname-Kuzebashi Interval on the Hanshin Expressway's Kyoto Route
- ➡ Transfer to West Nippon Expressway Company (April 2018)
- Shin-Jujo Dori on the Hanshin Expressway's Kyoto Route
- ➡ Transfers to Kyoto City and becomes toll-free (April 2019)

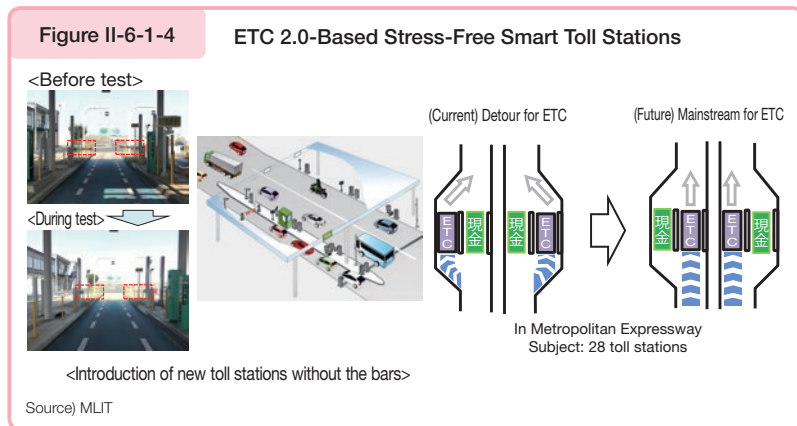
(iv) In the interest of distributing traffic to address increasing traffic flows to the city centers of Osaka and Kobe, tolls will be determined based on the shortest distance between the entry and exit points, regardless of route.



Source) MLIT

## (iii) Smart toll stations

Towards introduction of stress-free smart toll stations based on ETC, we are experimenting with the operation of keeping ETC bars open at Ken-O Expressway toll stations and mainstreaming the use of ETC lanes at Metropolitan Expressway toll stations.



## (iv) Smart investments

As part of efforts to achieve maximum effect with the existing networks at minimum cost, we are implementing a specific point congestion measure to identify places where deceleration or traffic congestion occurs from structural factors, such as uphill sections and tunnels, by using detailed deceleration, acceleration, and other big data collected through ETC 2.0 and other means for effective measures. Until now, additional lanes and other features have been implemented within the existing road width at nine locations, including at Yokkaichi Junction on the Higashi-Meihan Expressway. Congestion relief measures are being taken at specific points at 10 locations, such as near the Takasaka SA on the Kan-etsu Expressway.

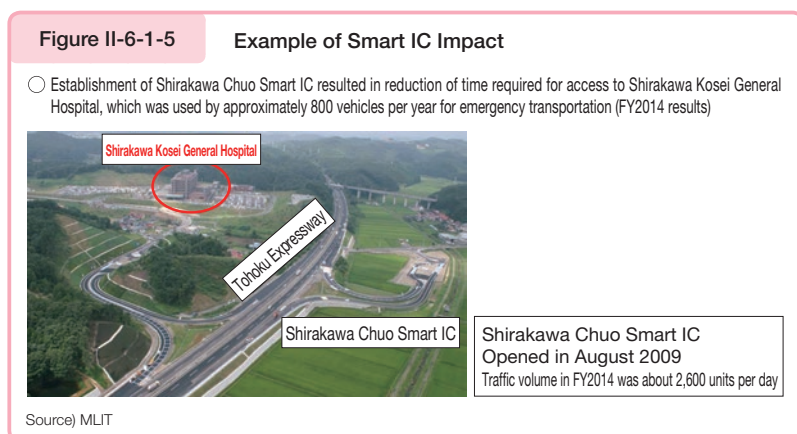
## (v) Enhancement of smart functions

Provisional two-lane highways create problems with two-way traffic safety, travel performance, and large-scale disaster response. Therefore, in order to enhance the safety and comfort of drivers and driving performance, a Cabinet Order to Partially Amend the Enforcement Order for the National Expressway Act came in effect on November 18, 2015. In addition, tests projects for the creation of additional lanes to relieve slowing traffic speeds are being conducted on four routes across Japan, and wire rope has been laid across approximately 100 km of road nationwide to test measures for preventing head-on collisions.

## (vi) Other initiatives

In order to promote cooperation among local areas, the MLIT is improving accessibility, including direct connections between expressways and facilities. By being flexible in building additional Smart ICs, we are increasing accessibility to the distribution centers and tourism hubs from expressways through the consolidation and sophistication of measures based on the concept of “compact” and “networked” roads and reducing traffic congestion around the existing ICs. In July 2017, we

established concrete rules for a Smart IC system that would directly connect expressways and private-sector facilities. In addition, in order to facilitate the development of these Smart ICs, we will create a new system in which part of the development costs incurred by the private-sector businesses engaged in IC development is provided as interest-free loans, and introduce measures to exempt private-sector businesses from the registration and license tax when they acquire land related to IC development. Based on preparation phase surveys, the national government is implementing the preparation and examination of Smart ICs in systematic and efficient manner in places where necessity is found.



The Council for Traffic Congestion Relief Measures was established in order to institute effective measures for congested areas around the country. In FY2017, we enhanced cooperation between the Council for Traffic Congestion Relief Measures and user groups for buses, trucks and other modes of transportation, and, after identifying areas of congestion based on the perspective of these road users, advanced initiatives towards the implementation of measures that would have a rapid effect.

Advanced traffic assessments targeting developers of commercial facilities and other structures, as well as new initiatives for requesting additional measures after siting, are being planned with the goal of reducing congestion as more people begin to use the land along roads.

In tourist destinations that are prone to traffic congestion across wide areas, we will integrate ETC2.0, a range of sensors and analytic technologies using AI in order to strengthen traffic management that takes fluctuations in space and time into consideration.

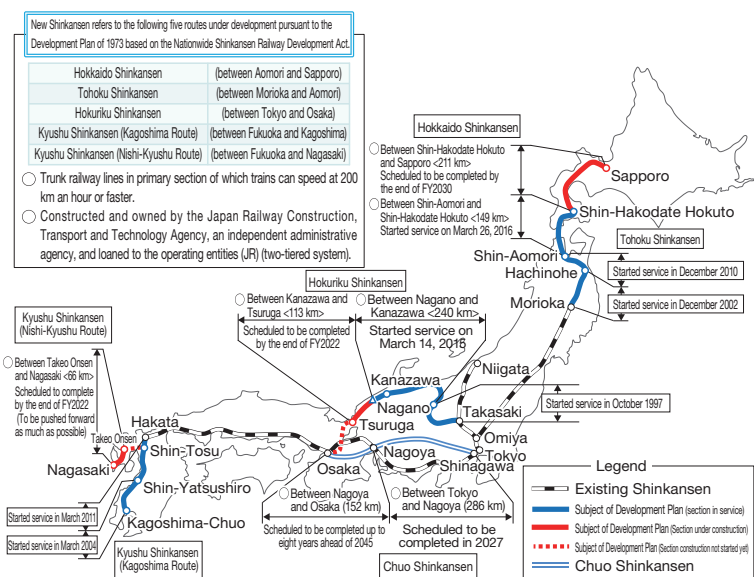
## 2 Constructing Arterial Railway Networks

### (1) Development of Shinkansen Railways

A rapid transit system of vital value to Japan, Shinkansen [bullet train] Lines significantly cut the time spent moving from region to region and help greatly boost regional activities and rejuvenate local economies. Shinkansen Lines feature safety (no record of passenger death accidents since opening of the Tokaido Shinkansen Line in 1964) and eco-friendliness (the railway CO<sub>2</sub> emissions per unit of energy (g-CO<sub>2</sub>/passenger-kilometer) being one fifth of aircraft and one sixth of automobiles). With regard to the New Shinkansen routes specified by the Development Plan established in 1973 based on the Nationwide Shinkansen Railway Development Act, since the opening of the Hokuriku Shinkansen (between Takasaki and Nagano) in October 1997, the Tohoku Shinkansen, Kyushu Shinkansen, Hokuriku Shinkansen and Hokkaido Shinkansen have been successively opened.

Steady improvements are being made in preparation to complete and open the Hokkaido Shinkansen line (between Shin-Hakodate Hokuto and Sapporo), the Hokuriku Shinkansen line (between Kanazawa and Tsuruga) and the Kyushu Shinkansen line (between Takeo Onsen and Nagasaki), in accordance with the Handling of New Shinkansen Lines (agreed upon between the government and the ruling party on January 14, 2015). In addition, with respect to the not-yet-commenced Tsuruga to Osaka section of the Hokuriku Shinkansen, in March 2017 the ruling coalition reached a decision to create a route connecting Tsuruga Station, the vicinity of Obama (Higashi-Obama), Kyoto Station, the vicinity of Kyo-tanabe (Matsuiyamate), and Shin-Osaka Station. At present, the Japan Railway Construction, Transport and Technology Agency is conducting detailed surveys (from 2017 to 2018) towards public announcement of stations and routes. Following this announcement, environmental impact assessment procedures will move forward, taking approximately four years. In relation to the securing of financial resources for the development, the ruling coalition will conduct a study during the period of this detailed survey and environmental assessment. In the case of the Nishi-Kyushu route of the Kyushu Shinkansen, the introduction of free-gauge trains is a prerequisite. However, wear marks have been identified on axles following the durability tests that are a necessary condition for the introduction. Because the implementation of countermeasures for this wear will take time, the introduc-

Figure II-6-1-6 Present Status of Nationwide Shinkansen Railway Network



Source) MLIT

tion of the free-gauge trains will be delayed. In addition to this, the cost of the trains is higher than that of standard Shinkansen trains. The operator, JR Kyushu, has therefore expressed the opinion that introduction of the trains will be difficult. As a result, the Kyushu Shinkansen (Nishi-Kyushu Route) Review Committee of the ruling coalition's New Shinkansen Development Promotion Project Team held discussions, and formulated guidelines for future studies in relation to the direction for the development, etc. in September 2017. Based on the contents of these guidelines, we conducted a survey of essential items for studies of the future direction of the development (including cost, investment effect, construction period, and linkage to the Sanyo Shinkansen) for the cases of introduction of free-gauge trains, development for full-specification Shinkansen and development for mini-Shinkansen, and submitted a report to the Kyushu Shinkansen (Nishi-Kyushu Route) Review Committee in March.

Turning to the Hokkaido Shinkansen, we are continuing to advance a study of high-speed operation on sections on which both Shinkansen trains and freight trains operate, seeking to give adequate consideration to the twin functions of high-speed Shinkansen operation and rail freight transportation, while making absolutely certain that safety is ensured. In addition, given that the operator, JR Hokkaido, is currently facing a difficult business situation, we will also give consideration to matters including the status of efforts to contribute to increased profits on the Shin-Aomori to Shin-Hakodate-Hokuto section and the effect of opening the Shin-Hakodate-Hokuto to Sapporo section.

In addition, since FY2017 we have been conducting surveys related to the optimal direction for the trunk rail network. In concrete terms, our efforts include the collection of fundamental data concerning matters including transport density between major cities, research concerning efficient methods of Shinkansen line development, such as development based on single tracks, and research concerning increasing speed on conventional lines and methods of connecting conventional lines to the arterial network.

Turning to the Chuo Shinkansen, the opening of all lines will connect Tokyo and Nagoya in approximately 40 minutes and Tokyo and Osaka in approximately one hour. This will place Japan's three major cities within a traveling time of one hour from each other, and form an immense metropolitan area with a population of 70 million people. In addition to significantly changing Japan's national land structure and increasing the nation's international competitiveness, this development will generate growth potential that will ripple throughout the country, spurring the development of the Japanese economy as a whole. With regard to the opening of the lines, the use of the Fiscal Investment and Loan Program will see the opening of all lines to Osaka, originally scheduled for 2045, brought forward by a maximum of eight years. Revisions were made to the Act on the Japan Railway Construction, Transport and Technology Agency, an Independent Administrative Agency, in 2016, and from November of the same year the Agency commenced the provision of FILP loans to Central Japan Railway Company, the entity responsible for construction. The provision of the entire scheduled 3 trillion yen sum was completed by July last year. At present, in accordance with the Plan for Constructing the Chuo Shinkansen Line Section between Shinagawa and Nagoya Stations (No. 1) and (No. 2) approved by the Minister of Land, Infrastructure, Transport and Tourism, Central Japan Railway Company is proceeding with work including new construction at Shinagawa Station and the construction of tunnels in the Southern Alps, looking towards the opening of the Shinagawa to Nagoya section in 2027.

## (2) Driving Technical Development

### (i) Superconducting maglev trains

In the area of efforts to develop superconducting maglev trains, based on the basic plan for the technological development of the superconducting magnetically-levitated transport system, development will proceed aiming at the realization of greater maintenance efficiency and increased comfort in already developed technologies.

### (ii) Gauge Changeable Train

Based on results of deliberations held by the Gauge Changeable Technological Evaluation Committee in March 2018, development technologies which can contribute to improve durability will proceed aiming at the operation of gauge changeable trains. At the same time, we will drive forward technological development activity meant to address snow hazards (snow and cold resistance) for the sake of greater safety.

### 3 Constructing Aviation Networks

The Basic Policy Committee, Aviation Group, Transport Policy Council had explored the future directions of Japan's aviation in recurring sessions of discussions since October 2012 and finally came up with a report in June 2014. The report sets forth mid- and long-term directions in the three areas of aviation: laying a firm ground for building an aviation network, building an enhanced aviation network and developing aviation demand, and providing quality aviation and airport services. Based on this direction, we are working on developing specific measures.

#### (1) Expanding Aviation Networks

##### (i) Enhancing metropolitan airports functionalities

Enhancing the functions of Tokyo's airports (Tokyo International Airport [Haneda Airport] and Narita International Airport [Narita Airport]) is essential from the perspectives of achieving the targets of 40 million overseas visitors in 2020 and 60 million in 2030 established in the Tourism Vision to support the Future of Japan, strengthening Tokyo's international competitiveness, revitalizing the nation's regions, ensuring the smooth holding of the 2020 Olympic and Paralympic Games, and more. Efforts are now underway to enable the two airports together to achieve arrival and departure capacity at the world's top level (approximately one million per year), rivaling London and New York.

In concrete terms, efforts are being made to increase the arrival and departure capacity for Haneda Airport by approximately 40,000 by 2020, by means of measures including reviewing the flight paths to and from the airport. At present, steady progress is being made in areas including the development of necessary facilities and the establishment of countermeasures for noise and falling objects. In addition to this, we held our fourth series of citizens' information sessions between November 2017 and February 2018, and we will continue in our efforts to provide detailed information and obtain the understanding of citizens. The route selection process for the expansion of the airport's arrival and departure capacity is scheduled for commencement, and will focus on important routes that will allow strategic progress to be made towards the realization of the target numbers of overseas visitors and routes on which demand for direct flights from Japan is high, which will contribute to the strengthening of the nation's international competitiveness.

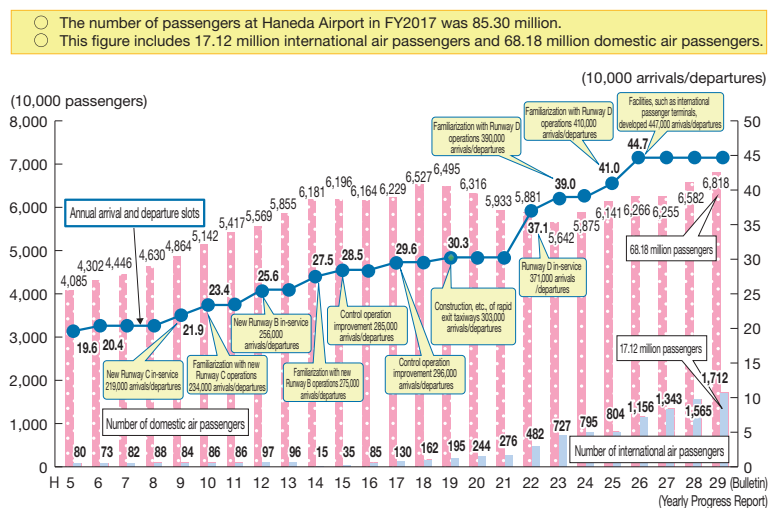
With regard to Narita Airport, in addition to increasing arrival and departure capacity by approximately 40,000 by

Figure II-6-1-7 Overview of Tokyo International Airport



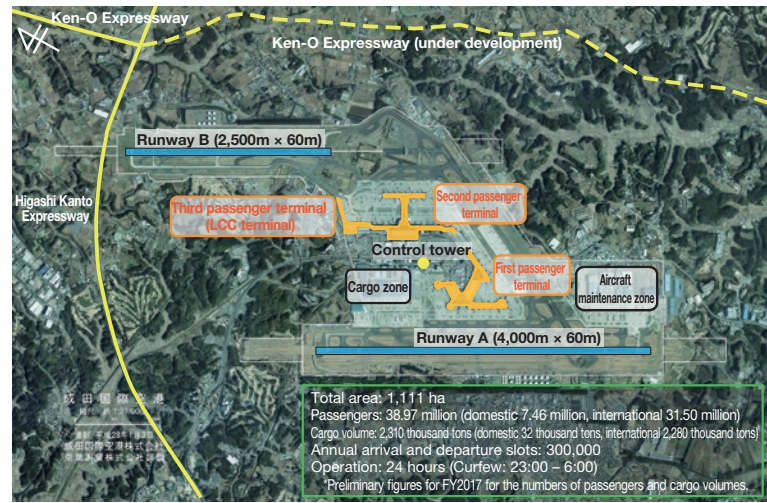
(Source) MLIT

Figure II-6-1-8 Trend in Number of Passengers and Number of Arrivals and Departures at Tokyo International Airport



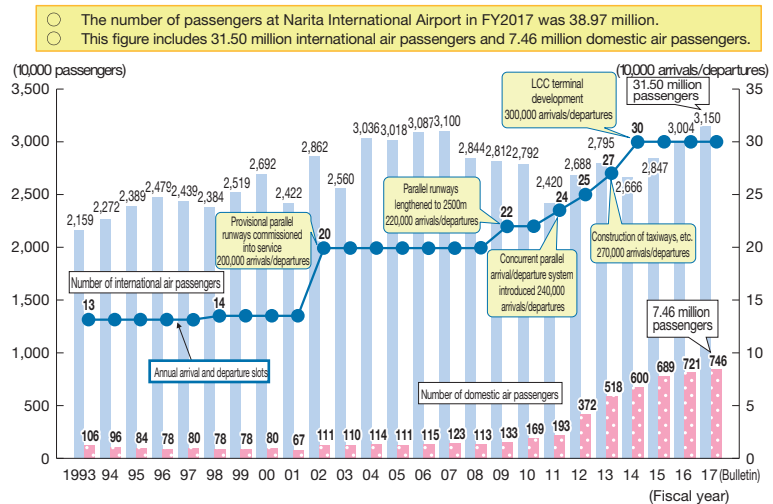
means of initiatives including the construction of high-speed exiting taxiways by 2020, agreement was reached in March 2018 by a four-party council made up of the national government, Chiba Prefecture, surrounding municipalities, and Narita International Airport Corporation regarding the further enhancement of the airport's functions looking beyond 2020, including the development of a third runway and the easing of restrictions on night flights. Based on this agreement, countermeasures for noise and falling objects will be introduced and the establishment of facilities in the surrounding area will be promoted via the Act on State's Financial Special Measures for Improvement of Areas around Narita International Airport, and further functional enhancements will be pushed ahead, increasing the airport's annual arrival and departure slots to 500,000.

