

The Need for “Rebuilding Tokyo” with the 2020 Tokyo Olympics as Impetus

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Following Tokyo’s successful bid to host the 2020 Olympic Games, Japan is now faced with a very clear goal in the shape of “the year 2020.” As 2020 approaches, Tokyo and Japan as a whole should set about dealing with those problems that have been put off up to now. Rather than “building what is needed for the Olympics,” it is important to have an idea of “building what is necessary even after the Olympics.” In Tokyo, particular efforts should be made to overcome the following three issues.

- (1) Dealing with aging infrastructure: Because public investment has been made to develop infrastructure in Tokyo ahead of other areas, Tokyo faces the issues of aging more quickly than other areas. Given that there is a high probability of a major earthquake directly striking the capital, it is a matter of urgency to “rebuild the Tokyo Metropolitan Expressway” and to “improve disaster preparedness in the waterfront areas.”
- (2) Reconstructing existing urban areas: The Olympics provides a great opportunity for “city sales,” enabling Tokyo, the world’s largest mature city, to show the world a model case of rebuilding as a sustainable city. To make the most of this opportunity, Tokyo faces a stack of issues to cope with such as “limiting vehicle use in the city center” and “promoting city center residency and urban greening.”
- (3) Overcoming the Galapagos syndrome: Tokyo has been one of the slowest major cities in the world to attain multicultural diversity. Tokyo compares unfavorably with Singapore, China and Hong Kong in terms of the location of the Asia regional headquarters of multinational enterprises. Rather than striving to put on a one-time show of Japan’s “hospitality” that will end with the closing of the Olympic Games, efforts must be made to progressively develop an environment in which foreigners and foreign companies can live and operate in Japan permanently without a sense of being ill at ease.

The effects of these efforts could be enhanced by keeping in mind the following four key points:

- ① “selection and concentration” in making investments,
- ② utilization of private investments,
- ③ training and developing construction workers and
- ④ showing the entire world how Tokyo is being renewed.

I The Legacy to be Left by the 2020 Tokyo Olympics

With Tokyo being awarded the right to host the 2020 Summer Olympic and Paralympic Games, high expectations have been placed on the economic ripple effects that this event could have for Japan. The predicted effects include the demand for the construction of the facilities for the games and spending by spectators. While the Tokyo Metropolitan Government estimates the economic benefits to be in the order of 3 trillion yen, some people feel that this is an underestimate. However, in July of 2013, UK Trade & Investment announced that the economic benefits derived from the London Olympics totaled 9.9 billion pounds ^{Note 1} (about 1.683 trillion yen at the rate of 1 pound = 170 yen) in the first year since the games. Given that Tokyo's gross regional product (GRP) is about twice that of London, ^{Note 2} Tokyo's estimate is probably reasonable.

However, it would be a huge waste if the economic ripple effects triggered by the Olympics were to be transient. The Tokyo Olympics of 1964 led to infrastructure projects such as the construction of the Tokyo Metropolitan Expressways and the Tokaido Shinkansen (bullet train) line, both of which became lasting Olympic legacies. So, what legacies should we leave after the end of the forthcoming Tokyo Olympics?

Following the selection of Tokyo as host of the 2020 Olympics, Japan is now faced with a very clear goal in the shape of "the year 2020." In pursuing the goal, the country must deal with the question of how to connect the hosting of the Olympics to the rebuilding of Tokyo and Japan overall over the long term. In this paper, the author would like to propose the "activities needed to address Tokyo's problems, which were long known but thus far postponed" in the lead-up to 2020.

In general, a sustainable city (one in which the needs of the current generation are satisfied without depriving future generations of the ability to meet their own needs) refers to a city that strikes a balance between the aspects of "society," "environment" and "economy." Tokyo needs to take on the challenges of each of the three aspects.

• The challenge of "society"

Regarding the first aspect of "society," it is necessary to take on the issue of aging infrastructure. The greater Tokyo area has a population of 36.7 million, making it the world's largest urban agglomeration, far in excess of India's Delhi (22.2 million) and Mumbai (20 million), Brazil's Sao Paulo (20.3 million) and America's New York (19.4 million). ^{Note 3} However, the infrastructure that has so far supported the life of such an overwhelmingly large population and its corporate activities has been rapidly aging, with some being on the verge of collapse.

• The challenge of "environment"

What is required of the second aspect of "environment" is to rebuild the areas already developed as cities. The greater Tokyo area, with a population in excess of that of all of Canada (34.1 million), places an enormous load on the global environment. Therefore, there is an urgent need to devise a solution addressing the question of "how to reduce the environmental load of the entire city."

• The challenge of "economy"

As for the third aspect of "economy," the "Galapagos syndrome" must be overcome. As manifested by its relatively small number of non-Japanese residents, Tokyo's lack of multiculturalism stands out. If this situation were to be allowed to continue, Tokyo could be left out of the competition between the cities of the world for being the location of a business center, which is intensifying as a result of the increasing globalization of economic activity. The result would be Tokyo's sliding into being a "great isolated area," which merely has a huge population.

Because Tokyo is the engine that drives the Japanese economy, the rebuilding of Tokyo will lead to the rebuilding of Japan. The Tokyo 2020 Summer Olympic and Paralympic Games will present a great opportunity to bring the world's attention to Tokyo. With this event as one goal, efforts must be made to rebuild Tokyo.

II Efforts Required to Address the Issues Presented by the "Rebuilding of Tokyo"

1 Dealing with aging infrastructure

In December 2012, the ceiling panels of the Sasago tunnel on the Chuo Expressway collapsed, raising nationwide concerns over the safety of the country's aging and degrading infrastructure. In urban areas such as Tokyo, in particular, infrastructure has been developed ahead of other areas as a means of driving the Japanese economy. The result is that the issues of aging have become noticeable more quickly than in other areas. The calculation of the average number of years that infrastructure has been in service (vintage) based on the amount of public investment made in the past reveals that Tokyo's infrastructure is aging more rapidly than that in other parts of the country (Figure 1).