Figure II-6-1-9 Overview of Narita International Airport



Source) MLIT

Figure II-6-1-10 Trend in Number of Passengers and Number of Arrivals and Departures at Narita International Airport



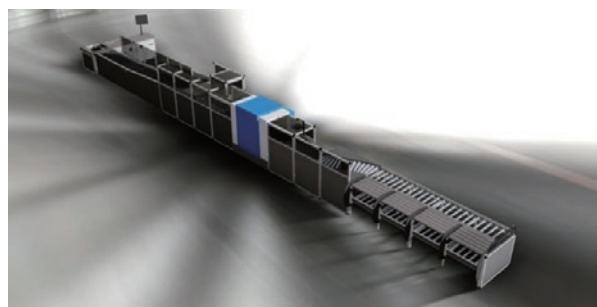
Source) MLIT

(ii) Enhancing functions at Kansai International Airport and Chubu Centrair International Airport

The operation of Kansai International Airport has been contracted to a private-sector operator since April 2016. Kansai Airports Co., Ltd., the airport operator, is applying private sector ingenuity and innovation to the enhancement of the airport's functions; for example, the company introduced walk-through duty-free stores to Terminal 2 (international routes) coinciding with the opening of the dedicated LCC terminal in January 2017, and, following on from Terminal 2, is introducing "smart security" to Terminal 1. In 2017, the number of airport users broke past records, and the number of travelers on international routes topped 20 million for the first time since the airport was opened.

At Chubu Centrair International Airport, the construc-

Figure II-6-1-11 Kansai International Airport Smart Security System Smart Lane



Source) Kansai Airports Co., Ltd.



tion of a dedicated LCC terminal (scheduled to commence operation in the first half of FY2019) is proceeding in order to respond to new LCC services and other flights, and in addition the construction of a commercial facility (scheduled to be opened in summer 2018) adjacent to the airport is being advanced as a business project by the airport operator.

Figure II -6-1-12

Commercial facility “Flight of Dreams,” located adjacent to Chubu Centrair International Airport dedicated LCC terminal



Source) Central Japan International Airport Co., Ltd.

### (iii) Enhancing functions at regional airports

For further revitalization of Okinawa at Naha Airport, which plays critical roles as a travel and logistics base connecting Okinawa and mainland Japan/overseas, the project to increase runways was carried out. At Fukuoka Airport, the project to increase runways continued with the aim of fundamentally resolving the issue of chronic airport congestion at peak times. Measures taken at New Chitose Airport include increasing the number of departures and arrivals per hour from 32 to 42 from the end of March 2017. Additionally, in order to relieve facility congestion caused by a sudden increase in international flight passengers, among other factors, and to accommodate greater demand for international flights, development projects are underway to expand the apron for international flights, construct a new taxiway, and improve the functions of the terminal building servicing those flights (CIQ facility). At other regional airports also, initiatives including apron expansions and CIQ facility renovations are being advanced in response to increases in the number of aircraft and the introduction of new flights.

Also, the MLIT has been implementing countermeasures against aging airport facilities based on strategic maintenance to ensure safe flights of airplanes, while pushing forward with quake-resistant technologies and structures at airports so that airports can maintain their operations in the event of an earthquake.

### (iv) Driving the Open Skies strategically

The Ministry has strategically pursued the Open Skies<sup>Note 1</sup>, including a metropolitan airport (Narita Airport), to respond to changes in the competitive climate resulting from global trends towards air services liberalization while accommodating vigorous economic leaps in Asian and other overseas nations. Open Skies with a total of 33 nations and regions<sup>Note 2</sup> were realized by March 2018. Also, discussions with ASEAN are ongoing with a view to concluding a regional air service agreement between Japan and ASEAN.

### (v) Fostering and securing aircraft pilots, etc.

In the Japanese aviation industry, while drastic leaps in the demand for aviation focusing on international lines and massive retirement of pilots in their 40s, who form a primary workforce at present, are predicted in the future.

In response to this situation, in July 2014 the Joint Subcommittee for Studying Crew Policies, established under the Basic Policy Taskforce and Technology and Safety Taskforce of the Transport Policy Council's Aviation Group, compiled a report concerning the orientation for concrete measures to be taken in future. In addition, the formulation of the Tourism Vision to support the Future of Japan in March 2016 set targets of 40 million overseas visitors to Japan in 2020 and 60 million in 2030. Against the background of increased demand for flights, the training and securing of pilots is becoming

**Note 1** Refers to the bilateral scrapping of restrictions on the number of companies involved in international air transportation, and on routes and the number of flights, in order to boost the level of service (for example by reducing fares) by means of realizing new entries to the market and increased flight numbers, and promoting competition between companies. Recently, numerous countries have advanced this type of measure.

**Note 2** The number of passengers between Japan and these 33 countries represents approximately 96% of the total number of passengers arriving in or departing from Japan.

an increasingly important issue.

Initiatives to secure work-ready pilots include the use of Self-Defense Force pilots, the easing of residency requirements and other measures to allow the use of overseas pilots, and raising the upper age limit for pilots. In addition to this, as initiatives to boost the supply of young pilots, we are planning to expand the training capacity of the Civil Aviation College from 72 to 108 trainees from FY2018 and, also from FY2018, to commence a scholarship program that will provide interest-free loans in order to defray the considerable expenses incurred when receiving training at private sector institutions such as private universities.

Figure II-6-1-13 Age Compositions of Japan's Major Airline Pilots

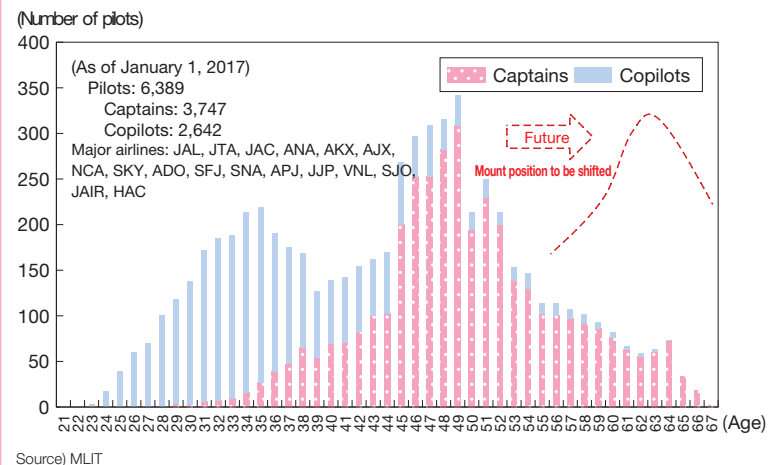
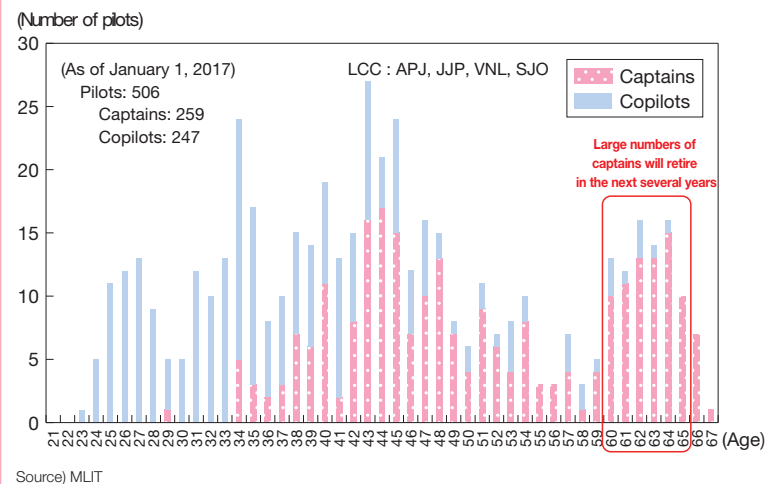


Figure II-6-1-14 Age Compositions of Japan's LCC Pilots



## (2) Enhancement and Optimization of Airport Operations

### (i) Driving airport management reforms

Using the Act on Operation of National Airports Utilizing Skills of the Private Sector (Private Utilizing Airport Operation Act), the MLIT is committed to driving airport management reforms at national airports and the like to suit specific local conditions through utilization of private-sector capabilities, integrated management of airline and nonairline businesses and so on in order to expand the amount of population who are engaging in domestic and international interactions, etc. on the support of the airports and thus to encourage regional revitalization.

Amid these initiatives, in July 2016, Sendai Airport became the first of Japan's national airports to begin undergoing privatization. Following on from Sendai Airport, procedures are now being advanced for the privatization of Takamatsu Airport, Fukuoka Airport, Kumamoto Airport, seven airports in Hokkaido, and Hiroshima Airport.

### (ii) Efforts to achieve sustainable growth for LCCs

An LCC originating from Japan went into service in March 2012. As of January 2018, Peach Aviation operated 15 domestic routes and 14 international routes; JetStar Japan, 17 domestic routes and nine international routes; Vanilla Air, six domestic routes and seven international routes; and Spring Airlines, two domestic routes and four international routes, and Air Asia Japan, one domestic route.

Promoting the entry of LCC is expected to create new demand, for example increasing the number of overseas visitors to Japan and expanding domestic tourism. The government has set a target for LCC passengers to make up 14% of total

passengers on domestic routes and 17% of total passengers on international routes by 2020, and a variety of measures are being put in place nationally and at airports in order to promote the entry of LCC.

Government measures are being studied and implemented based on the following three perspectives: (1) Changing the airport fee structure; (2) Reforming airport management; and (3) Upgrading the environment for receipt of passengers by LCC. With regard to the airport fee structure, in order to promote LCC flights airport usage fees including landing fees are being reduced or reconsidered at Narita International Airport and Kansai International Airport, which are LCC hubs. Since FY2017, measures to provide relief for landing fees for domestic routes originating at Narita, Kansai or Chubu Centrair International Airports and landing at domestic airports have also been expanded. In addition, in July 2017, 27 airports throughout the country were certified as airports that help encourage travels to Japan, and the government is providing a full range of support, for example by providing support for the introduction of new international routes or the addition of more planes (including by LCC), and upgrading the environment for receiving passengers by LCC. In the area of reform of airport management, initiatives including integrating the operation of runways and other airport facilities with the management of airport buildings by introducing private sector operators will enable the introduction of strategic fee systems and business activities, revitalizing airports utilizing private sector knowledge and funding. Active efforts are being made to realize these benefits, and in FY2017, the necessary procedures for the privatization of Takamatsu Airport, Fukuoka Airport, Kumamoto Airport, seven airports in Hokkaido, and Hiroshima Airport were implemented. In relation to upgrading the environment for receiving passengers by LCC, dedicated LCC terminals are being constructed. The LCC terminal under construction at Chubu Centrair International Airport is scheduled to commence operation in the first half of 2019.

### (iii) Accelerating the reception of business jets

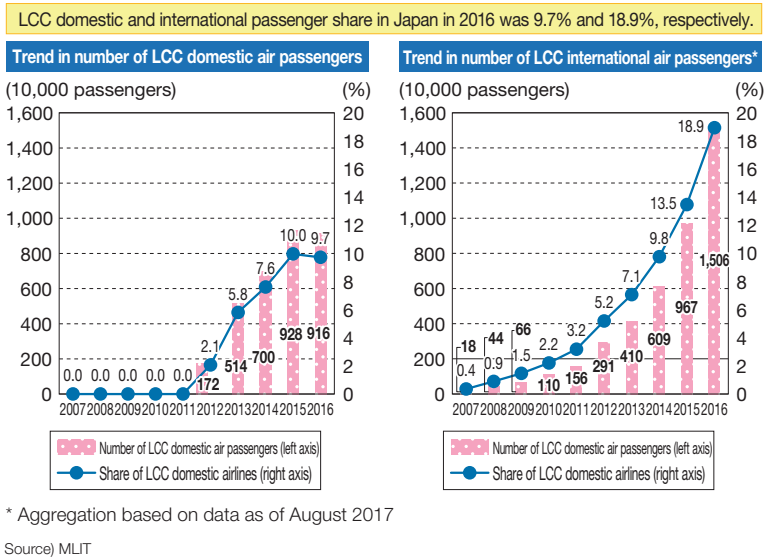
A business jet is a small aircraft with the capacity to hold a few to more than a dozen passengers at the most. Business jets are typically used by businesspersons valuing time because they are able to adjust times according to their schedules or utilize the plane as a secure space to carry on business meetings and such on board.

Business jets have become a means of global corporate activity in the U.S. and Europe. As Japan's economy goes on global, further capitalizing on economic growth in Asia through mainly Tokyo International Airport and Narita International Airport has been an important aim, recent years have seen greater importance placed on winning more affluent passengers and otherwise capturing inbound tourism demand.

As a result, initiatives including the upgrading of facilities, in particular at airports in the Tokyo metropolitan area, in order to improve the environment for acceptance of business jets are being advanced. For example, at Tokyo International Airport, development is proceeding in order to increase the number of aircraft parking spots at the same time as the operation of existing parking spots is being modified in order to realize the maximum possible number of parked aircraft. In addition to this, parking spot information is being made more visible in order to increase convenience for users. Discussions are also being held at Narita Airport towards upgrading the airport's business jet acceptance system, in particular in relation to providing an adequate number of parking spots at the time of the 2020 Olympic and Paralympic Games.

Going forward, we will continue to examine measures aimed at entrenching the use of business jets, including the active provision of information and the easing of regulations related to business jets.

Figure II-6-1-15 Trend in Number of LCC Passengers in Japan



#### (iv) Promotion of international flight services at regional airports

Enabling visitors to Japan to arrive and depart from regional airports via international flights will be extremely important to realizing the targets of 40 million overseas visitors to Japan in 2020 and 60 million in 2030 set out in the Tourism Vision to support the Future of Japan formulated in March 2016.

In the case of national airports, landing fees for international flights have already been reduced by 30% for regular flights and by 50% for charter flights. In FY2016 a measure was introduced as a cooperative scheme with regional areas seeking to be added to flight routes, under which landing fees are reduced by a further 50% when new routes are created or additional flights are added for international passengers at regional airports. In addition, in July 2017, 27 airports throughout the country were certified as airports that help encourage travels to Japan, and these airports are the target of measures including the reduction of landing and ground handling fees in order to support the introduction of new routes or additional flights, and support for efforts to improve passenger acceptance facilities, such as the upgrading of boarding bridges and CIQ facilities.

### (3) Upgrading Our Air Traffic System

In FY2010, air traffic experts from the industrial, academic and governmental sectors formulated a long-term vision for future air traffic systems as CARATS (Collaborative Actions for Renovation of Air Traffic Systems) with a view to realizing a globally interoperable air traffic system and addressing increases in long-term demand for air traffic capacity and diversified needs. Studies are underway to make this vision a reality in conjunction with ICAO's Global Air Navigation Plan (GANP).

As an initiative involving the introduction of new technologies and new methods in order to improve the operational efficiency of aircraft and the service rate in bad weather in FY2017, the high-standard approach method RNP-AR, which employs GPS for precise navigation, was introduced to four airports that do not have ILS or have restrictions on their approach routes due to their runways, geographical location, etc. Also, with the aim of realizing the use of precision landing, which is currently limited to straight lines, we are examining the introduction of the Ground Based Augmentation System (GBAS) to allow for curved lines to improve safety and convenience.

### (4) Strategic Promotion of Overseas Aviation Infrastructures

The Asia and Pacific region is expected to grow into the world's largest aviation market before too long. Under these circumstances, important issues for the growth strategy of Japan are not only to contribute to strengthening of the aviation networks in this region, but also to actively capture the impetus of the emerging countries in which numerous aviation projects are in progress.

Early identification of projects is an important factor in winning them, and for this reason a working group has been established to conduct surveys and identify potential airport operation-related projects under the Council for International Deployment of Aviation Infrastructure in which numerous related companies participate, enhancing the system of information collection via public-private partnership.

In FY2017, a contract for the transfer of business rights was concluded (in August 2017) in relation to the refurbishment and operation of the Palau International Airport passenger terminal building on Palau. Sales activities and invitations to key government officials (in FY2017 officials from Vietnam were invited) were among other efforts made in FY2017 in order to seize opportunities and promote the involvement of Japanese enterprises in projects including the refurbishment/operation of the domestic terminal at Khabarovsk Novy Airport in Russia, Long Thanh International Airport in Vietnam, Hanthawaddy International Airport in Myanmar, and New Ulaanbaatar International Airport in Mongolia.

## 4 Facilitating Traffic Access to Airports

With respect to the rail networks for accessing these airports, efforts have been made to further improve railway access to international hub airports in accordance with the Approaches to Future Urban Railways in the Tokyo Area Report from the Council of Transport Policy, which was put together in April 2016. This includes promoting barrier-free construction at stations providing access to airports, as well as promoting specific discussions between stakeholders regarding project implementing entity, project schemes, and other matters, with the goal of improving access routes to major airports in the Tokyo Metropolitan Area and Kansai International Airport, among others.

In addition, to improve bus access to airports within National Strategic Special Zones, all necessary measures are being taken to ensure greater procedural flexibility, including shortening the time given to submit fare and service schedule plans.

## Section 2 Implementing Comprehensive and Integrated Logistics Policies

We are advancing a logistics productivity revolution that seeks to improve the operational efficiency of logistics businesses and increase added value. In addition, logistics policies are being implemented in a comprehensive and integrated manner in coordination with related ministries and agencies and the public and private sectors in accordance with the Comprehensive Logistic Policy Guidelines (FY2017-FY2020).

## 1 Implementing Logistic Policies to Correspond with Deepening Global Supply Chains

To keep up with deepening global supply chains, efforts directed at reinforcing Japan's international logistic facilities are underway, including driving overseas deployment of the nation's logistic systems.

### (1) Promoting Overseas Deployment of Japan's Logistics Systems

As supply chains continue to get globalized at a deeper level than ever, grabbing the evolving Asian markets would be essential to sustaining and enhancing the international competitiveness of Japan's industries. The formation of a sophisticated international logistics system should be of prerequisite importance to meet this urge. Capturing the Asian markets has become an urgent task for Japanese logistics companies that support the business expansion of the nation's industries in Asia.

However, the existence of institutional and customary constraints in the partner countries is posing challenges to Japan in expanding its high-quality logistics systems into Asian nations. Therefore, the MLIT is developing an environment to encourage overseas expansion of Japan's logistics systems in collaboration with the private sector through logistics pilot projects, intergovernmental logistics policy dialogues, support for the development of logistics-related infrastructure, projects for development of human resource, international standardization of logistics systems, and other means.

# Column

## Realization of AI Terminals

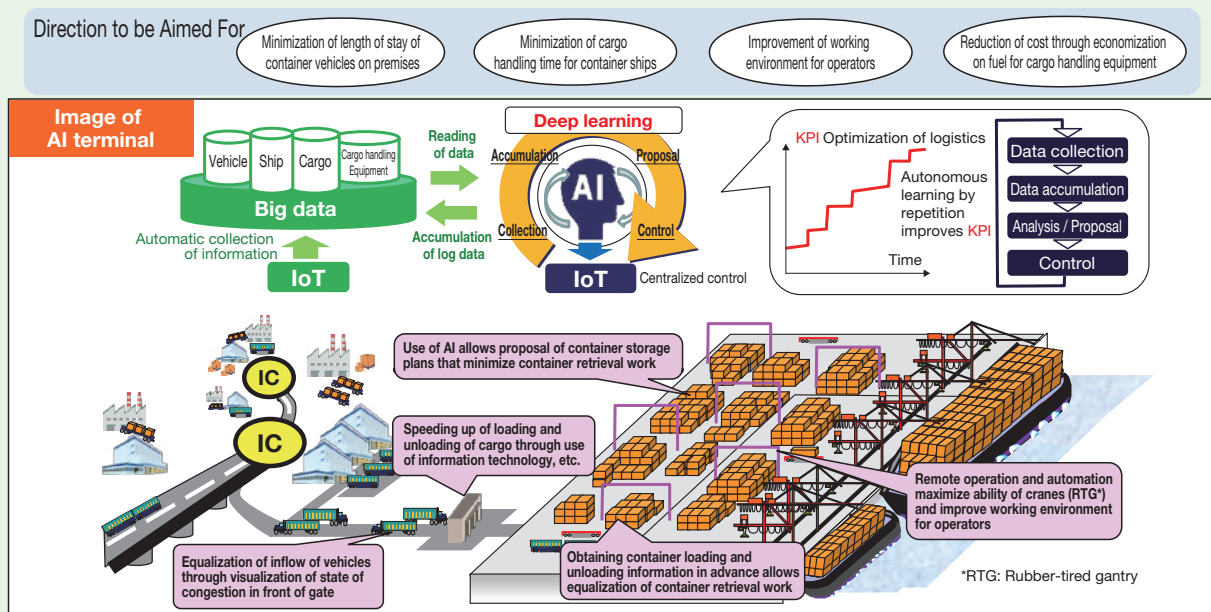
# Column

Today, as a result of factors including further increases in the size of container ships and the ongoing restructuring of shipping company alliances, the number of ports of call on international trunk routes is being narrowed down. Against this background, it is essential to stably maintain and expand the international trunk routes that connect Japan to North America and Europe in order to enhance the international competitiveness of Japan’s economy and maintain and create jobs for Japanese citizens. In order to do so, it will be necessary to have Japan’s ports selected as ports of call, and this will necessitate that we increase productivity in our container terminals and ensure with the reliable shipping schedules.

To this end, we are seeking to increase the productivity of container terminals through the realization of “AI terminals,” which incorporate the AI, IoT and automation technologies which are today displaying dizzying progress in order to realize the world’s highest level of productivity and an excellent working environment.

Looking towards the realization of AI terminals, we will commence initiatives including proving trials related to the realization of increased efficiency in or optimization of container terminals operations through the use of AI and other technologies from FY2018. To provide one concrete example: The increasing number of containers to be handled when receiving container-based imports is increasing the frequency of container retrieval work; in response, we are studying a proposal for the use of AI when receiving containers in order to enable the proposal of storage plans that minimize the amount of retrieval work.

In addition, the realization of AI terminals would make it possible to package AI terminal technologies with infrastructure provision for overseas markets. By tapping into the enormous global demand for infrastructure, this could be expected to stimulate investment from Japan’s private sector and realize strong economic growth.



- Packaging of AI terminal technology with infrastructure provision and **deployment in overseas markets** by specified port operating companies and other Japanese companies
- Tapping into enormous global demand for infrastructure will stimulate investment from Japan’s private sector and **realize strong economic growth**

Source) MLIT

## (2) Strengthening the Functioning of the International Marine Transportation Network

As the globalization of economy progresses, the volume of international marine transportation continues to grow year to year. From the perspective of optimizing marine transportation through large bundle shipments, container carriers and bulkers continue to grow in size. In the meantime, key Asian ports have successfully increased their volumes of freight handling, resulting in concentrated ports of call, international trunk routes making fewer calls at Japan. Furthermore, slow responses to larger vessels to carry bulk cargo<sup>Note</sup> raise concerns over diminishing competitiveness in domestic industries forced into a mutually disadvantageous business environment.

In light of such conditions, Japan carries on its effort to streamline the flow of logistics that supports economic activity in Japan and life of citizens, improving the shipping entities at their location at home, which would in turn augment Japan's industrial competitiveness and realize economic reconstruction by maintaining and expanding the calls of international trunk routes at Japanese ports and simplifying and stabilizing imports of lifeblood materials, such as resources and energies.

In parallel with these approaches, efforts to shape an efficient network of marine transportation in which international and domestic transport services are integrated will be carried on, and relevant measures will be enhanced and developed at a deeper level of refinement.

### (i) Enhancing the facilities of International Container Hubs

To strengthen Japanese economy's international competitiveness and to maintain and create citizens' employment, the international shipping trunk routes that directly connect Japan to North America, Europe, and other places need to be consistently maintained and even expanded.

For this purpose, the government of Japan chose Hanshin Port and Keihin Port as International Container Hubs in August 2010 to implement a full package of structural and non-structural measures. However, tumultuous change has been the defining feature of conditions surrounding Japanese ports: the size of container vessels are becoming larger and alliance between shipping companies is progressing. Based on these, the government of Japan promotes the policy of International Container Hubs that consists of three measures: (1) "Cargo collection" at International Container Hubs from wide area, (2) "Cargo creation" through industry accumulation behind International Container Hubs, and (3) "Reinforcing the competitiveness" of International Container Hubs by, among other efforts, strengthening the functions of deep-water container terminals, collaborating with port authority and port operating company.

At Hanshin Port, the government of Japan gives "Kobe-Osaka International Port Corporation" – port operating company which is partially invested by the government – subsidy for projects to collect cargo. As a result, the number of international feeder services connecting between Hansin port and ports in western Japan increased about 50%, from 68 to 101 per every week. The container throughput at the port of Kobe in 2017 recorded high.

At Keihin Port, the partially government-funded Yokohama-Kawasaki International Port Corporation has also commenced cargo collection. As a result, the number of international feeder services from ports in eastern Japan has increased by about 50%, from 33 to 48 per week. The effects of this increase are beginning to manifest, for example in the establishment of a new North American trunk route at Yokohama Port in April 2017.

Going forward, we will continue our efforts to realize container terminals ("AI terminals") that bring together AI, the IoT and automation technologies in order to achieve the world's highest level of productivity together with an excellent working environment, focusing even more vigorously on the maintenance and expansion of Japan's international trunk lines.

### (ii) Development of an LNG Bunkering Hub

In response to developments such as a tightening of regulations on SOx in general sea areas after 2020 by the International Maritime Organization (IMO) in October 2016, it is predicted that the number of vessels fueled by LNG (liquid natural gas) will increase, which produces cleaner emissions. The international competitiveness of ports may be largely determined by whether or not it has an LNG bunkering (fuel supply) hub. Japan is the world's largest LNG importer, and already possesses adequate infrastructure, including a large number of LNG bases at its ports. Given this, based on a Memorandum of Understanding signed in April 2017, a joint Singapore-Japan survey was commenced in August of the

**Note** Generic name for cargoes that are shipped without being packaged, such as grain, iron ore, coal, oil and timber.

same year towards the realization of cooperation with Singapore, which possesses the world's largest fuel oil bunkering base, in promoting the creation of an international network. Going forward, we will continue to cooperate with Singapore, seeking to establish Japan as a pioneering LNG bunkering hub in Asia and increase the number of calls at Japanese ports by containers and other ships.

(iii) Forming a marine transportation network for moving resources, energy sources and so on with stability and efficiency

Supply-demand balances for resources, energy, and so on, assuring Japan of stable, low-cost imports of these substances to build up industrial competitiveness of the nation's industries and to maintain and even create employment and revenues should be one of the tasks of foremost importance as the nation depends on imports for virtually 100% of its requirements.

Ten "strategic international bulk ports" were therefore chosen in May 2011 to serve as bases for resources and energy. In order to enhance the functions of these ports to allow them to serve as marine transport network hubs for bulk freight, the development of quays that can accommodate large vessels and the promotion of cooperative transportation using large vessels through corporate partnerships are being targeted, and both structural and non-structural measures are being taken with the help of subsidies and preferential tax measures.

At present, we are advancing the development of Onahama Port and Tokuyama-Kudamatsu Port as bases for handling coal imports, and Kushiro Port, Mizushima Port and Shibushi Port as bases for handling grain imports, and private sector investment related to our strategic international bulk ports is also becoming increasingly vigorous.

Going forward, we will seek to dramatically increase productivity and strengthen Japan's international competitiveness by means of efficient transportation using large ships and joint transportation involving cooperation between companies.

(iv) Building functionally core ports on the Japan Sea

Among the ports located on the coastal line of the Japan Sea geographically close to the fast economically growing nations across the sea, core ports were selected in November 2011 in an effort to capture the economic booms in these nations into Japan's growth through selection of functions and concentration of measures and through port-to-port linkage and to build a disaster-resistant logistics network following the Great East Japan Earthquake. We will continue to follow up on the progress and other aspects of the plans formulated by port management bodies.

(v) Enhancing functionalities of international ports

The MLIT not only develops international physical distribution terminals, etc. in the international maritime transport network or at regional hub ports for consolidated competitiveness, etc. of local key industries but also pushes efforts directed at enhancing the functionalities of these ports, as by pushing their migration to ICT. To address increasingly sophisticated and diversified needs for East Asian logistics, which is not much different from domestic logistics in both terms of time and distance and build a low-cost logistics system, the Ministry pushes ahead with functional enhancements to unit loading terminals<sup>Note</sup> and with the construction of facilities designed to smooth the flow of cargo transshipment.

(vi) Developing a marine transportation environment

Among all international backbone routes, those that could interfere with bay navigation because of shallow waters, etc. have been improved and Aids to Navigation have been established to develop a marine transportation environment that combines the safety of navigation with the efficiency of marine transportation.

**Note** Terminals compatible with transportation systems that consolidate cargoes into chassis, containers, etc. (break them down into units) for loading and unloading, in order to increase the speed and efficiency of logistics.



## Column

## Towards the Creation of LNG Bunkering Hubs

The stringency of regulations on exhaust gases from ships is today being increased, and it is predicted that the number of ships using clean LNG will increase. The inadequate provision of bunkering hubs able to supply fuel to these LNG-fueled ships is therefore becoming an international issue. Given this, the creation of LNG bunkering hubs could be expected to both promote the use of LNG fuel in ships and increase the number of ships calling at Japanese ports, increasing the productivity of the ports.

Japan is the world's largest importer of LNG and possesses large numbers of LNG bases sited at its ports, giving the nation an advantageous environment for the creation of LNG bunkering hubs. Given this, in addition to proceeding with studies focused on ports such as Yokohama, as has been the case up to the present, we are also taking the initiative in an international effort towards the creation of a network of LNG bunkering hubs that positions cooperation with Singapore, which possesses the world's largest heavy oil bunkering hub, as its central axis.

In October 2016, in an effort to promote the introduction of LNG-fueled ships, a memorandum of understanding (MOU) concerning cooperation in the development of LNG as a maritime fuel was signed by eight representatives of seven countries, including the Port and Harbor Bureau of MLIT and the Maritime and Port authority of Singapore, looking toward the creation of an international network of LNG bunkering bases. In July 2017, a further three representatives of three countries joined the agreement, strengthening international cooperation still more.

In April 2017, the "International Symposium on LNG Bunkering in Yokohama" was co-hosted in Japan by the MLIT and the Ministry of Economy, Trade and Industry. Stakeholders involved in the promotion of LNG bunkering from throughout the world, including shipping companies, energy businesses and port authorities, came together in one place (the symposium had approximately 550 attendees from Japan and internationally) to share their awareness of the direction for efforts to be taken in order to create LNG bunkering hubs and establish an international network.

In addition, the commencement of the "Joint Japan-Singapore LNG Bunkering Survey" was announced at "Singapore & Japan Port Seminar 2017 in Singapore" in August 2017, further accelerating cooperation between the two nations.

In FY2018, we will create a support system for the establishment of the necessary facilities for bunkering hubs, and promote the creation of hubs in Japan. Going forward, while continuing to cooperate with Singapore, Japan will pioneer the creation of LNG bunkering hubs in Asia, and by this means maintain and expand the number of container routes and other shipping routes that call at Japanese ports, increasing the nation's international competitiveness.



Opening greetings from Keiichi Ishii, Minister of Land, Infrastructure, Transport and Tourism, at "Singapore & Japan Port Seminar 2017 in Singapore" (August 28, FY2017)



Simultaneous fueling and cargo handling (Image)



Commemorative photograph of organizers, co-organizers and speakers at international symposium (April 3, 2017)



Discussion between Minister Ishii and Khaw Boon Wan, Singapore's Transport Minister (August 28, FY2017)

Source) MLIT

### (3) Developing Advanced Aviation Logistics Facilities to Pursue Increased International Competitiveness

The MLIT pushes efforts to consolidate the functionalities of the metropolitan airports, drive an airfreight hub implementation of Japan's hub airports, such as Kansai International Airport and Chubu International Airport, and simplify the transportation process flow in its bid to positively capture airfreight originating from and arriving in Asia as it promises further leaps.

### (4) Improving Logistics for Promoting Exports of Agricultural and Marine Products and Food Products

In 2017, the export value of agriculture, forestry and fisheries products and foodstuffs from Japan was 807.1 billion yen, and 2017 was the fifth consecutive year of increase. Seeking to realize the government's target of an export value of 1 trillion yen for these products in 2019, we are promoting the more widespread use of technologies and equipment that will prevent damage during transportation and maintain freshness, conducting research and development of a new type of refrigerated container for air transport that is suited to the needs of air transportation from regional production areas, and the initiative for the international standardization of cold chain logistics services.

### (5) Strategic Development and Utilization of a Logistically-Important Road Networks

Building an efficient logistics network is of crucial importance to motor-truck transportation, which accounts for about 90% of domestic transportation. Because of this, the construction of ring roads in the three major metropolitan areas, access roads to airports and ports is underway. In March 2018 the Road Act and other laws were revised in order to ensure stable transportation during both normal periods and natural disasters. The Minister of Land, Infrastructure Transport and Tourism designated the most important road transport network for logistics as "Logistically-Important Roads," and created a "Logistically-Important Road System" to enhance functions including strengthening the structure of roads to respond to the increasing size of trucks and speeding up the opening and restoration of roads following disasters and to provide priority support. In addition, we are steadily pushing forward with initiatives using ETC 2.0, such as the simplification of the special vehicle passage permit for vehicles with ETC 2.0 and a demonstration experiment of the operation management support services for ETC 2.0 vehicles. In another initiative, a strategy to save labor in truck transport and improve productivity saw the November 2016 launch of a demonstration project for double-trailer trucks (trucks able to transport the equivalent of two large trucks in a single unit) in the field, primarily on the Shin-Tomei Expressway. The aim is to realize fully-fledged introduction of these trucks in FY2018. Efforts are also underway to effectively utilize and enhance the functions of existing road networks, for example by promoting the use of a smart IC system that directly connects expressways and private-sector facilities, and continuing to construct smart ICs.