Aging infrastructure is extremely expensive to update. At the time of the 1964 Tokyo Olympics, the infrastructure investment in the Tokyo metropolitan area made by the local and national governments totaled 1.1 trillion yen in present-day value. From that point onward, the amount invested in infrastructure increased steadily, ultimately reaching 4.9 trillion yen in

1993. After that, however, the amount fell rapidly to 2.1 trillion yen in 2010, partly as a result of criticisms of public works. In the future, it will become necessary to update the infrastructure that has thus far been created. Henceforth, the amount invested will thus increase, reaching 2.4 trillion yen by the time of the Tokyo Olympics in 2020, then peaking at 3.6 trillion yen in 2043 ^{Note 4} (Figure 2).

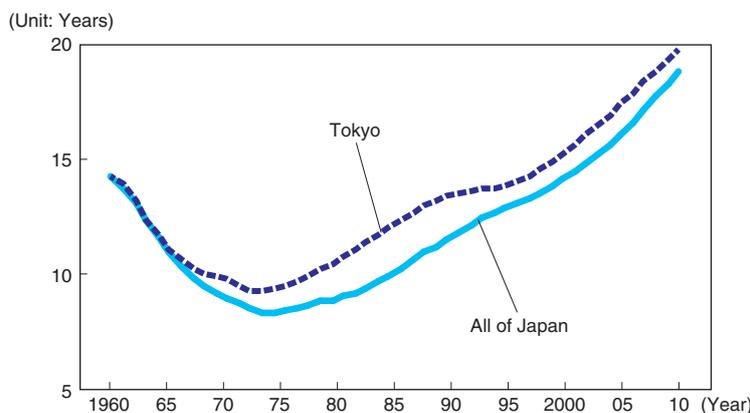
After Japan’s period of high economic growth, the focus of public investment shifted from urban areas to rural areas in order to rectify the disparities that had arisen between them. Despite increased investment in the development of infrastructure in rural areas, the metropolitan area still has high concentrations of people and their share of GRP has remained almost unchanged or increased (Figure 3). Boldly speaking at the risk of

being misunderstood, even though much of Japan’s wealth is created in Tokyo, investment in Tokyo has been neglected in recent years.

There is a 70-percent probability that a magnitude 7 earthquake will strike the Tokyo metropolitan area within the next 30 years. Among major Asian cities, the world sees Tokyo as being at particularly high risk of being struck by a disaster (Figure 4).

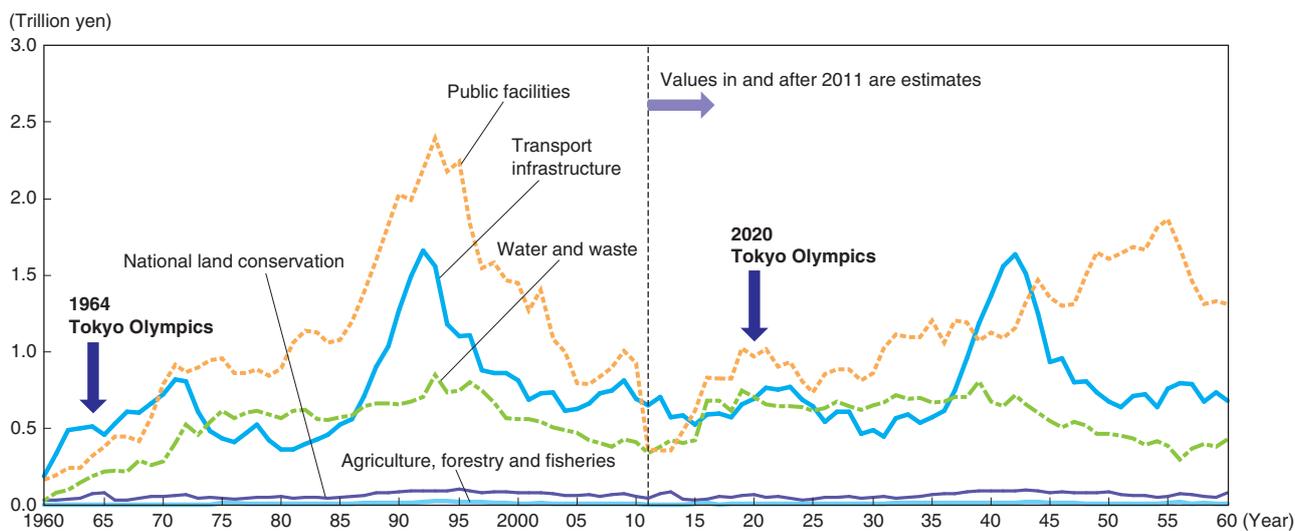
Many different types of infrastructure were built at the time of the 1964 Tokyo Olympics. In 2020, when the issues of aging will become more serious after about 60 years since the construction, by coincidence, Tokyo will again host the games. Therefore, with the forthcoming Tokyo Olympics as momentum, Tokyo’s old infrastructure must be reconstructed. In particular, it is a matter of urgency to “rebuild the Tokyo Metropolitan

Figure 1. Average number of years that infrastructure has been in service (vintage) in Tokyo and all of Japan



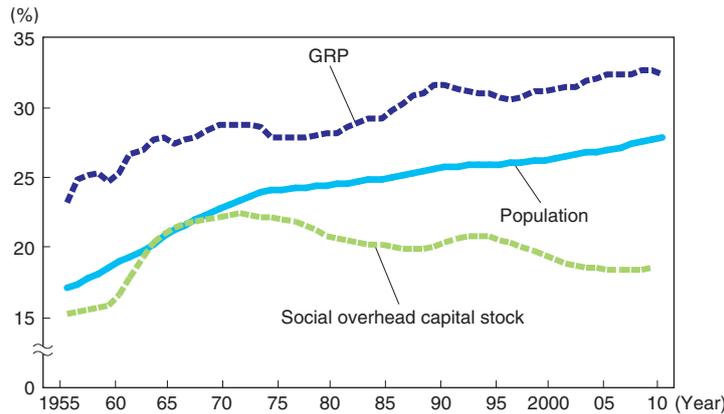
Note: Target fields include roads, harbors, airlines, subways, water conservation, forestry conservation, seacoasts, agriculture, forestry, fisheries, national forests, industrial water, sewerage, waste, drinking water, public housing, municipal parks, schools and social education.
Sources: Compiled based on “Japan’s Social Overhead Capital 2012” published by Cabinet Office, Government of Japan and “Records of Administrative Investment” published by the Ministry of Internal Affairs and Communications.

Figure 2. Past investment in infrastructure in the Tokyo metropolitan area and future investment required for updates by field



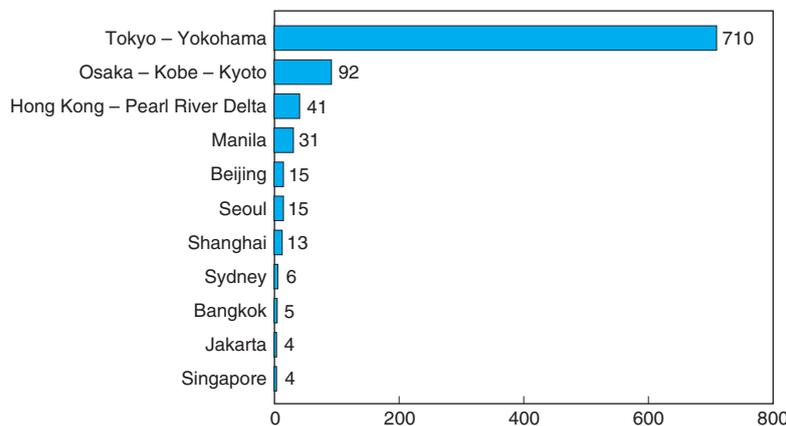
Note: “Transport infrastructure” refers to roads, harbors, airlines, subways and private-sector railways; “national land conservation” refers to water conservation, forestry conservation and seacoasts; “water and waste” refers to drinking water, industrial water, sewerage and waste disposal; “public facilities” refers to public housing, municipal parks, schools, public office facilities, medical and welfare facilities.
Source: Compiled based on “Records of Administrative Investment” published by the Ministry of Internal Affairs and Communications.

Figure 3. Share of the Tokyo metropolitan area (Tokyo, Kanagawa, Saitama and Chiba) in nationwide population, GRP (gross regional product) and social overhead capital stock



Note: Social overhead capital stock refers to the statistical value that indicates the value of infrastructure assets. There are two types: one is gross value, which does not consider decline in value due to aging, and the other is net value, which considers such decline. The above graph uses the former value. Sources: Compiled based on “Population Census of Japan” published by the Ministry of Internal Affairs and Communications; and “Prefectural Accounts” and “Japan’s Social Overhead Capital 2012” published by the Cabinet Office, Government of Japan.

Figure 4. Natural hazard index for major Asian cities



Note: The risk index components (hazard, vulnerability and exposed values) for megacities are measured on a scale of 0 to 10, and the scale values of these components are multiplied to indicate the total risk index shown above. Source: Compiled based on “Topics: Annual Review: Natural Catastrophes 2002” published by Munich Re Group.

Expressway” and to “improve disaster preparedness in the waterfront areas,” both of which present high risks, requiring immediate action.

(1) Reconstruction of the Tokyo Metropolitan Expressway

Issues facing the Tokyo Metropolitan Expressway are not just limited to accumulated damage associated with aging, but also include various other problems including the following.

- ① Because much of the Expressway was built above major rivers, many sections are difficult to check and repair.
- ② The use of viaducts has ruined the urban landscape (as exemplified by Nihonbashi).
- ③ Sharp curves exist in many places, making safe, high-speed driving difficult.

As we approach the 2020 Tokyo Olympics, paving the way toward rebuilding the Tokyo Metropolitan Expressway and realizing a “safe and beautiful Tokyo” will bring considerable social significance.

Studies addressing the rebuilding of the Tokyo Metropolitan Expressway began in 2012. “The Study and Research Committee on Major Updates of Metropolitan Expressway Structures,” which was established by Metropolitan Expressway Company Limited, selected sections where large-scale repair and renewal projects are necessary on the assumption that the present route/structure will remain unchanged, and estimated the maximum total cost at 910 billion yen.

In addition, “the Advisory Council for the Rebirth of Metropolitan Expressway,” set up around the same time by the Ministry of Land, Infrastructure, Transport and Tourism, recommended that “because the Metropolitan Expressway is essential to the activities of Tokyo, the

project of its rebirth including placing the Inner Circular Route underground should be undertaken as a national project.” While the council did not announce any estimate of cost, according to a 2009 Rotary Club estimate, demolishing the existing facilities and placing the Inner Circular Route and peripheral routes underground would cost in the order of 4 trillion yen. Although this estimate is below the 5 trillion yen estimate for the construction of the maglev Chuo Shinkansen line (between Tokyo and Nagoya), it is, without a doubt, an extremely large-scale project.

A question may be raised about which plan is preferable—placing the Expressway underground or not doing so. Anyone who gives weight to the current operation scheme and tight finances would opt for the less expensive plan. However, the function of the Expressway is not just to realize “safe and high-speed movements of traffic.” The Expressway also constitutes a major component of the urban landscape, and thus it is important not to forget the major impact that it has on the beauty and competitiveness of Tokyo.

In other countries, we find many examples of successful urban reconstruction projects where elevated expressways have been removed and instead placed underground. In Boston in the United States, the elevated expressway that used to run north to south through the heart of the city has been removed and replaced with a wider roadway constructed underground. Most space above ground is used as open space. This project has greatly improved the urban landscape, and has boosted the value of surrounding real estate. The cost of the project was \$14.6 billion, of which the federal government provided 60 percent, while the state government and other stakeholders provided the remaining 40 percent.

Also, in the U.S., in Seattle, the elevated highway that used to separate the downtown from the waterfront areas has been removed and placed underground. Now, a plan to develop a next-generation light rail transit (LRT) system in the areas left at ground level is under way. In order to revitalize the areas and develop the waterfront environment, the city decided to adopt a plan that moved the highway underground, regardless of the high cost involved. The total project cost of \$3.1 billion was shared by the federal, state and city governments.

In Seoul in South Korea, the Cheonggyecheon River, which runs from west to east through downtown Seoul, was covered and an elevated highway was built above it. To redevelop the surrounding area, the elevated highway was demolished and the river area was restored. The total project cost of 386.7 billion won was entirely borne by the City of Seoul, which was able to complete the project in an amazing two years.