### (6) Measures That Help Strengthening of International Logistics Facilities

The MLIT will push the development and redevelopment of physical distribution sites and facilities around international ports, etc., which are nodal areas for international physical distribution in metropolitan zones. They will also undertake

this at the ports that are the strongpoints of physical distribution and industry. This will be done to build up international competitiveness and form an efficient network of physical distribution as an integral part of urban environment improvement activity, while also seeking better disaster preparedness to deal with massive disasters as they occur.

## 2 Measures Aimed at Building an Efficient and Sustainable Logistics System in Japan

Additional approaches are underway to build an efficient and sustainable logistics system at home to toughen Japan's industrial competitiveness and increase logistics productivity while easing environmental loads.

### (1) Flow of Interregional Logistics

The MLIT proceeds to develop nodal points of logistics, such as ports and freight stations, to drive combined multi-modal transportation. Cargo transportation by rail can be used more efficiently by utilizing the facilities that have been developed to increase capacities of cargo transportation by rail. The construction of combined multimodal transport terminals is also being proceeded at Toyo Port and elsewhere to consolidate coordination between marine transportation and other modes of transport.

Key road networks will also be constructed to streamline the flow of truck transportation.

### (2) Optimizing Local Logistics in Cities, Depopulated and Other Areas

Urban distribution centers<sup>Note</sup> have been developed in 20 cities and 29 locations (27 of which were already in service) by the end of March 2017, in accordance with the Act on the Improvement of Urban Distribution Centers, to enhance the urban functions of logistics and streamline road traffic through the intensive location of distribution facilities.

To prevent roadside parking for cargo handling purposes, the Ministry has encouraged local governments to include the mandatory installation of parking spaces for cargo handling in their municipal parking ordinances. As of the end of March 2017, municipal ordinances that stipulate mandatory installation of parking spaces for cargo handling at commercial facilities of above certain size were established in 88 cities.

In addition, we have publicized a handbook concerning the design and operation of buildings that take logistics into consideration in order to promote design of large buildings that consider logistics, and we are promoting its use.

Measures taken to optimize traffic flow include making focused attempts at eliminating congestion bottleneck points, constructing graded intersections, and resolving railway crossings that are closed at nearly all times. In parallel, nonstructural measures, such as those aimed at encouraging joint transportation and delivery pursuant to the Low Carbon City Promotion Act to boost loading efficiency, have been promoted.

Furthermore, while the number of people having difficulty in daily shopping is increasing in depopulated and other areas, the logistics efficiency is on the decline. Therefore, a model project on achieving sustainable logistics was conducted in FY2015 that has led to the accumulation and spreading of practical expertise with respect to problems and solutions that have been brought to light.

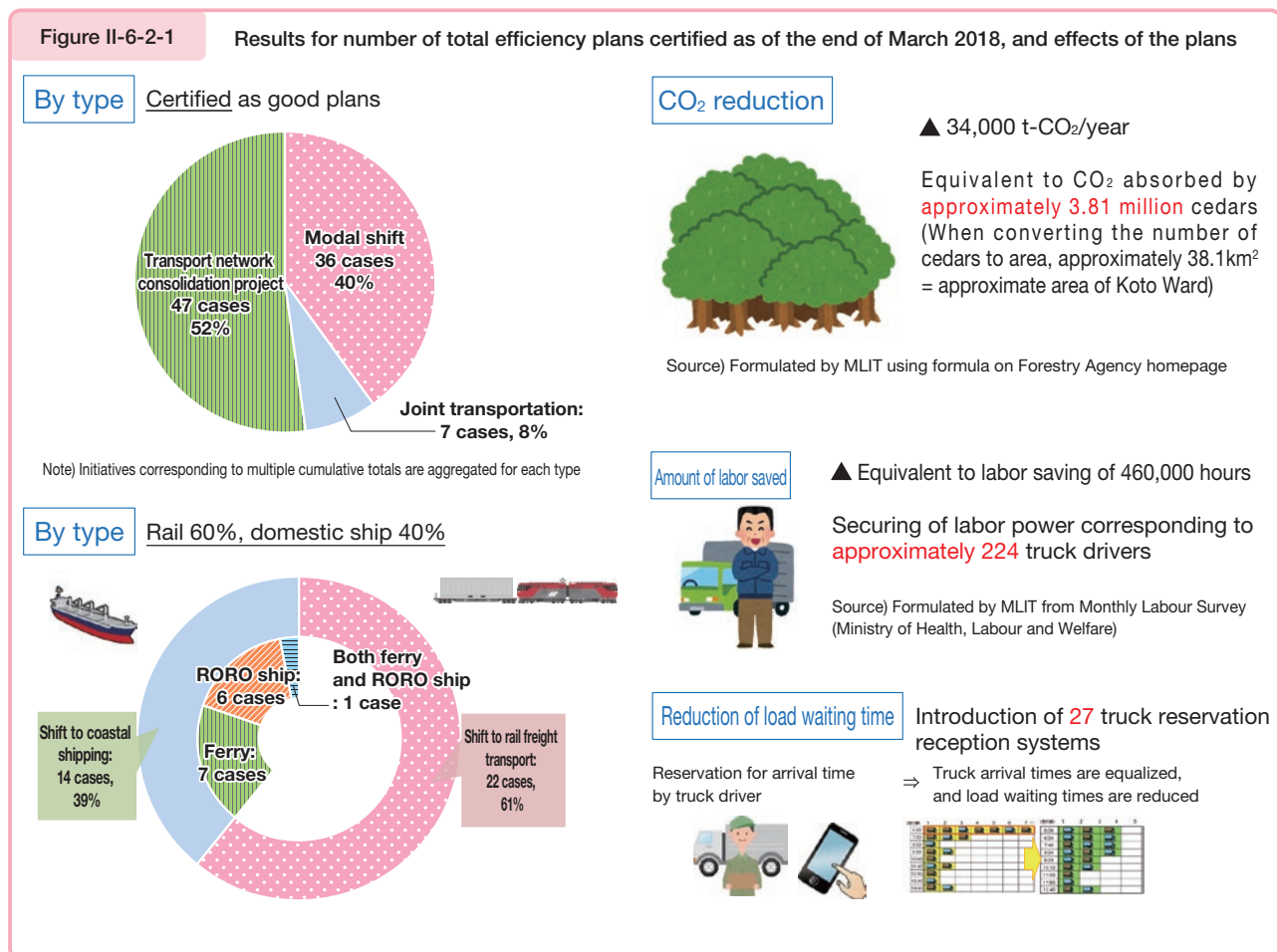
In order to ensure the sustainability of human movement and logistics services in depopulated areas, etc., the system was revised in August 2017 to enable passenger transportation and cargo transportation businesses to perform each other's duties under specific conditions.

The Panel for Reducing Redeliveries through the Promotion of Greater Parcel Receiving Method Diversity, a body made up of representatives of delivery businesses, mail order businesses, and other companies involved in the industry, issued a report in September 2015. We are working to reduce redeliveries in accordance with the findings of this report. For example, in cooperation with the Ministry of the Environment and the Ministry of Economy, Trade and Industry, MLIT is conducting the "COOL CHOICE Campaign -Why Not Receive Packages For The First Time" to increase awareness of reducing redelivery of courier delivery items. We are also cooperating with the Ministry of the Environment to promote the more widespread use of open-type delivery lockers. In addition, we are conducting a pilot program in a public-private partnership where we have installed delivery lockers at a specific core Michi-no-eki in the region to seek potential of these lockers as a scheme of reducing redeliveries in rural areas.

**Note** A built-up area constructed in a suitable location, such as close to an expressway interchange, as a large-scale logistics hub, and featuring intensive siting of logistics-related facilities (truck terminals, warehouses, etc.)

### (3) Further Efforts to Implement Logistic Services That Are More Sophisticated, Comprehensive, and Efficient

In response to a declining labor force and a rising volume of frequent, small-lot deliveries in the logistics sector, efforts are underway to economize on labor in logistics businesses and reduce their environmental impact. The Act to Amend the Act on Advancement of Integration and Streamlining of Distribution Business seeks to support wide-ranging logistics integration and streamlining efforts conducted via collaboration between companies and organizations involved in the sector. The Act has certified and provided support (subsidization of operating expenses, etc., introduction of preferential taxation measures, etc.) for a total of 81 (as of March 31, 2018) integration and streamlining plans that detail initiatives in areas including joint transportation, modal shifts, and the consolidation of transport networks using warehouses equipped with truck scheduling systems and other software. In addition to this initiative, we are also advancing the harmonization of physical quantities by means of cooperation between logistics companies, shippers and others, and increasing the efficiency of loading and facilitating cooperation between businesses through measures including standardization of packaging and data usage.



### (4) Realizing a “Logistics Revolution” through the Use of New Technologies (the IoT, BD, AI, etc.)

The utilization of new technologies in the field of logistics will turn current approaches on their heads and bring about revolutionary changes.

Unmanned aircraft (i.e. drones, etc.) have the potential to be used for transporting cargo to remote islands, depopulated rural areas and urban areas, and for transport when natural disasters occur. However, when applied to logistics, they must be capable of performing complex processes accurately and safely while flying outside of visual range. These include flying to their delivery destinations and taking off and landing when loading and unloading cargo. The development of a logistics drone port system, which will enable unmanned aircraft to take off and land safely and autonomously even when outside of the operator’s visual range, was therefore commenced in FY2016. In September 2017, the system was used in a cargo delivery trial in which an unmanned aircraft transported goods from a Michi-no-eki to an aged care home in

Ina, Nagano Prefecture. This initiative exemplifies current efforts to make cargo delivery via unmanned aircraft a reality.

The operation of unmanned convoy trucks can be expected to have a significant effect in increasing productivity, for example by alleviating the shortage of drivers. Given this, we are making efforts in areas including technological development, and as one initiative, we have commenced proving trials of manned convoy operation on the Shin-Tomei Expressway from January 2018.

#### (5) Reform of Work Styles in the Field of Logistics

Against the background of a falling birthrate and an aging and declining population, the aging of the workforce is also affecting the field of logistics, in particular the trucking and coastal cargo transportation industries, making measures to respond to large-scale retirement and the difficulty of securing human resources in the face of the decline of the productive-age population an ongoing necessity.

The Liaison Committee among Relevant Ministries and Agencies on the Reform of Work Styles in the Motor Carrier Industry was formed with a view towards the establishment of an environment allowing correction of the issue of long working hours in the trucking industry, and has compiled a list of 63 measures for immediate implementation.

With regard to the coastal shipping industry, measures, such as improving the onboard living and working environments, are being advanced to promote the employment of young seafarers.

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### Efforts to reduce Redelivery by Home Delivery Services

Factors including the diversification of Japan's lifestyles are seeing e-commerce sales increase year by year. According to a survey by the Ministry of Economy, Trade and Industry, the industry reached a scale of 15.1 trillion yen in 2016, having grown approximately 1.8-fold in the preceding five years. As a result, the number of deliveries handled by home delivery services is also increasing year by year. In FY2012, approximately 3.5 billion items were handled; this figure had risen to more than 4 billion in FY2016. At the same time, the shortage of truck drivers, who ensure that items actually arrive, is intensifying, and the workforce is aging.

Against this background, the rate of redeliveries of home-delivered items has increased to approximately 15.5%. According to estimates conducted by the MLIT in 2015, the time expended on redelivery has risen to 180 million hours. If this is converted into labor power, it corresponds to the labor power of approximately 90,000 drivers for a year. Reducing the amount of redeliveries is an urgent task if we are to steadily ensure the realization of sustainable home delivery services as the shortage of drivers becomes increasingly visible. In addition, the MLIT estimates that these redeliveries are responsible for the emission of approximately 420,000 tons of CO<sub>2</sub> per year, making it essential to consider responses from the environmental perspective also.

In order to respond to this issue, the MLIT is encouraging the use of an application that makes it easy to change details such as the date on which you can receive an item from your smartphone, by means of initiatives including the "COOL CHOICE Campaign-Why Not Receive Packages For The First Time?," which promotes a movement to reduce deliveries, conducted in cooperation with the Ministry of the Environment and the Ministry of Economy, Trade and Industry. In addition, as a new initiative to promote the further diversification and increased convenience of methods of receiving deliveries, in cooperation with the Ministry of the Environment, we are supporting the installation of open-type delivery lockers, able to be used by multiple home delivery businesses and members of the public, in public spaces in stations, convenience stores, etc., providing a further option for receiving deliveries in addition to the offices of home delivery businesses and convenience store.



Source) MLIT

Seeking to ensure the sustainability of highly convenient delivery services and increase convenience even further, the MLIT will continue to cooperate with home delivery businesses and other stakeholders towards reducing the amount of redeliveries of home-delivered items.

## Section 3 Reactivating Industries

### 1 Trends in Railway Industries and Measures

#### (1) Railway Business

##### (i) Trends and measures in the railway business

The number of railway passengers carried in FY2016 increased from its year earlier level. At Japan Railway, transportation on the Shinkansen increased and as did transportation on conventional railway lines, with transportation on private railways on the increase, too.

In FY2016, the annual volume (tons) and distance (kilometers) of railway freight increased from the previous fiscal year for container freight, while carload freight slightly decreased.

The railway operators are working on such initiatives as presenting guidance information in multiple languages, showing route and station names along with their alphanumeric notation and offering free public wireless services in order to enhance railway competitiveness, increase convenience in coordination with livelihood services and be better prepared in receiving inbound foreign tourists.

Additionally, traffic IC cards continue to gain growing popularity across the nation since their pioneer “Suica” was launched by JR East in 2001. Since March 2013, 10 kinds of traffic IC cards used by JR and major private railways and the like have been made interoperable. As IC cards penetrate more railway operators and areas, they could help improve passenger convenience and reactivate regional economies.

##### (ii) Initiatives towards the complete privatization of Japan Railways

Japan’s national railways were once operated as a centrally-managed organization run under a state-owned corporation. Improper business management and a failure to account for actual conditions in the areas of service led to high levels of long-term debt and eventual bankruptcy. This led to the division and privatization of Japanese National Railways in April 1987 and a rebirth of the rail business in Japan. April 2017 marked 30 years since the formation of the JR companies.

The breakup and privatization of Japanese National Railways resulted in the formation of a system characterized by efficient and responsible management. This led to a dramatic increase in the comfort and reliability of rail services as a whole. On the management front also, the anticipated goal of reform of Japanese National Railways is being fulfilled, for example with Kyushu Railway Company becoming a fully private entity following on from East Japan Railway Company, West Japan Railway Company, and Central Japan Railway Company.

At the same time, however, Hokkaido Railway Company, Shikoku Railway Company, and Japan Freight Railway Company have not yet reached the stage at which they are able to post sufficiently stable profits to enable them to be listed on the stock exchange, and the government is also providing each company with a variety of support to enable them to achieve business independence, for example providing assistance with capital investment and offering interest-free loans.

Of these companies, Hokkaido Railway Company in particular is facing a difficult business situation. The company has announced that sections of its routes will be difficult to maintain independently, and has commenced holding explanatory meetings and discussions with regional stakeholders regarding subjects including the status of specific sections, and the best direction for the realization of more efficient and convenient transportation services, depending on the specific region. For its part, the national government is working closely with the Hokkaido Government Office, actively taking part in regional discussions between stakeholders and providing support for initiatives towards the building of traffic systems in rural areas that will be sustainable into the future.

## (2) Rolling Stock Industry

The production value of newly manufactured rolling stocks moved flatwise for domestic shipment and varied depending on the status of orders for overseas shipment. The production value in FY2016 stood at 160.1 billion yen (1,761 cars). The composition ratio of production value is 88.8% (142.2 billion yen) for domestic shipment and 11.2% (17.9 billion yen) for overseas shipment, the former declining by 2.8% over FY2015 and the latter declining by 49.2% over FY2015.

The production value of rolling stock parts (such as power generators and bogies) was 326.1 billion yen and that of signal protection devices (such as automatic train control devices and electrical interlocking devices) was 100.6 billion yen.

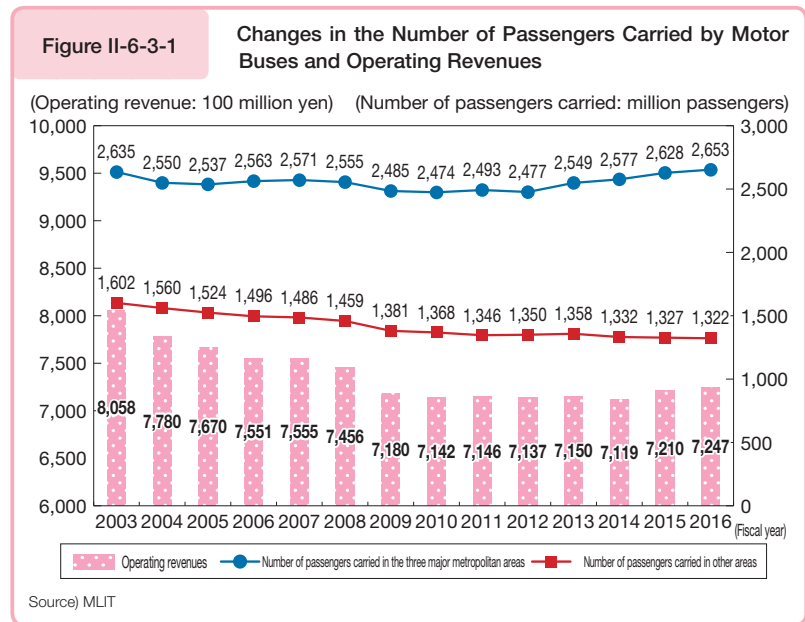
Rolling stock manufacturers and others are working to develop rolling stocks that fill diverse social needs, such as speed, safety, passenger comfort, low noise and being barrier-free, by partnering with railway operators and also to set up and even expand local production bases and maintenance bases in the U.S., U.K. and elsewhere with the recent of orders for overseas projects as an impetus.

## 2 Trends in Motor Truck Transport Business and Measures

### (1) Passenger Vehicle Transport Business

#### (i) Motor bus business

While motor buses in major cities in which populations have increased have seen slight increases in passenger volume and revenues, factors that include increasing ownership of private vehicles in rural areas continue to push down the demand for public transport. The climate surrounding the motor bus business remains extremely harsh.