In Barcelona, Spain, to build a ring road in preparation for hosting the 1992 Summer Olympics, the city adopted a plan to build it underground in order not to separate the city from the waterfront area despite a challenging budget. ^{Note 5}

The current Tokyo Metropolitan Expressway was rapidly developed in preparation for the 1964 Tokyo Olympics, with little attention paid to urban planning. Therefore, in particular, for sections where great effects could be expected from improving the urban landscape and generating a vibrant community, it would be best to consider a plan of building the expressway underground.

Of course, regardless of whether the Metropolitan Expressway is placed underground or not, its reconstruction will incur enormous cost. The fact that a source of funds required for this project has not yet been secured presents a major problem. A basic premise for the roads to which the Road Law applies is that the use of such roads shall be free to the public. As an exception based on the Law on Special Measures Concerning Road Construction and Improvement, the Tokyo Metropolitan Expressway is allowed to collect tolls. However, this exception is to be lifted once the construction cost has been recovered. Because the construction cost does not include repair and renewal costs, the current legal system leaves no alternative other than to use taxpayer money to repair and update the road.

However, once infrastructure is constructed, there is an inescapable need to update it. Considering this need, the current legal system that assumes only new construction is no longer sufficient. It would be essential to amend the law to permit the continuation of toll collection.

In addition, the method that can be applied only to Tokyo because it has a high potential for real estate development is “selling air rights using the exceptional floor area ratio system.” ^{Note 6} In the urban areas abutting the Metropolitan Expressway, there is a heavy concentration of aging private-sector buildings that are about to be torn down and rebuilt. Promoting the redevelopment of the urban areas surrounding the Metropolitan Expressway by selling air rights would be an ideal way of rebuilding the entire region including the Metropolitan Expressway. In fact, the City of New York used this method to transform an abandoned elevated railway line into an attractive promenade known as the High Line, achieving success in rejuvenating the neighboring areas and increasing the value of the surrounding real estate. Plans call for commencing studies on the feasibility of selling air rights for development over the Tsukijigawa area, which is jointly owned by Metropolitan Expressway Company Limited and the Japan Expressway Holding and Debt Repayment Agency, and which will become available for redevelopment after the relocation of the Tsukiji fish market to Toyosu, Koto Ward. It is worth keeping an eye on the progress of such studies.

During his inaugural press conference on February 12, 2014, Yoichi Masuzoe, Tokyo’s governor, stated his intention to complete the renovation of the Tokyo Metropolitan Expressway in which the Tokyo metropolitan government has a stake in six years before the 2020 Tokyo Olympics, even though repairs were originally expected to take about 10 years. However, overemphasizing

the completion of repairs prior to the Olympics must not lead to giving insufficient consideration to urban planning, as happened at the time of the 1964 Tokyo Olympics. As the first step, one idea is to start from the “renewal of the Nihonbashi River” because this project would have considerable social significance in terms of the restoration of Tokyo’s historical heritage and because tremendous efforts have already been made by local residents and other interested people in the form of the Committee for the 100-Year Renaissance Plan for the Nihonbashi Area. Showing the world Japan’s enthusiasm to create new urban areas through the reconstruction of infrastructure would provide momentum to cope with aging infrastructure in the future.

(2) Improving disaster preparedness in waterfront areas

In the same way as in the Tokyo Metropolitan Expressway, the functional decline due to aging in the coastal defense facilities around Tokyo Bay (seawalls, levees, sluice gates, pumping stations, etc.) is a major cause of concern. According to the Cabinet Office and the Tokyo Metropolitan Government, the coastal areas in which the main sports facilities and athletes’ quarters will be built for the 2020 Olympics would be subject to shaking with a seismic intensity of upper 6 or 7 based on the Japanese seismic intensity scale if Tokyo is directly hit by an earthquake. These areas are at the risk of soil liquefaction and damage to aging seawalls and sluice gates. While the damage prediction does not include major flooding in coastal areas, this prediction is based on the assumption that seawalls and sluice gates function as designed. Of course, the risk of flooding increases if any of these components are damaged.

In addition, the area in which the construction of the athletes’ quarters is planned lies outside the outer seawall with a height of 8 m and, as yet, a seaward levee with a height of 3 m has not been constructed, leaving the area directly exposed to the sea. In the future, with a 2.5-m embankment, this area is scheduled to be raised to a height of 6.5 m above sea level. While this embankment will reduce the possibility of damage caused by a tsunami, the risk of liquefaction will increase.

The site of the athletes’ quarters is earmarked for residential use after the Olympics. As such, by building on the momentum brought about by hosting the Olympics, the development of the coastal areas seems certain to continue to go ahead. Along with the efforts to reinforce the ground foundation of seawalls and enhance the earthquake resistance of sluice gates, a pressing issue to be addressed involves determining whether new seawalls must be constructed.

2 Reconstruction of existing urban areas

According to “World Urbanization Prospects” published by the United Nations, the world’s urban population was

3.56 billion as of 2010 (the percentage of the population residing in urban areas is 51.6 percent). This population will continue to soar in step with the economic growth of the emerging economies, reaching an estimated 4.64 billion (58.0 percent) by 2025 and then 6.25 billion (67.2 percent) by 2050 (Figure 5).

The number of megacities with 10 million inhabitants or more will also increase rapidly. By 1970, there were only two megacities in the world: Tokyo and New York. However, since then, the figure has continued to increase, reaching 23 cities as of 2010. This number will continue to increase, especially in Asia and Africa, and is expected to reach 37 cities by 2025 (Table 1).

Given this explosion in urban population, there is a need for urban planning and urban development technologies that can minimize environmental impact. While one of the possible solutions to achieve this purpose is the development of smart cities,^{Note 7} these efforts should also include the development of measures for rebuilding existing cities as sustainable cities in addition to building new cities.

If Tokyo, which is to remain the world’s largest mature megacity even in 2025, is able to show the world a model case of rebuilding as a sustainable city, the 2020 Tokyo Olympics will provide the best opportunity for “city sales.” In this paper, the author proposes the following three measures for rebuilding Tokyo into a sustainable city.