### (ii) Chartered bus business

Since deregulations in February 2000, the chartered bus business has sponsored low-cost, diversified bus tours in its effort to deliver better user services, but competition is stiffening with increase in the population of operators in play. Meanwhile, chartered bus industry conditions are improving: Despite a previous downward trend for transport revenues due to developments such as smaller group sizes for group tours and lower prices for travel packages, revenue growth is now being seen as a result of factors that include new fares and costs systems being implemented that properly factor in safety costs and the increasing number of foreign travelers visiting Japan.

The Committee of Experts to Investigate Measures in Response to the Ski Bus Accident in Karuizawa put together comprehensive measures in response to the Karuizawa ski bus accident that occurred in January 2016. Based on these measures, efforts are being made to ensure safe and secure chartered bus services that include strengthening rules for charter bus operators.

### (iii) Taxi business

In the taxi business, the Act on Special Measures Concerning the Optimization and Revitalization of the General Passenger Car Transportation Business in Specified and Semi-Specified Areas was put into effect in January 2014 in order to, among other things, improve working conditions for drivers while providing better taxi services.

Pursuant to provisions of the law, the MLIT has designated 27 specified areas and 114 semi-specified areas, working to improve taxi business productivity by making efforts to rectify the current oversupply and stimulate demand.

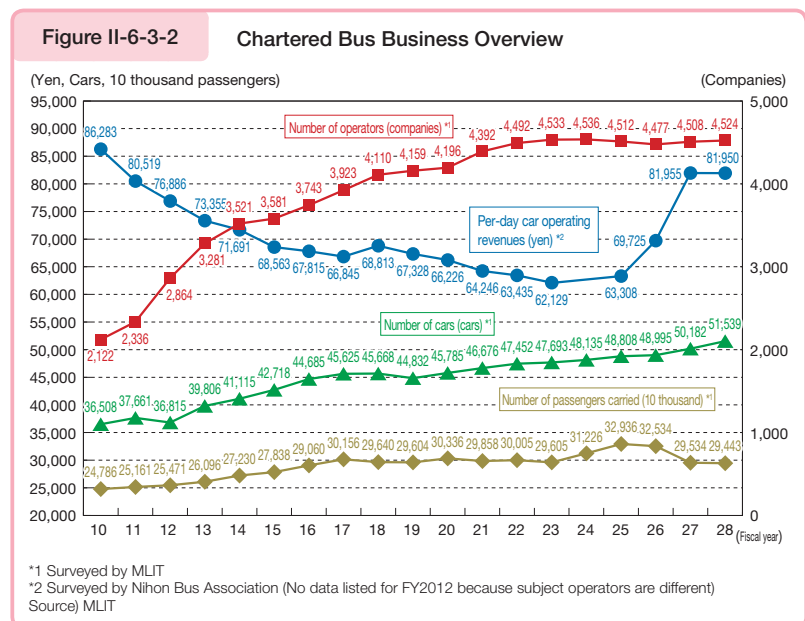
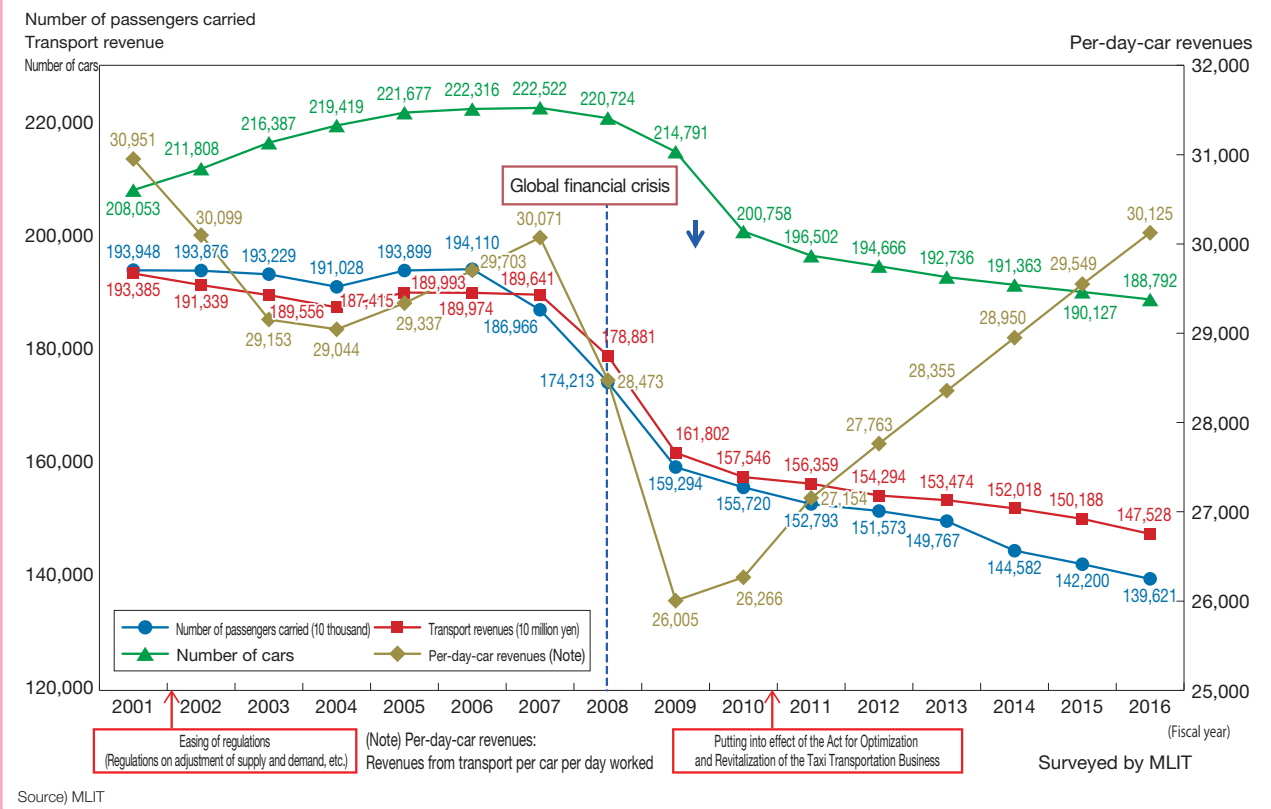




Figure II-6-3-3 Developments in Per Day-Vehicle Reviews of Hires and Taxes



(2) Replacement Driver Service

The replacement driver service is used as an alternate means of transport for drunken drivers. As of the end of December 2017, 8,850 replacement driver service providers are in operation. Keen to add to further soundness of the replacement driver service, the MLIT has formulated “Measures for Making the Replacement Driver Service More Sound for Added Safety and Security” in collaboration with the National Police Agency in March 2012 as part of its continuing effort to drive various relevant measures. Furthermore, the MLIT developed “measures to address issues concerning user protection toward appropriate operation of replacement driver services” in March 2016 in order to further ensure protection of users in replacement driver service, and these measures were implemented from April 2016.

(3) Truck Transport Business

The number of motor truck carriers had been on the rise for long, but the number of carriers has been moving crabwise at about 63,000 since 2008.

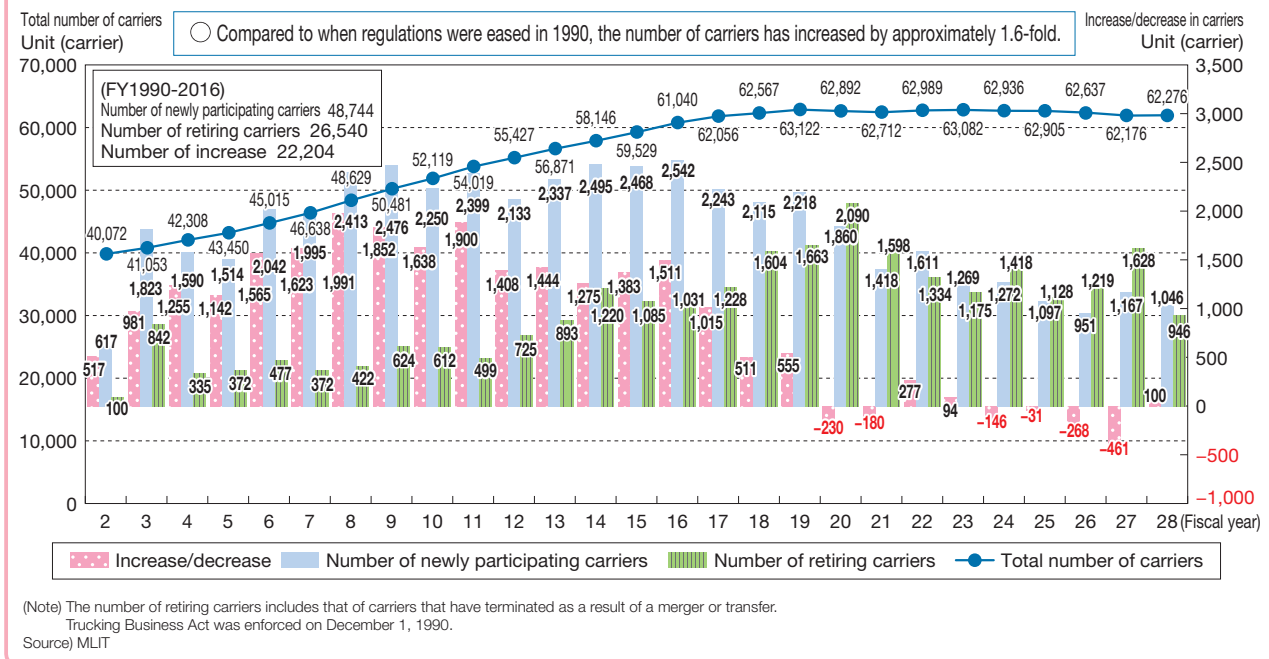
Because 99% of truck transport business operators are small and medium-sized businesses, they face issues such as being forced to accept long waiting times due to the circumstances of shippers, resulting in long working hours for drivers, and being in a weak position in relation to shippers and thus unable to demand appropriate fares. Therefore, in July 2017, in an attempt to understand the actual status of waiting times in order to reduce them, a measure was introduced obliging trucking business operators to record waiting times occurring at due to the circumstances of shippers. In other initiatives, the shipper recommendation system used when shippers have been involved in violations of laws and regulations by trucking businesses has been revised in order to increase its effectiveness, and a new approach to the operation of the system has been adopted; for example, the standards for judgment of the involvement of shippers have been clarified, and action is demanded from shippers at an early stage. In addition, as part of a framework devised by a council that has been meeting since FY2015, a pilot program was conducted in FY2016 seeking to shorten the currently long working hours of truck drivers through efforts that include decreasing standby time by means of collaboration between shippers and truck transport business operators. At the same time, an Investigative Commission for Proper Trucking Industry Fares and Fees has been established, and has begun holding discussions aimed at ensuring that the appropriate fares and fees are received.

In order to clarify the scope of “fares,” the compensation for transportation, and “fees,” the compensation for services other than transportation, the standard truck freight transportation contract was revised in August 2017, and the revision went into effect on November 4 of the same year.

Efforts have also been made toward improving business terms for truck transport business operators and conducting projects that seek to improve productivity.

As changing working arrangements is important to make working in the truck transport industry more attractive, efforts will continue to carry out these policies on a comprehensive scale.

Figure II-6-3-4 Trends in the Number of Motor Truck Carriers



#### (4) Securing and Fostering Bearers of Motor Carrier Businesses, etc.

Motor carrier businesses that undertake the movement of people and goods (trucking, bus and taxi businesses, and automotive maintenance business that contributes to safety assurance in these businesses) are a social infrastructural industry of vital importance to sustaining Japan’s economy and means of regional transportation.

A look into the employment structure of the motor carrier businesses, however, suggests that the workforce more or less depends on middle-aged and elderly workers, with female workers accounting only for about 2%. If this condition lasts, a serious shortage of bearers of these businesses is feared to occur in the future.

Because of this, motor carrier businesses (trucking, bus and taxi businesses), the Liaison Committee among Relevant Ministries and Agencies on the Reform of Work Styles in the Motor Carrier Industry, chaired by Deputy Chief Cabinet Secretary Kotaro Nogami, was launched in 2017, and is cooperating with related ministries and agencies to promote appropriate measures.

With regard to trucks, along with addressing issues concerning and carrying out policies aimed at driving a wider adoption of and achieving the practical application of relay transport, we are working on measures to secure bearers by, for example, disseminating information about the license for quasi-medium-size trucks program, enhancing information dissemination and awareness of business managers, leveraging “Female Truck Driver Promotion Project Site.”

The bus industry is advertising the job of bus driver as a choice for employment, and is creating flyers and leaflets targeting young female jobseekers. Bus companies are also working to recruit and train more bus drivers by creating recruiting and training handbooks.

In the taxi industry, June 2016 saw the launch of the Female Driver Support Enterprise certification program, which seeks to get and keep more women in the taxi workforce by supporting and advertising efforts aimed at improving female

driver employment and by businesses trying to make it easier for women with children to continue working.

In the automotive maintenance industry, public and private entities are working together to conduct PR and improve the perception of being a maintenance mechanic among women and younger people by means of initiatives including visiting high schools and putting up posters. In addition to this, based on the results of a survey of the actual status of the working environment and conditions for mechanics conducted by a panel of experts, further measures tailored to business type, size, etc. are being planned and initiatives pushed ahead in collaboration with industry stakeholders. In December 2017, Guidelines to Facilitate the Involvement of Female Workers in the Automotive Maintenance Industry were formulated and announced. Seminars focusing on securing human resources are also being held for the operators of automotive maintenance businesses in order to promote the securing and fostering of human resources in the industry.

Figure II-6-3-5 Employment Structure of the Motor Carrier Businesses, etc.

	Bus	Taxi	Truck	Automotive maintenance	Total industry average
Number of drivers and maintenance technicians	130,000 (FY2015)	340,000 (FY2015)	830,000 (2017)	400,000 (2017)	—
Female ratio	1.7% (FY2016)	2.7% (FY2016)	2.4% (2017)	1.4% (2017)	43.8% (2017)
Average age	49.8 (2017)	59.3 (2017)	47.8 (2017)	45.0 (2017)	42.5 (2017)
Working hours	210 hours (2017)	189 hours (2017)	217 hours (2017)	187 hours (2017)	178 hours (2017)
Annual income	JPY 4.57 million (2017)	JPY 3.32 million (2017)	JPY 4.54 million (2017)	JPY 4.27 million (2017)	JPY 4.91 million (2017)

(Notes) 1 Number of drivers and maintenance technicians: Figures for buses and taxis based on Road Transport Bureau survey  
 2 The ratio of female in automotive maintenance is that for second level automotive mechanics.  
 3 Figures for working hours were estimated by the MLIT's Road Transport Bureau from scheduled hours worked + nonscheduled hours worked in the Basic Survey on Wage Structure. Scheduled working hours indicate the number of hours actually worked during the hours from start time and finish time on scheduled work days in June each year as stipulated in employment rules or other such documents of the business office. Nonscheduled working hours indicate the number of hours actually worked outside the scheduled working hours and the number of hours actually worked on prescribed days off.  
 4 Annual income is the figures estimated by the MLIT's Road Transport Bureau from regular salary paid in cash x 12 + annual bonuses and other special salary in the Basic Survey on Wage Structure. Regular salary paid in cash means six-months' worth of salary paid in cash (before deducting income tax, social insurance premiums, etc.) and includes base salary, rank allowance, attendance allowance, commuting allowance, family allowance, overtime allowance and the like. Annual bonuses and other special salary means the amount of bonuses and special salary such as fiscal year-end special allowance paid during the January-December period of the year preceding the survey year.  
 (Source) Prepared by the MLIT's Road Transport Bureau from Labor Force Survey by the Ministry of Internal Affairs and Communications, Basic Survey on Wage Structure by the Health, Labour and Welfare Ministry, Japan's Bus Service by the Nihon Bus Association and Hire-Taxi Year Book by the Japan Federation of Hire-Taxi Associations, and Automotive Maintenance White Paper by the Japan Automobile Service Promotion Association.

### 3 Trends in Maritime Industries and Measures

#### (1) Achieving Stable Marine Transportation

##### (i) Achieving Japanese-flagged vessels and Japanese seafarers

As Japan is a nation with limited resources surrounded by the sea in all its sides, international shipping, which depends on 99.6% of the Japan's trade, plays a significant role in ensuring the country's economic security. As such, even in times of emergency, it is critical to maintain a sufficient number of Japanese vessels and Japanese mariners to eliminate jurisdictional competition with the country of vessel registry, and these numbers have been in decline as a result of weakened cost competitiveness brought about by a yen that has appreciated since the Plaza Accord.

To address this situation, a tonnage tax system<sup>Note</sup> went into effect in FY2009 for Japanese vessels owned by Japanese overseas ship operators who have been certified under the Japanese-flagged Vessels and Japanese Seafarers Securing Plan in accordance with the Marine Transportation Law. In FY2013, the system sought to supplement the number of Japanese vessels by expanding the scope of the system to vessels that are owned by the foreign subsidiaries of Japanese overseas vessel operators and that have taken measures to be flagged as Japanese-flagged vessels when navigation orders are given (referred to as Deemed-Japanese-flagged vessels). These efforts are helping to increase the number of Japanese vessels and mariners.

Furthermore, as a move to promote the more rapid achievement of stable marine transport, the Revised Marine Transportation Law and Mariners Act went into effect in October 2017. Among other things, this law allows foreign vessels that are owned by the foreign subsidiaries of Japanese vessel owners to be added to the list of Deemed-Japanese-flagged vessels if the vessels satisfy certain conditions. With this as a precondition, a new standard tonnage tax system will be launched in FY2018.

These initiatives aim to stabilize the marine transport business in Japan as quickly as possible.

**Note** A tax system in which the amount of corporate tax is calculated in relation to a fixed deemed profit based on the tonnage of the company's ships rather than annual profit. This system has been introduced by major shipping nations throughout the world.