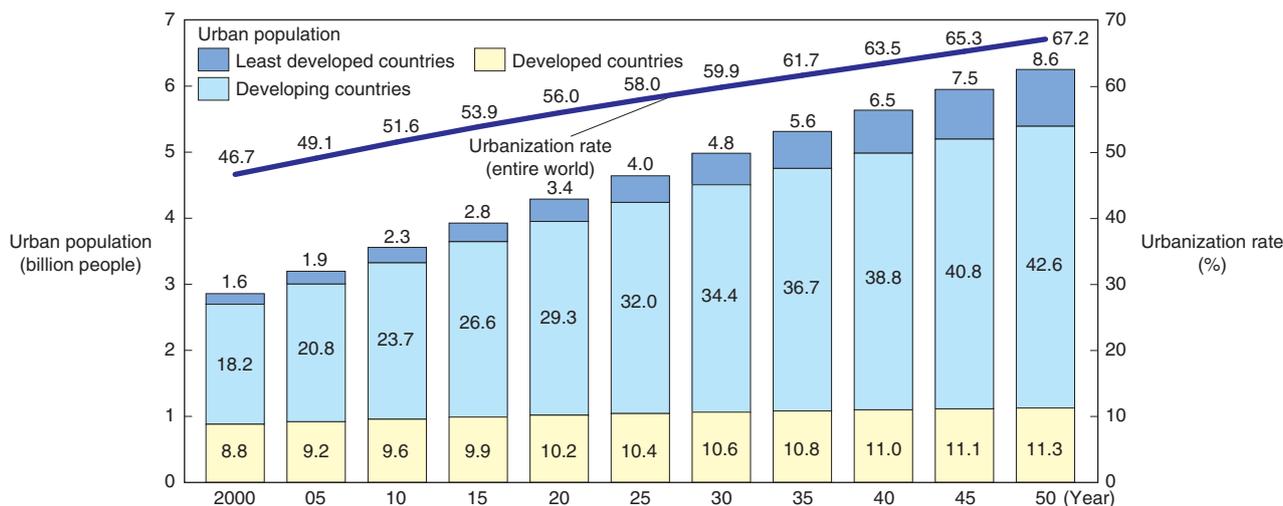
- ① Limiting vehicle use in city center
- ② Promotion of city-center residency
- ③ Promotion of urban greening

(1) Limiting vehicle use in city center

During the time the Olympic Games are held, “Olympic lanes” (a total of 317 km) will be set up in highways and main roads to connect stadiums and athletes’ quarters, which will be usable only by official vehicles. In addition, “Olympic priority routes” (a total of 290 km) will be designated where official vehicles will have priority. Citizens and companies will be asked to curb their vehicle use in central Tokyo, with a goal of a 10-percent reduction in traffic volume.

As 2020 approaches, progress in the construction of the three ring roads (Central Circular Route, Tokyo Outer Ring Road and Metropolitan Inter-City Expressway)^{Note 8} will lead to a reduction in the amount of traffic passing through the city center. Limiting the use of automobiles during the Olympics will provide a good opportunity for lifestyles that are not dependent on cars to take root. By building on the momentum provided by the Olympics, efforts should be made to limit the use of cars in the city center such as promoting the introduction of road pricing^{Note 9} and park and ride^{Note 10} schemes. These efforts would constitute a major step forward for Tokyo to become a sustainable city.

Figure 5. Change in and estimates of the world's urban population and urbanization rate



Source: Compiled based on "World Urbanization Prospects, the 2011 Revision" published by the United Nations.

Table 1. Trends in the world's megacities (those with 10 million inhabitants or more)

Year	Number of megacities	Description
1970	2	Tokyo and New York
1975	3	Mexico City was added
1980	4	Sao Paulo was added
1985	7	Mumbai, Osaka-Kobe and Los Angeles were added
1990	10	Buenos Aires, Kolkata and Seoul were added
1995	13	Delhi, Rio de Janeiro and Shanghai were added
2000	17	Cairo, Beijing, Dhaka, Karachi and Moscow were added; Seoul was removed
2005	19	Manila and Paris were added
2010	23	Guangzhou, Istanbul, Lagos and Shenzhen were added
2015	29	Bangalore, Chicago, Chongqing, Jakarta, Kinshasa and Wuhan will be added
2020	35	Bogota, Chennai, Hyderabad, Bangkok, Lima and Tianjin will be added
2025	37	Lahore and London will be added

Source: Compiled based on "World Urbanization Prospects, the 2011 Revision" published by the United Nations.

(2) Promotion of city-center residency

Japan's cities have been developed in such a way that business areas are separated from residential areas, leading to nighttime population densities of the urban areas being much lower than daytime densities (Figure 6). As a result, many citizens are forced to commute long distances from residential areas in the suburbs. In other countries, this lifestyle of "live in the suburbs and work in the city center" is not necessarily commonplace. Rather, people in other countries live more diverse lifestyles such as "live in the city center and work in the city center" or "live in the suburbs and work in the suburbs."

For example, New York's Lower Manhattan, which includes the financial district known as Wall Street, was in the past a completely deserted business district during the weekends. However, as a result of the city's promotion of urban residency, the 1990 nighttime population density of 66 people per hectare rose to 158 by 2010, an increase of 2.4 times in 20 years. A similarly sized area around Tokyo Station ^{Note 11} has a nighttime population

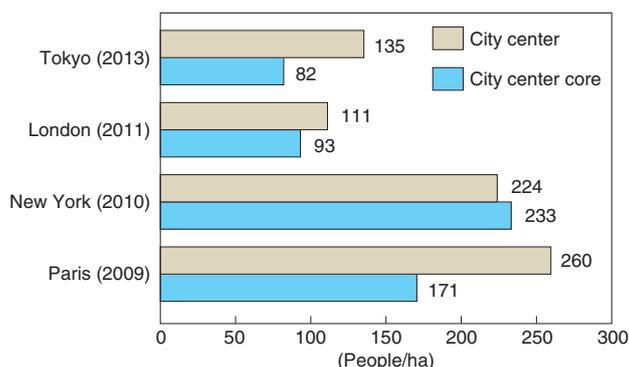
density of 25 people per hectare, more than six times less than Lower Manhattan.

The promotion of urban residency will lead to the formation of an urban structure where the use of a car is not necessary. The introduction of residential functions in the city center, as well as various vital functions that support residency, should be promoted.

(3) Promotion of urban greening

Tokyo's ratio of green space (percentage of green area to total city area) is not significantly less than that of cities in other countries such as New York and Paris. However, much of this green space takes the form of the gardens of private homes, the Imperial Palace, etc. and is not accessible to the public. Therefore, spaces where forests and the natural environment can be experienced are actually very limited.

Many urban renewal projects that have been undertaken to date have led to major changes in Tokyo's urban landscape. For example, Marunouchi has been transformed from a purely business district to a charming

Figure 6. Nighttime population density in the city centers of the world's major cities

Notes: City centers and city center cores are selected in such a way that the area becomes nearly identical. Specifically, they refer to the following areas.

Tokyo: City center cores refer to Chiyoda Ward and Chuo Ward. City centers refer to Minato Ward, Shinjuku Ward, Taito Ward and Bunkyo Ward in addition to city center cores.

London: City center cores refer to the City of London, Camden, Islington and Westminster. City centers refer to Hammersmith and Fulham, and Kensington and Chelsea in addition to city center cores.

New York: City center cores refer to Manhattan (southward from Manhattan's 59th street). City centers refer to all of Manhattan and part of Brooklyn (BK2: Brooklyn Heights, Fort Greene; BK6: Park Slope, Carroll Gardens).

Paris: City center cores refer to Arrondissements 1 – 8. City centers refer to all of Paris.

Sources: Tokyo: Statistics Division, Bureau of General Affairs, Tokyo Metropolitan Government. London: Office for National Statistics. New York: U.S. Census Bureau. Paris: INSEE.

town that now has commercial and cultural facilities. In the future, Toranomon will see the appearance of a street that is shaded by lush greenery, running through the center of the dense urban area. In Tokyo Bay, the “Umi no Mori (Sea Forest)” marine park is scheduled to be partially open in 2016.

By using the ground space that will be released by placing the Metropolitan Expressway underground and the space above the rivers, as well as by facilitating cooperation among planned urban development projects and infrastructure update projects, it should be possible to create a green corridor in Tokyo similar to Boston's Emerald Necklace (a chain of parks linked by parkways and waterways consisting of verdant street spaces). It could also be possible to restore the waterways of Edo (former name of Tokyo), which was the “city of water.” Although Tokyo has a strong image of being a concrete jungle, if we could show that it is, in fact, blessed with large amounts of water and green space, visitors from overseas will surely be pleasantly surprised.

3 Overcoming the Galapagos syndrome

As illustrated by its small population of non-Japanese residents, Tokyo has been one of the slowest major cities in the world to attain multiculturalism. Compared to Toronto, Canada, which is well-known as a city of immigrants and where one in every two residents is a non-Canadian citizen, even in Tokyo, which has relatively more foreign residents than other cities in Japan, the number is only one or two per hundred residents (Figure 7).

In the areas of business as well, Japan's slow rate of internationalization stands out. Among major countries, Japan is one of the countries that receive very little foreign direct investment. In terms of a percentage of gross domestic product (GDP), the ratio for Japan is

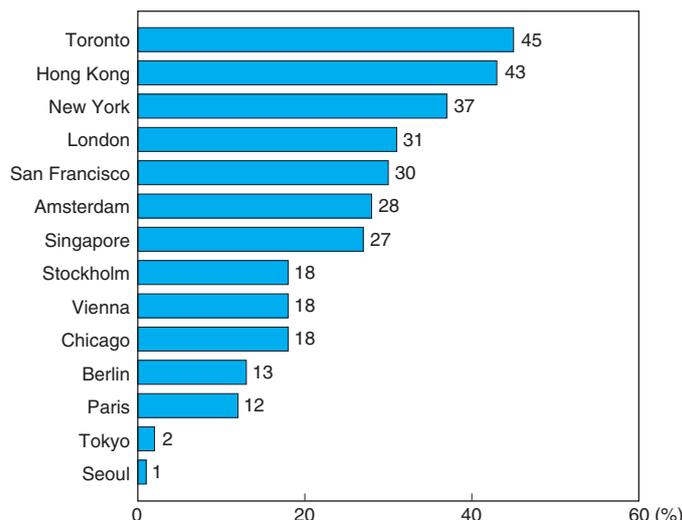
the lowest among OECD (Organization for Economic Cooperation and Development) member countries, BRICS (Brazil, Russia, India, China and South Africa) and other Asian countries (Figure 8).

Although the data is somewhat old, according to the “survey of the locations of multinational companies in Asia and of the policies to attract foreign companies” conducted by the Japan External Trade Organization (JETRO) in March 2008, 43 of the “Fortune 500” companies have Asia regional headquarters in Singapore, and 18 such companies established their regional headquarters in Hong Kong. However, only three such companies had chosen Japan for their regional headquarters.

In addition, according to the 46th Survey of Trends in Business Activities of Foreign Affiliates for FY 2011 conducted by the Ministry of Economy, Trade and Industry (to which effective responses were received from 3,194 companies), the number of responding companies located in Japan that answered “Yes” to the question of “Does your company serve as a regional headquarters in the Asia and Oceania region?” (175 companies ^{Note 12}) was less than the number of such companies that responded, “My company is controlled by a regional headquarters located in other than Japan.” As to the locations of the regional headquarters, 320 companies stated “Singapore,” 309 “China” and 243 “Hong Kong.” These findings indicate that in terms of the location of an Asia regional headquarters, Japan compares unfavorably with Singapore, China and Hong Kong.