## (ii) Acquiring and fostering seafarers (Seamen)

Acquiring and fostering Japanese ship's seafarers, human resources of marine transportation, is of essential importance to boosting Japan's economy and maintaining and upgrading national life. The ratio of coastal shipping seafarers aged 60 or older is increasing, but the number of young seafarers is also on the increase, in part as an effect of public-private efforts to secure young seafarers. However, it is also essential to secure and foster an adequate number of young seafarers in the future. In response, efforts are underway to expand employment opportunities for new seafarers. One such effort involves strengthening the system for supplying seafarers, for example by diversifying the avenues by which seafarers are able to find employment through measures including providing support for conducting short-term training courses for individuals who have not graduated from a mariner training institute, and offering direct invitations to culinary schools to participate in company briefing sessions. Another effort involves supporting business operators that systematically employ and foster new seafarers.

On the other hand, a certain number of ocean-going Japanese sailors need to be secured and fostered from economic security and other perspectives. Therefore, we are making efforts to secure Japanese seafarers, including steady implementation of the plan to secure Japanese vessels and seafarers.

As Asian seafarers account for a greater proportion of the total seafarers aboard Japanese merchant fleet, training aimed at improving the skills of mariner's instructors in the developing nations has been conducted to help secure and foster more capable Asian seafarers.

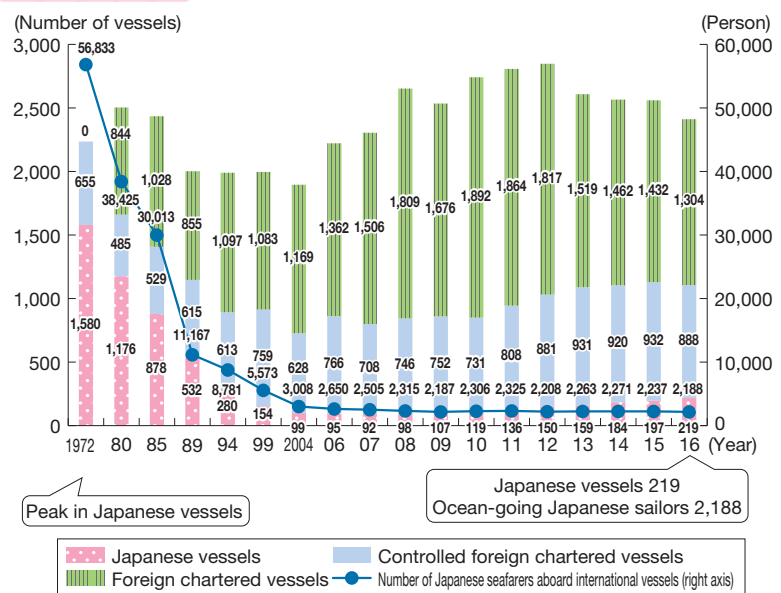
Japan agency of Maritime Education and Training for Seafarers (JMETS) is Maritime Education and Training institutions over which the MLIT holds jurisdiction. JMETS is the largest Maritime Education and Training institute in Japan. It provides education and training for newcomers, practical training according to needs of shipping companies, and on board training for students of maritime universities and colleges of technology.

Going forward, JMETS is steadily pushing forward the securing and fostering young seafarers by advancing training contents and making the best use of its resources.

In addition to these efforts to secure and foster seafarers, continued efforts will be directed at promoting On-board Occupational Health and Safety Management System and Work Improvement on Board (WIB), a continual approach to reducing seafarers accidents to add to the vocational charms of the job of being a seafarer.

Figure II-6-3-6

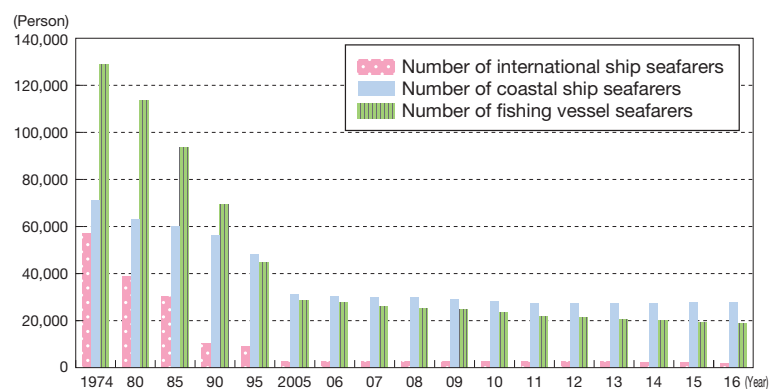
Trend in Number of Japanese Seafarers Aboard International Vessels, Japanese Merchant Fleet



Source) MLIT

Figure II-6-3-7

Changes in the Number of Japanese Seafarers



Source) MLIT

## (iii) Promotion of the understanding of ocean by the public

While achieving stable marine transportation is crucial in supporting the Japanese economy and national life, the understanding of sea by the public is not necessarily sufficient. To this end, the MLIT is working with local governments, businesses, related groups, schools, boards of education, and other organizations to promote the understanding by the public -young people in particular- on maritime affairs through initiatives that include a variety of events such as the Sea-Festa (held in Kobe City in 2017) in Ocean Month, which centers on Marine Day, and commending those who have been instrumental in helping Japan to grow into a maritime nation (Prime Minister's Commendation). In addition, we worked on "The Ocean and Japan Project" throughout the year.

Further to this, maritime education programs for elementary and secondary school education have been created in response to the fact that the description of the importance of the oceans and maritime affairs has been enhanced in the Ministry of Education's curriculum guidelines for elementary and junior high schools (revised in March 2017). Going forward, we will further strengthen cooperation between regional transportation bureaus/related organizations and Boards of Education, etc. working to realize maritime education with a focus on elementary and junior high schools that is firmly based on the particular characteristics of specific regions.

## (2) Marine Transportation Industry

## (i) International shipping

The volume of cargo movement on ocean in the world for 2016 stood at 11.091 billion tons (up 2.7% year-on-year) with Japan's volume of seaborne trade for the same year at 0.93522 billion tons (down 1.2% year-on-year).

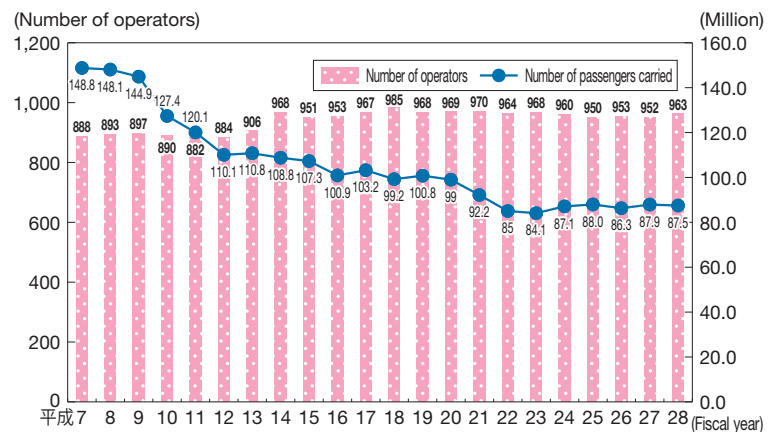
Despite an improvement in the business environment for the international shipping sector as a result of factors including a moderate economic recovery and a decline in fuel oil prices centering on the US and China from the second half of the previous year, overall, international shipping business conditions were severe in FY2017 due to a historically low level of shipping fares.

## (ii) Domestic passenger shipping business

Domestic passenger shipping business demand was 87 million passengers (0.5% down from the previous year) in FY2016. The trend is downward on a long-term basis attributable to changes in Japan's demographic structure, among other factors. Fuel prices are recently stable, but business environment is still in difficult situation. The domestic passenger shipping business plays an important role as a means to transport people and daily commodities from region to region, and holds promise as a way to increase tourism among those interested in maritime scenery and other opportunities. The ferry business has modal shift potential and serves a key role in providing transport after natural disasters occur.

This has prompted the MLIT to provide support for the construction of highly energy-efficient vessels through preferential tax measures and a joint shipbuilding program administrated by the Japan Railway Construction, Transport and Technology Agency. In addition, in order to further promote modal shift in shipping, we have established the "Council for the Promotion of Maritime Modal Shift" in November 2017, made up of RORO ship, container ship and ferry operators, in addition to actors including consigned freight forwarding businesses, trucking businesses, shipper, and the authorities, and the council is proceeding with discussions towards the creation of a centralized search system for operating information on modal shift ships and the establishment of a new award, the "Maritime Modal Shift Award (tentative name)."

Figure II-6-3-8 Trends in the Number of Domestic Passenger Ship Operators and Number of Passengers Carried



(Notes) 1 Sum total for general passenger liner routes, specified passenger liner routes and passenger non-liner routes  
2 Number of operators as of April 1 of each year (as of August 1 for 1965-1969)  
Source) MLIT

At the same time, the MLIT is supporting the development of new tourism-related services under the “Model Zones for Boat Travel Revitalization” system, which was launched in April 2016 (18 zones had been established as of the end of March 2018). In addition, the “Project for Emergency Measures to Develop the Environment for Receiving Foreign Tourists Visiting Japan” is advancing necessary measures to increase convenience for overseas visitors, for example by supporting the establishment of free public wireless LAN environments and the use of multiple languages on information signs, etc.

### (iii) Coastal shipping

The coastal shipping volume in FY2016 was 180.4 billion ton-km. Although recent years have not seen any significant decline, the long-term view trends downward for transport demand for industrial base materials, in particular, due to factors that include a stagnant domestic economy, intensifying international competition, and business mergers among shippers. Coastal shipping accounts for 44% of domestic logistics and roughly 80% of industrial basic materials transport, and constitutes a core transport infrastructure supporting Japan’s economy and the lifestyles of its people. Along with ferry transport, it is a key element for achieving modal shift. However, overage vessels comprise 70% of all domestic vessels at sea and more than 50% of seafarers are 50 or older. This “dual aging” of vessels and seafarers presents a systematic problem.

In response to these issues, the “Panel to Consider Future Measures for Coastal Shipping Revitalization” was established in April 2016, and commenced discussing directions for measures to promote development of coastal shipping that ensure the sustainable provision of safe, high-quality transport services. In June 2017, the panel compiled the “Plan for the Future Creation of Coastal Shipping” as a new industrial policy. As a future vision for the coastal shipping, the plan positions “ensuring stable transportation” and “increasing productivity” as its twin axes, and sets out concrete measures towards the realization of these goals, including strengthening the business foundation for coastal shipping operators, developing and popularizing advanced ship and ensuring the stable and effective securing and fostering of seafarers, etc.

Figure II-6-3-9 Future vision and concrete measures specified by the “Plan for the Future Creation of Coastal Shipping”

- The functions of coastal shipping as a core transportation infrastructure that transports basic resources for industry and supports modal shift will be essential into the future. In addition to this, it is necessary to increase productivity of society as a whole. Given this, in order to rapidly solve the issues facing the current coastal shipping, it is necessary to put measures in place after clarifying the future vision that the industry should aim for. To this end, we have positioned “ensuring stable transportation” and “increasing productivity” as the twin axes of a future vision for the industry.
- Looking towards the realization of each of these goals, we have formulated a range of concrete measures including the strengthening the business foundation for coastal shipping operators, developing and popularizing advanced ship and ensuring the stable and effective securing and fostering of seafarers, etc, and we have also specified schedules for the respective measures.



<Concrete measures towards the realization of the future vision>

#### 1. Strengthen the business foundation for coastal shipping operators

- Promotion of utilization of ship management companies
  - Creation of registration system for “Minister of Land, Infrastructure, Transport and Tourism-registered ship management companies” (tentative name) (2018 - )
- Enhancement of initiatives via cooperation between shippers and maritime transport businesses
  - Establishment of “Stable and Efficient Transport Council” (tentative name) (2017 - )
- Identification of new transport demand
  - Establishment of “Council for the Promotion of Maritime Modal Shift” (Tentative name) (2017 - )
  - Creation of centralized search system for operating information on modal shift ships. (2017 - )
- Improvement of port infrastructure, reinforcement of logistics network functions at port

#### 2. Develop and popularize advanced ship

- Develop and popularize ships employing IoT technologies
  - ~ Realization of I-Shipping in coastal shipping field ~
  - Development of Auto-Shipping (2025 tentative target)
- Support for smooth alternative shipbuilding
  - Enhancement of preferential treatment under a joint shipbuilding program administrated by the Japan Railway Construction, Transport and Technology Agency (2018 - )
- Advancement of energy-saving and CO<sub>2</sub> emission reduction measures in ships
  - Creation and promotion of an “energy conservation rating system” for coastal ships (2017: Provisional tests; 2019: Fully-fledged introduction)
  - Efforts towards promotion of the use of alternative fuels (Promotion of use of LNG-fueled ships as “advanced ship”)
- Realization of increased productivity in shipbuilding industry

#### 3. Stable and effective securing and fostering of seafarers

- Fundamental reforms of the seafarer education system towards the realization of high-level education in maritime skills
  - Educational reform in the fourth grade marine engineer training course of the Japan Agency of Maritime Education and Training for Seafarers (expansion of student capacity, etc.)
- Creation of attractive working environments for seafarers
  - Even when the living quarters of ships under 499 tons are expanded, consideration of application of existing crew allocation standards and relaxation of safety standards (2017 - )
  - Securing of human resources able to cook onboard ships · Review of standards for approval of seafarer dispatch businesses (2017 - ), etc.
- Realization of increased productivity through reform of work styles
  - Review of optimal crew allocation, etc. (2017 - )

#### 4. Responses to other issues

- Responses based on status of and future outlook for businesses related to provisional coastal shipping measures
- Promotion of thinking about maritime affairs
- Responses to regulation of concentration of sulfur in fuel oil employed in ships

Source) MLIT

(iv) Port and harbor transportation business

The port and harbor transportation business plays a significant role as an interconnecting node between marine sea and land transportation in support of Japan's economy and national life. As of the end of March 2017, there were 865 transporters (0.3% down from the previous year) in the general port and harbor transportation business at the 93 ports nationwide that are governed by the Port and Harbor Transportation Business Act. Vessel loading and unloading volumes for FY2016 were approximately 1.4 billion 1,128 million tons nationwide (up 0.9% from the previous year).

(3) Shipbuilding Industry

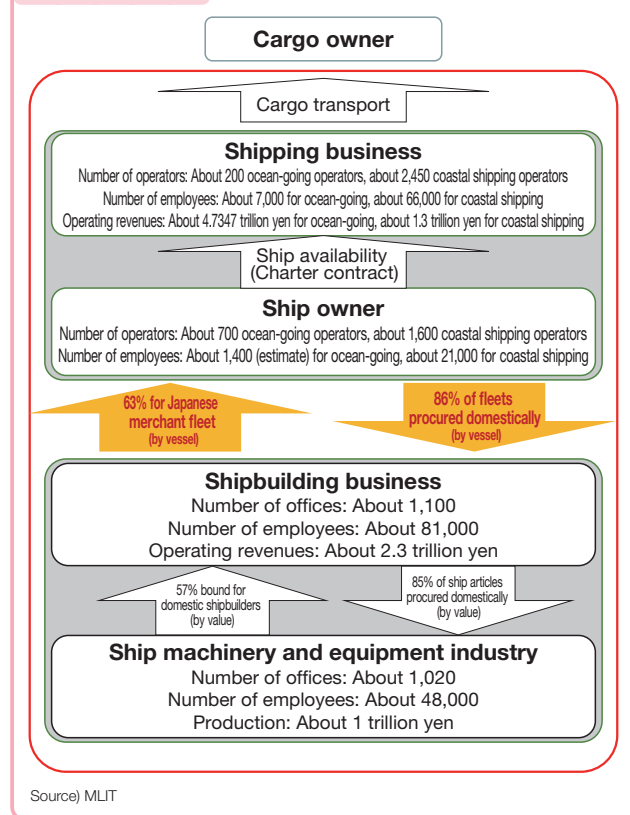
(i) Present status of the shipbuilding industry

Japan's shipbuilding industry is an extremely important industry that contributes to regional economy and employment by providing a stable supply of quality vessels tailored to ship owner's varied needs. Japan possesses a clustered integration of maritime industries in which the marine transport business, shipbuilding business and ship machinery business are closely linked to one another.

In the shipbuilding industry, due to factors including the improvement of conditions for competition as a result of the correction of the excessive appreciation of the yen since the end of FY2012, the market for high-performance, high-quality Japanese vessels demonstrated a recovery, with order volume in Japan increasing for three consecutive years. However, in 2016, the volume of orders received by Japan dropped precipitously, linked to a decline in the global order volume as a result of the effect of factors including worsening of the maritime shipping market and an excess of freight space.

The 2017 domestic construction volume was 13.17 million gross tons (versus 67.63 million gross tons globally), giving Japan 19.5% of the global market (a 0% year-over-year increase). The manufacture of ship machinery products for 2016 was valued at 975.7 billion yen (down approximately 4.5% year-over-year), with an export amount of 387 billion yen (up about 9.8% year-over-year).