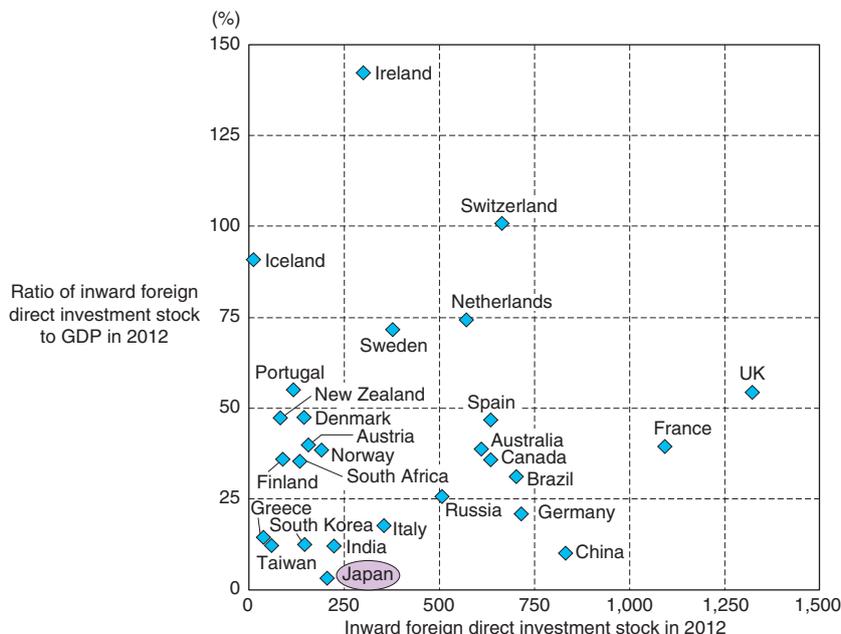
Given this situation, the Japanese government set up the “Follow-Up Program for Promoting Japan as an Asian Business Center and Direct Investment into Japan” in June 2012 and “Japan Revitalization Strategy—Japan is Back” in June 2013 with the goal of doubling the inward foreign direct investment stock and the number of persons employed by foreign capital

Figure 7. Foreign-born population as a percentage of total resident population in major cities worldwide



Note: The year for which data were collected varies from 2001 to 2010 depending on the city.
 Source: Compiled based on World Cities Culture Report written by UK's BOP Consulting, material published by the Migration Policy Institute of the U.S. and other material.

Figure 8. Inward foreign direct investment stock and its ratio to GDP (gross domestic product) in major countries



Note: The above graph does not include the following countries: U.S. (\$3.931 trillion, 26%), Singapore (\$682 billion, 252%), Luxembourg (\$121 billion, 213%) and Belgium (\$1.1 trillion, 209%).
 Source: Compiled based on "World Investment Report" published by United Nations Conference on Trade and Development (UNCTAD).

companies by 2020, while aiming to attract multinational companies to 30 high-value-added locations every year. For the National Strategic Special Zones project, for which studies are now underway, many proposals that are expected to contribute to the achievement of these goals are being made by the private sector.

The "Global Power City Index 2012" published by the Institute for Urban Strategies, the Mori Memorial Foundation, which compares the world's major cities, revealed that Tokyo was ranked relatively high in terms of "market size," "accumulation of companies and researchers" and "inner-city transportation and accessibility." However, it is ranked relatively low in

terms of "business/living cost" and "accessibility to international airports" (Table 2). By using systems such as the framework of the National Strategic Special Zones, both the public and private sectors should take a multilayered approach to overcoming Tokyo's weaknesses and building on its strengths.

Rather than striving to put on a one-time show of Japan's "hospitality" that will end with the closing of the Olympic Games, efforts must be made to steadily develop an environment in which foreigners and foreign companies can live and operate in Japan permanently without a sense of being uncomfortable or being burdened.

Table 2. Tokyo’s strengths and weaknesses as seen in “Global Power City Index 2012”

		Economy	Research and development	Cultural interaction
<p>Strengths</p> <p>Weaknesses</p>	1st – 10th rank	GDP World's top 300 companies Political, economic and/or business risks Stock exchanges by market capitalization Number of employees engaged in services for businesses Ease of securing competent personnel Number of employees Per capita GDP	Number of researchers Research and development cost Number of registered industrial property rights (patents) Education rankings in mathematics and science World's top 200 universities	Number of art and science museums Attractiveness of food Number of major worldwide cultural events held Number of students studying abroad Attractiveness of shopping Number of international conventions held Opportunities to experience culture, history and tradition Number of theaters and concert halls
	11th – 20th rank	Wage levels Economic freedom	Readiness for accepting foreign researchers Number of major science and technology award winners Opportunities for interactions among researchers	Number of foreign residents Environment for creative activities of artists Number of high-quality hotel rooms Number of stadiums Number of visitors from abroad Total number of hotels
	21st – 30th rank	Office space per person		Value of exports of movies, anime, TV programs, games, books, etc. UNESCO World Heritage sites (within 100 km)
	31st – 40th rank	Corporate tax rate GDP growth rate		
		Livability	Transportation and accessibility	Environment
<p>Strengths</p> <p>Weaknesses</p>	1st – 10th rank	Healthy life expectancy Wide variety of retail stores Wide variety of restaurants Homicides per 100,000 population Population density	Abundance of public transportation options and their on-time performance Number of airport runways Density of subway stations Traffic accident fatalities per 100,000 population Convenience of commuting to work and/or school Number of international flight passengers	Number of companies that acquired ISO14001 certification CO ₂ (carbon dioxide) emissions Water quality Recycling rate Comfort of temperature
	11th – 20th rank	Amicable local communities Vulnerability to disaster Number of international schools per 100,000 foreign population Absolute unemployment rate Employees' levels of satisfaction with their lives	Number of cities in which international direct cargo flight services are available	SO ₂ (sulfur dioxide) concentration and NO ₂ (nitrogen dioxide) concentration
	21st – 30th rank	Average house/apartment rent Number of physicians per 100,000 population Total working hours	Number of cities in which direct international flights are available Taxi fare	SPM (suspended particulate matter) concentration Ratio of green space in city center
	31st – 40th rank	Price level	Time taken to access international airport from city center	Ratio of renewable energy

Note: The following 40 cities were ranked according to the indicators for each field such as “economy.” This table lists the indicators according to Tokyo’s rankings.

Asia: Tokyo, Osaka, Fukuoka, Seoul, Taipei, Beijing, Shanghai, Hong Kong, Singapore, Bangkok, Kuala Lumpur, Mumbai, Istanbul
 Europe: London, Paris, Berlin, Frankfurt, Milan, Madrid, Barcelona, Amsterdam, Brussels, Zurich, Geneva, Copenhagen, Stockholm, Vienna, Moscow
 Americas: New York, Washington D.C., Boston, Chicago, Los Angeles, San Francisco, Toronto, Vancouver, Mexico City, Sao Paulo
 Other: Cairo, Sydney

Source: Compiled based on “Global Power City Index 2012” published by the Institute for Urban Strategies, the Mori Memorial Foundation.

III Key Points to Consider in Pursuing the Rebuilding of Tokyo

Up to this point, this paper has described the efforts that should be made to solve the problems facing the

reconstruction of Tokyo. To promote these efforts, consideration must be given to the following four points.

1 “Selection and concentration” in making investments

With the International Olympic Committee (IOC) endorsing Tokyo’s compact plan for the Games, Tokyo

won the right to host the 2020 Olympics. In light of this premise, we must at all costs avoid the situation in which wasteful investments are made in the name of the Olympics and in which what are left after the games are only gigantic buildings that are rarely used and huge debts. To this end, rather than “building what is needed for the Olympics,” it is important to have an idea of “building what is necessary even after the Olympics.” In any case, investments should be focused on what must be definitely done in the future and what contributes to the improvement of Tokyo’s competitive strengths.

2 Utilization of private investments

As of 2012, the total debt of the Japanese national and local governments reached 224 percent of GDP. This is an overwhelmingly high rate, especially compared to those of Italy (130 percent), the United States (113 percent), the United Kingdom (110 percent), France (108 percent) and Germany (86 percent). Given this financial situation, relying on the issuance of government bonds to finance infrastructure investment must be avoided. For toll-collection type infrastructure, a system whereby users cover the cost of infrastructure should be adopted as much as possible. If funding from private sources proves difficult, it would be possible to procure funds from the private-public partnership infrastructure fund (Private Finance Initiative Promotion Corporation of Japan), which was established in October 2013. For other types of infrastructure as well, consideration must be given to measures leveraging private investments such as selling air rights as discussed in Chapter II.

3 Training and developing construction workers

Since the mid-1990s, there has been a decline in public investment and a downturn in private investment, leading to the rapidly shrinking construction market, and thus to a considerable reduction in the number of construction workers. However, since 2011, demand has increased because of the need for reconstruction following the earthquake and due to economic recovery, which has caused labor and material costs to soar in the construction sector. In the future, added demand for construction related to the Olympics is likely to make the supply-demand balance even tighter, which may lead to a decline in the willingness of the private sector to invest. Because this demand will also contribute to addressing the issue of unemployment among young people, vocational training programs should be provided to train and develop young workers.

In addition, given that the repair and renewal of Japan’s aging infrastructure is sure to give rise to a steady construction demand for a long time, there is a need for a countrywide scheme to develop skilled construction workers. In Korea, in the wake of a series of bridge

collapses, the Korea Infrastructure Safety and Technology Corporation, which is a government agency, was set up to oversee the training and accreditation of construction engineers. In Japan as well, the creation of such an organization merits consideration.

4 Showing the entire world how Tokyo is being renewed

Since 1991, when Japan’s economic bubble burst, marking the end of a period of stable economic growth, a prolonged economic downturn began, which has been dubbed as the “lost 20 years.” In devising various experiments to determine how best to rebuild Tokyo, efforts should also be made to look for a means of breaking free from the economic downturn.

The 2020 Tokyo Olympics provides a great opportunity to focus the world’s attention on Tokyo. Without limiting consideration to Sydney in Australia and Barcelona in Spain, which are known as successful cases of benefiting from an Olympic-induced economic boost, the London Olympics did much to improve the image of the UK, a mature country. By making the most of this precious opportunity that the Olympics presents, every effort should be made to disseminate information to the entire world about how Tokyo is being renewed by addressing the various challenges it faces.

Notes:

- 1 UK Trade & Investment, “London 2012: Delivering the economic legacy.”
- 2 According to “Global MetroMonitor 2012” published by the Brookings Institution, Tokyo’s GRP in 2012 was 1.520 trillion dollars (152 trillion yen) and that of London was 731.2 billion dollars (73.120 trillion yen).
- 3 Data is based on “World Urbanization Prospects, the 2011 Revision” published by the United Nations.
- 4 Because the investment amount based on “Records of Administrative Investment” published by the Ministry of Internal Affairs and Communications includes maintenance costs, land and its compensation costs, it should be noted that the value tends to be overestimated.
- 5 Akiko Okabe, “Toshi saisei ‘Barcelona model’ no ken-shou (Urban regeneration: Verification of Barcelona Model)” (Yuichi Fukukawa, Hiroshi Yahagi and Akiko Okabe, *Jizoku kanou na toshi—Oubei no kokoromi kara nani wo manabuka* (Sustainable cities—Learning from attempts in Europe and the U.S.), 2005, Iwanami Shoten, Publishers.
- 6 This system allows the part of the designated floor area ratio of the building site within districts that are designated as exceptional floor area ratio districts to be transferred to multiple other building sites within the districts. Transfer of the part of the ratio to a building site that is not adjacent to the transferor site is also possible if the site is within the designated district. This system was applied to the restoration of Tokyo Station’s red brick building.

- 7 Smart cities refer to environmentally friendly cities where leading-edge technology such as information technology (IT) and environmental technology is applied to maximize resource savings and increase energy efficiency.
- 8 The construction of these three ring roads is scheduled to be 90 percent completed by 2020.
- 9 For the purpose of alleviating traffic jams and suppressing gas emissions, the road pricing scheme levies special charges on people who drive cars on congested roads in the city center.
- 10 The park and ride scheme is one in which parking lots are provided at train stations and bus terminals to encourage drivers to use public transportation.
- 11 This area consists of Marunouchi, Otemachi, Yurakucho and Uchisaiwaicho in Chiyoda Ward; Yaesu, Nihonbashi, Kyobashi and Ginza in Chuo Ward; and Higashi-Shinbashi, Shinbashi, Nishi-Shinbashi and Tranomom in Minato Ward.
- 12 Breakdown of these 175 companies: 113 companies that responded “my company serves as a regional headquarters in the Asia and Oceania region” and 62 companies that answered “my company is controlled by a Japanese company other than my company.”

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