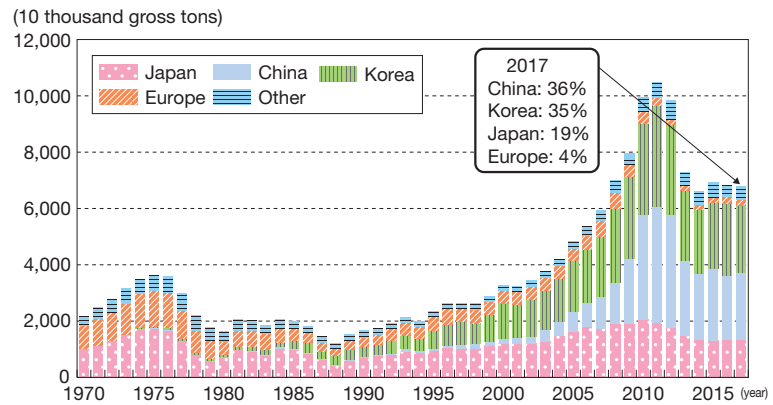
Figure II-6-3-10 Japan's Maritime Industry Cluster



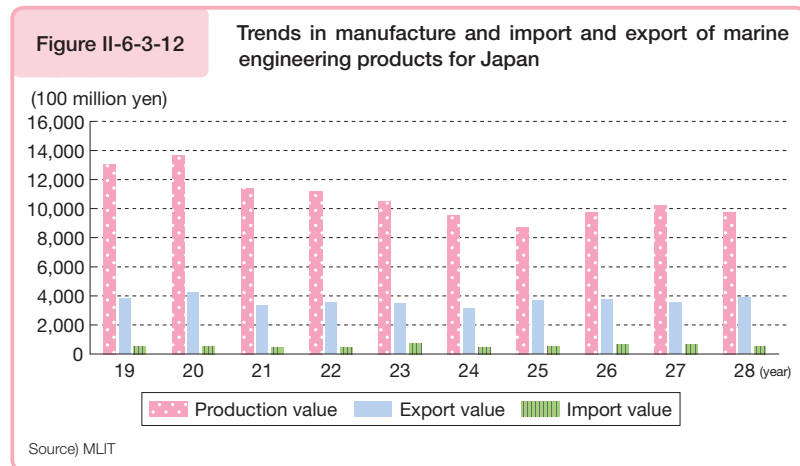
Source) MLIT

Figure II-6-3-11

Developments in the Volume of Newly Built Ships in the World



Source) Prepared by MLIT from HIS (former Lloyd's Register of Shipping)



#### (ii) Approaches to consolidating the international competitiveness of the shipbuilding industry

In order to help ensure that the domestic shipbuilding industry wins out in fierce competition into the future, it will be essential to actively utilize technologies including ICT, which has displayed rapid development in recent years, in Japan's shipbuilding and shipping industries, seeking to further increase the level of production efficiency and improve the energy-saving technologies that are particular strengths of the shipbuilding industry.

To this end, since 2016, the MLIT has been using ICT and other technologies through all phases of seagoing vessel preparation, including development, construction, and sending into service. The result is an initiative known as i-Shipping, which seeks to improve production site productivity, cut down on the wasteful use of fuel, and completely eliminate losses of time due to malfunctions.

Specifically, efforts are underway to speed up the development of new types of vessel, improve the productivity of production sites, and introduce high value-added ships. Support is being provided to businesses that are making active efforts to increase productivity by means of initiatives including subsidization of technological development and the introduction of tax measures related to capital investment. Discussions have also been commenced regarding the formulation of a roadmap towards the practical realization of "Maritime autonomous surface ship". In addition, seeking to provide impetus to the practical realization of advanced ships, the revision of the Marine Transportation Act and Mariners Act in April 2017 established a certification system for plans regarding the introduction of advanced ships. The system commenced operation in October 2017, and has been providing support for the formulation of relevant plans.

Coordinated efforts by government, industry, and academia are under way with the goal of acquiring and training more personnel for the shipbuilding industry, one of the core principles of i-Shipping. These efforts include promotion of internships for high school teachers and students to deepen their understanding on appeals of shipbuilding, and improving the quality of shipbuilding education provided at technical high schools. As an urgent and time-critical measure, in order to enable the utilization of foreign human resources, we have modified the system in relation to businesses that accept foreign shipbuilding workers to allow, for example, workers who commenced employment by the end of FY2020 to continue working until FY2022 at the maximum. By means of these measures, we are working to bolster Japan's international competitiveness, seeking to increase the global market share of Japan's shipbuilding industry to 30% by 2025.

#### (4) Offshore Industries

Offshore development, represented by offshore oil and natural gas production, is an area in which medium- to long-term growth is expected. In addition, there are many types of vessels used in this field and the revenue per construction is considerable. As such, offshore development is an important field for Japan's maritime industries (e.g. marine transportation and shipbuilding). However, as there is no domestic field for offshore resource development, the offshore industries in Japan are still immature. j-Ocean, one element of the MLIT's Productivity Revolutionization Project, is therefore aiming to improve such areas as the technical capabilities of Japan's maritime industries in a wide range of fields, from the design to the construction to the operation of facilities used in the area of offshore development, and gain business in offshore development market. Setting the continuing development and improvement of educational materials for the



training of offshore development engineers, which represents a pressing need, as our first agenda, we have developed educational materials for university students.

### (5) Promoting Awareness of Maritime Affairs (C to Sea Project)

On Marine Day in 2017, the Prime Minister issued a message expressing his hope that each and every citizen of Japan would bring interest and understanding to the ocean, would make contact with the ocean, and would come to know the ocean. Based on this message, as part of “The Ocean and Japan Project”, MLIT commenced the “C to Sea Project”, which seeks to help a greater number of people, in particular children and young people, to get to know the pleasures of the ocean and boats in summer 2017. This project is advancing a diverse range of initiatives, such as the holding of events to allow citizens to become more familiar with the oceans and the strategic issuing of information, on the basis of public-private collaboration.

## 4 Trends in Air Transport Business and Measures

In regards to circumstances surrounding the aviation industry, demand was robust overall due to a rise in the number of inbound foreign visitors during a moderate recovery in domestic and overseas economies. A survey of Japan’s air transport results shows that numbers began to increase from FY2012 as a result of factors including demand generated by efforts towards recovery from the Great East Japan Earthquake and increased demand with the entry of LCC to the market. In FY2016, the number of domestic passengers reached 98.12 million (up 2.1% year-over-year), and the number of international passengers reached 21.05 million (up 11.7% year-over-year). Both of these figures represented new records against past figures.

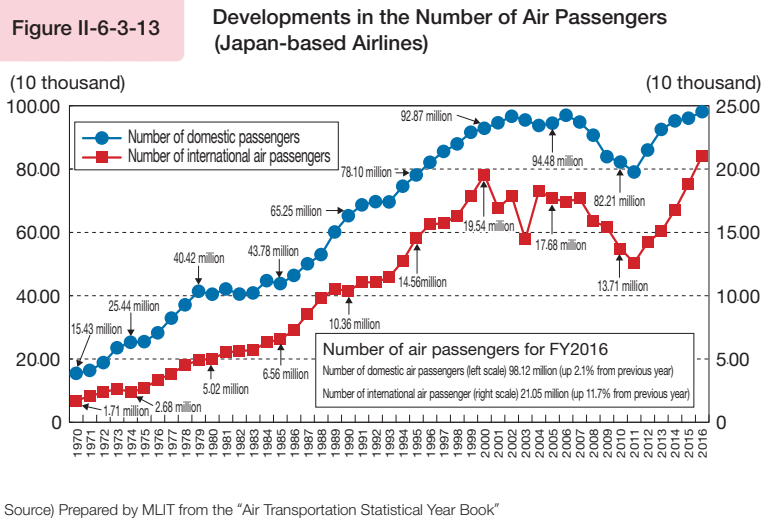
Since March 2012, LCC have successively entered the Japanese market, and as of March 2018, five Japanese LCC were in operation. Peach Aviation operates 15 domestic and 14 international routes; JetStar Japan, 17 domestic routes and nine international routes; Vanilla Air, six domestic routes and seven international routes; Spring Airlines, two domestic routes and four international routes; and Air Asia Japan, one domestic route. In FY2016, Japanese LCC held a 9.7% share of passengers on domestic routes, and an 18.9% share of passengers on international routes.

## 5 Trends in the Consigned Freight Forwarding Business and Measures

The consigned freight forwarding business<sup>Note</sup> is combined with multiple means of transport to provide services specific to varied user needs. Recent years have witnessed growing entry into the aircraft- and ship-based segments of international shipment to reflect the cargo owners’ needs for globalization.

Further, while international trade becomes increasingly important and its speediness is globally required, safety assurance during transportation is also essential. The MLIT works to ensure the availability of safe and secure logistics services, as by conducting audits, etc. to consolidate thorough operator code compliance.

**Note** Businesses that provide cargo transportation services using the transport methods (motor freight vehicles, rail, airplanes, ships) of actual transportation companies (i.e., companies that actually transport freight themselves) to provide door-to-door service, from cargo collection to delivery.



## 6 Trends in the Warehousing Business and Measures

Commercial warehouses play a significant role as nodal points for logistics. With an increase in the scale of logistics facilities in order to increase operational efficiency and introduce a greater range of functions in warehouse work in response to an increase in mail order sales and the need to concentrate functions, demand for human resources to work in logistics facilities including warehouses is increasing. At the same time, an increase in factors such as the siting of these facilities in the suburbs, beyond a ready supply of labor, is making it difficult to secure human resources, including resources for warehouse work. Against this background, we are advancing efforts that will contribute to saving labor and increasing productivity in warehouse work.

## 7 Trends in the Truck Terminal Business and Measures

The truck terminal business plays a significant role in streamlining the flow of transport, mitigating congestion and so on as a nodal point of trucking between a trunk line and a terminal. In recent years, the construction of facilities that provide the functionality of a distribution center (sorting, processing for distribution and so on), as well as loading and unloading, is in progress to meet the sophisticated and diversified needs for logistics.

## 8 Trends in the Real Estate Business and Measures

### (1) Real Estate Business Trends

The real estate business is one of the key industries that command 3.0% of the total sales of all industries and 11.6% of the total number of corporations (FY2016).

According to 2018 official land prices (as of January 1, 2018), with regard to the average rate of fluctuation, the national average for residential land prices increased for the first time in 10 years after leveling out in the previous year, while commercial land prices increased for the third consecutive year, and industrial land prices increased for the second consecutive year. Average prices for residential properties, commercial properties and industrial properties increased in each of the three major metropolitan areas. In addition, the amplitude of decline in residential land prices in rural areas continued to shrink, while commercial and industrial land prices increased for the first time in 26 years. In FY2014 the number of housing starts dropped to 880,000, a decline against the previous year, against the backdrop of a last-minute surge in demand in the previous year in response to a consumption tax hike. The number then increased to 920,000 in FY2015, and increased further, to 970,000, in FY2016.

In the existing housing distribution market, the number of successful deals was 1,790,000 in FY2017 (up 0.4% from the previous fiscal year) according to the Real Estate Information Network System (REINS)<sup>Note</sup>.

### (2) Status of the Real Estate Industry

The Ministry endeavors to ensure precise administration of the Real Estate Brokerage Act to protect consumer interest involved in housing land and building deals and to expedite distribution. The number of real estate dealers was 123,416 at the end of FY2016.

The MLIT, along with prefectural and municipal governments, endeavor to prevent complaints and disputes by working in conjunction with the bodies concerned while imposing severe supervisory dispositions on those entities that have breached the law. In FY2016, 251 supervisory dispositions were imposed (including 168 revocations of licenses, 55 suspensions of business and 28 orders).

To ensure the proper management of condominiums, the MLIT is taking measures aimed at registering condominium managers and ensuring proper business operations in accordance with the Act on Advancement of Proper Condominium Management. As of the end of FY2016, the number of condominium management service entities was 2,131.

Moreover, on-site inspections are being conducted and the necessary guidance and oversight is being provided to con-

**Note** A system by which the parties to a real estate transaction register information regarding the transaction with a designated distribution mechanism, and the information is exchanged between businesses. Information including the transaction price of contracted properties is accumulated by the designated distribution mechanism.

dominium management service entities in the interest of, among other things, preventing wrongdoing.

Since December 2011, a “system of rental housing management entity registration” that places a certain set of rules on the fulfillment of rental housing management services has been put into effect to foster and develop a good-quality rental housing business. As of the end of FY2016, the number of registered rental housing management entities was 3,896. In response to revision of the system in August 2016, we organized a review meeting and reconsidered the standard leasing agent and property management agreements.

In addition, in June 2017 the Residential Accommodation Business Act was passed in order to promote min-paku services based on appropriate regulation. The residential accommodation business was defined as a new form of business related to short-term leasing. Following this, we worked to ensure the smooth entry of the law into effect in June 2018, through initiatives including the formulation of standard management subcontracting agreements and the organization of explanatory briefing sessions regarding the system.

### (3) Conditioning the Environment for Market Reactivation

#### (i) Status quo of the real estate investment market

Japan’s real estate had a total asset value of about 2,562 trillion yen as of the end of 2016<sup>Note 1</sup>.

The book value of the real estate or the trust beneficiary interest in real estate that were acquired by J-REITs (real estate investment corporation), real estate specified joint enterprises, specific-purpose companies and so on as objects of securitization during FY2017 stood at about 4.8 trillion yen.

J-REITs play a central role in the real-estate investment market. As many as three brands were newly listed in just one year in FY2017. As of the end of March 2018, 60 brands were listed on the Tokyo Stock Exchange. Total book value of assets under management of J-REITs amounts to 18.6 trillion yen and the market value of the real-estate investment securities adds up to about 11.9 trillion yen.

The Tokyo Stock Exchange REIT Index, which indicates price movements across the entire J-REIT market, declined from around 1,850 points to around 1,600 points as a result of factors including instability in long-term interest rates and the cancellation and sale of monthly dividend-type investment trusts in 1H 2017. At the beginning of the second half of 2017, the index rose to around 1,700 points due to a focus on the high level of yield consequent upon a decline in REIT stock prices. Following this, after declining again to close to 1,600 points due to factors including an increase in long-term interest rates, geopolitical risk (the situation in East Asia, etc.), and the price of US stocks, buying proceeded as a result of a perception that prices were undervalued, and the index rose to higher than 1,650.

The amount of yearly property acquisition in J-REITs stood at about 1.3 trillion yen for 2017.

#### (ii) Conditioning the environment for real estate investment market

In June 2017, we formulated the Action Plan for the Growth of the Real Estate Investment Market<sup>Note 2</sup>, which seeks to realize a target of approximately 30 trillion yen in assets held by J-REITs, etc. by 2020.

#### (iii) Promotion of utilization of public real estate

By means of dispatching experts to local governments and conducting consultations with stakeholders such as private-sector businesses, we surveyed and considered the conditions for proceeding with the securitization of public real estate (PRE), and we revised our handbook for local government employees.

**Note 1** Total asset value of buildings, structures and land based on national economic accounting.

**Note 2** The pillars of the concrete measures are: 1. Reform of CRE, etc. (Invigoration of corporate/organization real estate market); 2. Reform of J-REIT market, etc.; 3. Reform of investment environment for real estate investors; 4. Reform of development of human resources

**(iv) Promotion of diversification of J-REITs**

Up to the present, J-REITs have mainly focused on offices, residences and commercial facilities when acquiring assets, but more recently the acquisition of assets including hotels, logistics facilities and healthcare facilities has been progressing. In order to contribute to the further expansion of the J-REIT market, we held seminars concerning healthcare REITs for nursing care and medical facilities in cooperation with related ministries and agencies.

**(v) Promotion of spread of environmental real estate**

Based on the global trend of ESG investment, which is seeing investors demand that companies consider the environment, society and governance, we conducted reviews towards the promotion of the spread of an approach to real estate that focuses on factors such as health and comfort. In addition, in order to facilitate the formation of high-quality real estate including environmental real estate, in FY2017 we decided to contribute to a public-private fund that will invest in four environmental refurbishment projects as part of our project for the promotion of the formation of earthquake-resistant/green buildings.

**(vi) Promotion of specified joint real estate ventures**

The Act for the Partial Revision of the Act on Specified Joint Real Estate Ventures, which has among its chief points of focus the creation of small-scale specified joint real estate ventures, the establishment of an environment to respond to crowdfunding, and the creation of projects limited to Qualified Special Investors, was promulgated in June 2017, and went into effect in December of the same year. In addition to holding explanatory briefing sessions and seminars regarding the law throughout the country, providing an overview of the revision to businesses and other stakeholders, we have put in place the necessary measures to ensure the appropriate implementation of the law, for example by formulating procedural handbooks and model contractual provisions, in addition to making efforts to promote the utilization of the new system, for example by dispatching experts to businesses considering receiving registration in relation to specified joint real estate ventures.

**(vii) Creation of an environment for real estate information**

MLIT is publishing information related to real estate by the following means, in order to increase the transparency of the real estate market and facilitate and invigorate transactions in the market.

**(a) Real estate transaction price information**

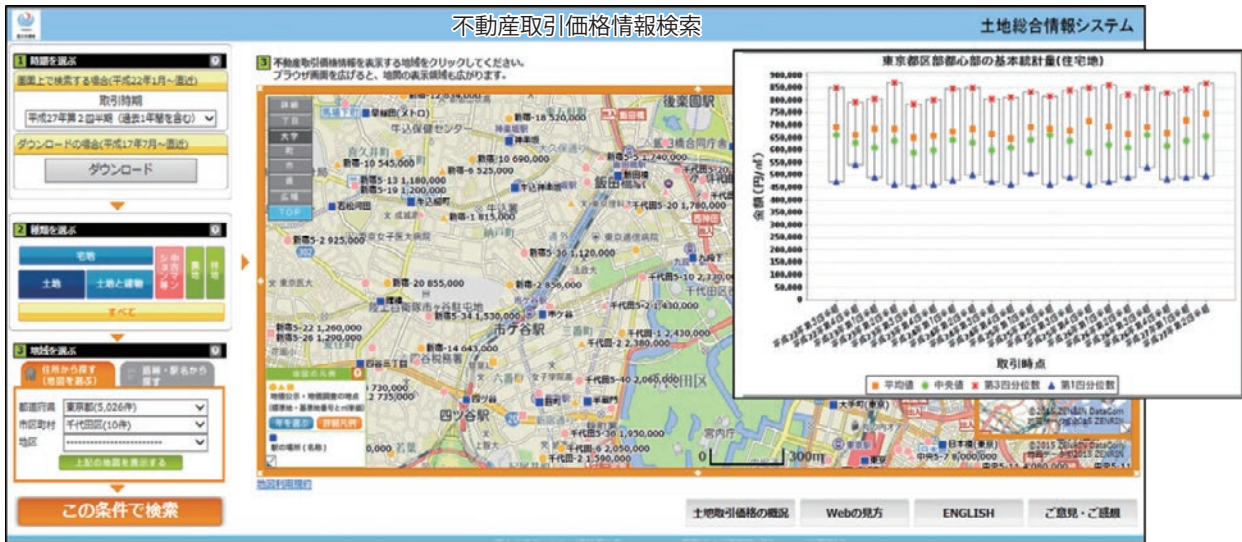
We conduct surveys of real estate transaction prices throughout the country. Based on the information that we obtain by means of these surveys, we publish information including the location, area and price of the real estate subject to the transactions via the Internet (in the Land General Information System), taking care to ensure that individual transactions cannot be identified. As of the end of March 2018, information concerning 3,265,830 transactions had been presented, and site access had reached approximately 790 million.

**(b) Property price index**

Based on standards formulated by the IMF and other international organizations, we publish a property price index (residential) every month. We also publish property price index (commercial) on a quarterly basis, but this is currently at the stage of test operation.

Figure II-6-3-14 Land General Information System

- Since April 2006, transaction price information based on questionnaires conducted among parties to real-estate deals has been posted every quarter on an MLIT website, with care to protect the properties in question from being identified easily.
- As of the end of March 2018, information on 3,265,830 properties was posted, attracting a total of about 790 million Web accesses.



土地総合情報システム Land General Information System

平成25年第3四半期～平成27年第2四半期の東京都千代田区土地取引件数 1,409 件

検索条件: [種類] 土地 [地域] 東京都 千代田区 [取引時期] 平成25年第3四半期～平成27年第2四半期  
検索結果: 35件中 1件目～20件目を表示中(1/2ページ目)

件数表示	所在地	地域	種別	用途	取引時期	買値	売値	土地	面積	形状	用途	築年	築年	築年	取引時期	
1	千代田区一橋町	住宅地	単独門	3階	460,000万円	650万円	2,000㎡以上	200万円	標準形状	8.0m	区道	北東	2階建	60%	400%	H25/10-12月
2	千代田区船橋	商業地	単独	4階	5,600万円	320万円	60㎡	97万円	ほぼ正方形	6.0m	区道	北東	商業	80%	600%	H26/01-03月
3	千代田区内神田	商業地	小川の(東京)	5階	11,000万円	330万円	70㎡	160万円	ほぼ正方形	6.0m	区道	北	商業	80%	600%	H26/10-12月
4	千代田区錦町	商業地	雑居(東京)	4階	11,000万円	540万円	70㎡	160万円	扇形	4.0m	区道	北西	商業	80%	600%	H26/04-06月
5	千代田区錦町	商業地	雑居(東京)	3階	90,500万円	1,000万円	300㎡	300万円	標準形状	10.0m	区道	南東	商業	80%	600%	H26/01-03月
6	千代田区錦町	商業地	雑居	2階	31,000万円	1,100万円	90㎡	340万円	標準形状	22.0m	都道	南東	商業	80%	600%	H25/10-11月

Source) MLIT

(viii) Conditioning the existing home circulation market

The MLIT is working to condition the existing home trading environment to promote the circulation of existing homes, which have a low share of the total volume of housing in circulation when compared with the U.S. and Europe.

In FY2017, looking towards the putting into effect of the Revised Real Estate Brokerage Act (formulated in June 2016 and going into effect in April 2018), which will promote the use of building condition surveys (inspections) conducted by experts by the parties to transactions involving residential buildings, we worked to ensure that stakeholders were aware of the system, for example by holding explanatory briefing sessions concerning the details of the system.

In addition, in order to enhance intermediary and buyer matching functions in relation to empty houses, we revised the Remuneration Notification<sup>Note</sup> in order to allow, in relation for example to low-price empty houses for which a higher amount of on-site survey expenses than normal are required, an amount of remuneration that considers these fees in addition to the standard upper limit for remuneration to be received from the seller. In addition, we have commenced trial operation of a National Empty House/Vacant Land Bank that allows users to search information on empty houses and vacant land throughout the country in one location.

**Note** "The Amount of Remuneration receivable by a Building Lots and Buildings Transaction Business in relation to the Buying and Selling, etc. of Residential Land or Buildings" (1970, Ministry of Construction Notification 1552)

**(ix) Utilization of land tax system**

In addition to extending measures for adjustment of the burden of land-related fixed asset taxes and the reduction system ordinance, the 2018 reform of Japan's taxation system also extended the deadline for the application of special measures to the real-estate acquisition tax related to land.

**(x) Improvement of institutional infrastructure supporting the real estate market**

The Panel concerning the Real Estate Appraisal System, convened to consider the issues of the real estate appraisal system, compiled a Future Orientation for the Real Estate Appraisal System (Proposals for Immediate Measures).

In addition, in order to further increase the reliability of real estate appraisal, we monitored appraisals, for example by accompanying appraisers during appraisals.

## 9 Building a Sustainable Construction Industry

### (1) Conditions Surrounding the Construction Business

As an essential player in developing social infrastructure, the construction industry plays a major role in helping to achieve a bright future for Japan through efforts that include urban revitalization and rural area development. It is also a very important defender of Japan's communities, helping with recovery from earthquakes, taking measures to prevent and mitigate disasters, carrying out strategies to address aging facilities, and performing maintenance.

However, the rising proportion of elderly citizens in Japan is leading to systemic problems that include a declining number of young workers in the construction industry and a greater proportion of older workers. Addressing these problems, and building a sustainable construction industry, will be critical.

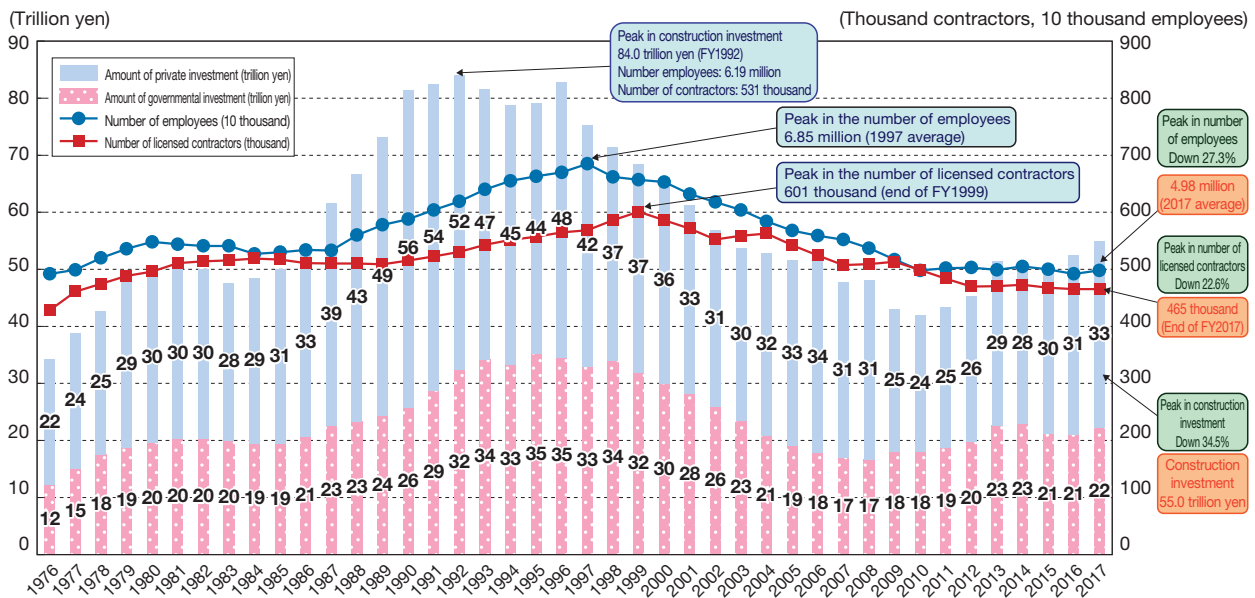
Under this circumstance, the Construction Industry Policies Research Group was launched in October 2016, and conducted studies regarding the basic framework for systems related to Japan's construction industry, seeking to ensure that the industry maintains its capacity at the construction site while also boosting its productivity 10 years into the future. In July 2017, the Research Group compiled the report Construction Industry Policy 2017 + 10 – Talking to Young People about Tomorrow's Construction Industry. Taking this report into consideration, MLIT has been working with a sense of urgency to steadily implement and materialize the policies it proposes, for example by conducting a survey of management items and revising the standard contractual provisions for construction contracting in July 2017, and formulating the Guidelines for Appropriate setting of Construction Periods, etc. in August 2017.

In addition, a Basic Plan based on the December 2016 Act ensuring the Safety and Health of Construction Industry Employees was approved by the Cabinet in June 2017.

Figure II-6-3-16 shows trends in construction investment, the number of licensed contractors and number of employees.

Figure II-6-3-15 Trend in Construction Investment, Number of Licensed Contractors and Number of Employees

- The amount of construction investment, after peaking at about 84 trillion yen in FY1992, dipped to about 41 trillion yen in FY2010, but is now forecast to get back to about 55 trillion yen in FY2017 (about 35% down from its peak).
- The number of contractors was about 460,000 as of the end of FY2017, down about 23% from its peak (at the end of FY1999).
- The number of construction employees (2017 average) was 4.98 million, down about 27% from its peak (1997 average).



(Notes) 1 The amount of investment is the actual results up to FY2014, estimates for FY2015 and FY2016 and a forecast for FY2017.

2 Number of licensed contractors at the end of each fiscal year (end of March of the next year)

3 The number of employees is a yearly average. Supplementary estimates for the three quake-stricken prefectures (Iwate, Miyagi, Fukushima) in 2011 have been calculated by retrospectively correcting the estimated population based on the findings of the 2010 National Census.

Source) "Construction Investment Forecasts" and "Licensed Constructor Count Survey" by the MLIT and "Labor Force Survey" by the Ministry of Internal Affairs and Communications

## (2) Securing and Fostering Human Resources to Work for the Construction Industry

The construction industry is an industry made up of large numbers of *people*. While the number of construction industry employees in Japan has been holding steady in recent years, large-scale age-related resignations are expected in future, and in order to ensure that the construction industry continues in its role as a pillar of support for Japan's rural areas, it will be important to secure and foster workers, in particular young people, in addition to making efforts to reform work styles in the industry.

To this end, based on the Construction Industry Work Style Reform Acceleration Program formulated in March 2018, we are working to improve conditions in the industry by attempting to correct the problem of long working hours, in addition to advancing initiatives including guaranteeing appropriate wage levels, ensuring enrolment in social insurance, and creating a system to allow construction industry employees to develop their careers. In addition, taking into consideration the future decline in Japan's workforce, we are working to increase productivity via initiatives including the introduction of i-Construction to worksites, the improvement of the multilayered subcontracting structure, and the provision of effective and recurrent construction industry education, using ICT to enable industry employees to acquire the necessary skills.

To enable young people to get up to speed in the industry as quickly as possible, we are also proceeding with reform of the skills certification system, and, in order to ensure the smooth passing on of skills, enhancing education and training. In addition to this, we are promoting the further participation of female employees in the industry.

These initiatives are being advanced on the basis of public-private cooperation, and we are working to create an environment that encourages the seeking of employment in the construction industry and allows workers to devote themselves to their jobs with pride.

In addition, the project of receiving foreign construction workers is in place since April 1, 2015 as a time limited measure to handle increased construction demand due to one-off factors such as hosting of the 2020 Tokyo Olympic and Paralympic Games. Under this framework, 2,983 foreign construction workers entered Japan (as of March 31, 2018).

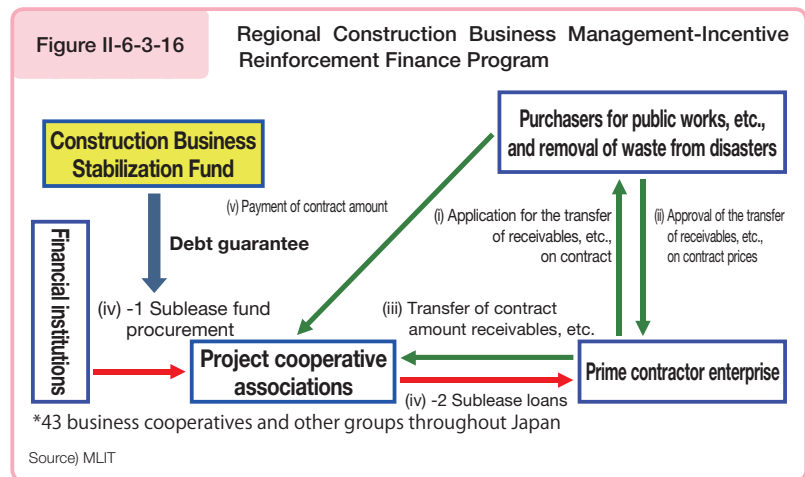
### (3) Establishing a Framework of Fair Competition

The construction industry must establish a framework of fair competition among contractors, including thorough legal compliance, to enable those of them who are superior in their technical strength, construction capability and management power to keep up with their growth. Accordingly, MLIT has conducted surveys including surveys of the status of subcontracting transactions and on-the-spot surveys, established the “Construction Business Transaction Normalization Center” as a liaison for consultation regarding issues such as problems related to contracts for construction work, and established Construction Business Normalization Promotion Month. In addition, we are working to ensure appropriate transactions between prime contractors and subcontractors in the construction industry by formulating and distributing a Handbook for Appropriate Transactions in the Construction Industry.

### (4) Measures Aimed at Supporting Construction Companies

#### (i) Regional construction business management-incentive finance program

The regional construction business management-incentive finance program allows prime contractors to acquire loans from money lending business operators (e.g., cooperative association) on security of the public works contract price credit obligations, according to the completed amount of works. Its purpose is to smooth their cash flow. This program aims to secure loan funding and reduce the borrowing rate and other costs by providing debt guarantee to sublease loans, which the money-lending operator borrows from financial institutions when extending loans.

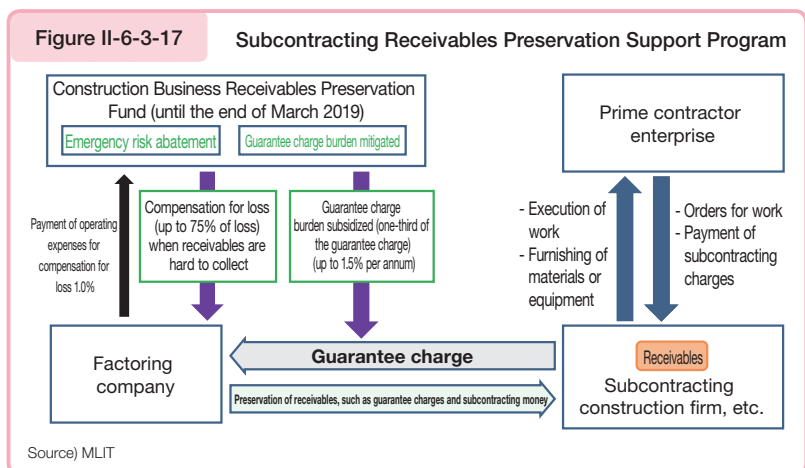


Effective since November 2008, this program will be carried forward through FY2018 and onwards.

#### (ii) Subcontracting receivables preservation support program

The subcontracting receivables preservation project aims to prevent chain-reaction bankruptcies of subcontractors in association with failure of their primary contractor by reducing the burden of guarantee charge when the payment of such receivables is guaranteed by a factoring company<sup>Note</sup> and by indemnifying the factoring company for part of losses, it may suffer upon fulfillment of the guaranteed obligations.

This program has been implemented since March 2010 and will be carried on through FY2018.



**Note** Finance business companies that guarantee or purchase and collect accounts receivable held by other parties. At present, 10 factoring companies, including bank companies, pre-payment guarantee companies and leasing companies are operating this type of business.



### (iii) Project to support the realization of increased productivity in the construction industry

Our project to support the realization of increased productivity in the construction industry is an initiative in which advisors offering consultation and support (specialists in the development of human resources, SME diagnosticians, etc.) provide advice to small and medium-sized construction companies, which support regional communities in areas including the provision, maintenance and management of social capital and the prevention and mitigation of disasters, regarding approaches to resolving the various problems faced by the construction industry. In addition, as a priority support measure, we provide partial support for expenses in the implementation stage of planned initiatives that contribute to the realization of increased productivity by means of cooperation between multiple companies and other entities and serve as excellent models. In FY2017, we selected five initiatives for support.

### (5) Promoting Construction-related industry

Information about the total number of companies registered in the construction-related industry (such as surveying, construction consulting and geological surveying) is published each month and analyses of the financial conditions by sector based on that information are released at the end of the next fiscal year. In addition, the MLIT works to encourage sound development of the construction-related industry and make effective use of the registration system, as by holding explanatory sessions for students before attending society in collaboration with the associated bodies.

### (6) Present Status of Construction Machinery and Growth of Construction Production Technologies

The number of units of major construction machinery owned by organizations and people in Japan totaled approximately 870,000 in FY2013. Market share by industry for units of construction machinery purchased was about 54% for the builder's equipment leasing industry and around 25% for construction businesses.

Pursuant to the second phase "Computer-Aided Construction Promotion Strategies" (formulated in March 2013), to encourage and diffuse the practice of computer-aided construction, the MLIT seeks to promote proactive use of machine control/machine guidance technologies realizing high-precision and efficient construction under automated control. As current deployment of computer-aided construction equipment is inadequate to encourage and diffuse the practice of computer-aided construction, it will be essential to develop the construction industry, as well as to support a healthy builder's equipment leasing industry, since this industry accounts for a major share of construction machinery purchases.

### (7) Settling Disputes Arising from the Execution of Construction Works

To promptly resolve disputes arising from the execution of construction work contracts, the Construction Works Dispute Review Panel implements dispute settlement procedures. In FY2016, the Panel received 33 applications (four of arbitration, 23 for conciliation and six for mediation) at the central level and 99 applications (17 for arbitration, 63 for conciliation and 19 for mediation) at the prefectural level.