Priority Plan for Infrastructure Development

The Cabinet Decision on September 18, 2015
1. What is the Priority Plan for Infrastructure Development?

- The Priority Plan is formulated to promote the infrastructure development projects in an intensive, effective and efficient manner in accordance with the “Act on Priority Plan for Infrastructure Development (Act No.20 of 2003).” The Cabinet decision is needed for formulation of the priority plan.
- The Act targets at projects related to roads, traffic safety facilities, railways, airports, ports/harbors, aids to navigation, park/green space, sewage system, rivers, erosion and land slide prevention, steep slope and coast revetment, including the projects or affairs to be undertaken in connection with those projects in order to enhance the effectiveness.
- 1st Priority Plan (from FY2003 to FY2007), 2nd Priority Plan (from FY2008 to FY2012), 3rd Priority Plan (from FY2012 to FY2016), and 4th Priority Plan (from FY2015 to FY2020) had been already formulated.

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<td>Consultation with the Council of Infrastructure Development and the Council of Transport Policy regarding revision of the Priority Plan for Infrastructure Development</td>
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2. Background of the formulation of the 4th Priority Plan

- Priority objectives regarding the implementation of the infrastructure development projects during the period for the plan
- Overview of the infrastructure development projects that should be implemented in an intensive, effective and efficient manner during the period for the plan in order to accomplish the priority objectives.
- Measures for implementing the infrastructure development projects in an intensive, effective and efficient manner, etc.
History of the Priority Plan for Infrastructure Development

Nine plans are formulated by project area: Setting the project amount by each plan

- Roads
- Traffic safety facilities
- Airports
- Ports/Harbors
- Urban parks
- Sewage
- Flood management
- Steep slope
- Coasts

**Criticism against the nine plans**

- The plans result in loss of flexibility in budget allocation
- Vertically-segmented planning makes mutual collaboration difficult.
- The plans are no more than a means for acquiring budget.

**Criticism against infrastructure development**

- Prioritization of projects and efficiency of operation are not promoted.
- Opinions from the local governments and citizens are not fully reflected.

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**Priority Plan for Infrastructure Development (Act on Priority Plan for Infrastructure Development Act No.20 of 2003)**

- 1st Priority Plan (from FY2003 to FY2007), 2nd Priority Plan (from FY2008 to FY2012), 3rd Priority Plan (from FY2012 to FY2016), 4th Priority Plan (from FY2015 to FY2020)

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**BEFORE**

- Example of the project expenses in the former long-term plan

  - **Five-Year Road Development Plan (from FY1998 to FY2002)**
    - A total 46.2 trillion yen, which includes:
      - 15.09 trillion yen for the development of new arterial high-standard highways that extend to a length of 1,360 km

  - **Flood management project Seven-Year Plan (from FY1997 to FY2003)**
    - A total 11.6 trillion yen, which includes:
      - Formation of safe infrastructure built on the lessons from the Great Hanshin-Awaji Earthquake, etc. 11.1 trillion yen
      - Securing of safe life by dealing with the frequency of drought issue 2.4 trillion yen

  - **Port/Harbor development Seven-Year Plan (from FY1996 to FY2002)**
    - A total 4.3 trillion yen, which includes:
      - Formation of hubs in international marine transportation network 1.57 trillion yen
      - Nationwide improvement of the logistic infrastructure corresponding to the multimodal transportation, etc. 450 billion yen

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**CURRENT PRIORITY PLAN**

- Major planning matters of the Priority Plan for Infrastructure Development

  - Priority objectives regarding the implementation of the infrastructure development projects during the period for the plan (instead of recording the total amount of future project expenditure.).
  - Overview of the infrastructure development projects that should be implemented in an effective and efficient manner during period for the plan in order to accomplish the priority objectives.
  - Measures for implementing the infrastructure development projects in an effective and efficient manner
1. Four structural issues faced by the infrastructure development

- Vulnerability of land (pressing issues for massive earthquakes and severe weather disasters)
- Impoverished local economies due to decreased population
- Rapid aging of infrastructure
- Intensified international economic competition

2. Basic policies toward the sustainable infrastructure development

1) Strategic infrastructure management aiming at maximizing the Stock Effects of the infrastructure

1) Strategic Maintenance including integration and reorganization

2) Thorough and effective use of the existing facilities (smart use)

3) Select and focus on the projects with high Stock Effects

- Clarification of the time line
- Contribution to both economic revival and fiscal consolidation
- Proactive approach to PPP/PFI

(2) Securing and training skilled construction engineers and technicians to maintain the sites of the infrastructure development based on the priority plan

(3) Securing stable and sustainable public investment for appropriate implementation of the priority plan
Chapter 2: Future Vision of Infrastructure Development, Priority Goals and Business Outline in Planning Period

- Establish KPIs for four priority goals and thirteen policy packages respectively
- Systemize the current conditions and issues, mid-to-long-term vision, priority measures during the period for the plan, and KPIs for each policy package

Priority goal 1: Performing strategic maintenance, management and renewal of infrastructures

1-1 Ensuring safety and security, along with reduction and equalization of total costs by construction of maintenance cycles
Realize advancement of the functions while promoting rationalization of the scale, by construction of maintenance cycles and steady execution
- Establishment rate of life extension plans for individual facilities (Individual facility plan) [Aiming for 100% in each facility area]

1-2 Improving maintenance technology, and enhancing competitiveness of maintenance industry
Promote the recruitment and training of engineers involved in maintenance as well as development and introduction of new technology
- Number of new technologies evaluated by on-site demonstrations [2014: 70 to 2018: 200]

Priority goal 2: Reducing risk of disasters, etc. according to disaster characteristics and regional vulnerability

2-1 Reducing risks of imminent massive earthquakes, tsunami, and large-scale eruptions
Focused preparation for Nankai Trough earthquake, and an inland earthquake directly under the capital, etc.
- Earthquake resistance rate, etc. of public civil engineering facilities, etc.
  [Percentage of earthquake-resistant bridges on emergency transportation roads] 2013: 75% to 2020: 81%, etc.
- Land area of remarkably dangerous high density urban areas during an earthquake, etc. [2014: 4,547ha to 2020: Generally resolved]
- Percentage of removed utility poles on arterial roads in urban areas, etc. [2014: 16% to 2020: 20%]
- Development rate of river levees and coastal levees, etc. and earthquake resistance rate of water gates and sluice gates, etc. in areas where massive earthquakes are expected, such as a great earthquake along the Nankai Trough, and an inland earthquake directly under the capital, etc.
  [River levees] 2014: Approx. 37% to 2020: Approx. 75%, (Coastal levees, etc.) 2014: Approx. 39% to 2020: Approx. 69%, (Water gates and Sluice gates, etc.) 2014: Approx. 32% to 2020: Approx. 77%
- Rate of municipalities which have created and published hazard maps for largest-scale tsunami and high tides, and conducted training (desk training, communication of information training, etc.) which leads to improvement in the awareness of disaster prevention of residents [2014: 0% to 2020: 100%]
Priority goal 2: Reducing risk of disasters, etc. according to disaster characteristics and regional vulnerability

### 2-2 Reducing risks for intense meteorological disasters

Enhance measures against frequent and intense flood and sediment disasters

- Development rate of rivers against flooding equivalent to the target of the improvement plan for rivers, in areas with a concentration of population and assets, and achievement rate of city flood control measures by drainage
  

- Rate of municipalities which have created and published hazard maps for largest-scale floods, inland water, tsunami, and high tides, and conducted training (desk training, communication of information training, etc.) which leads to improvement in the awareness of disaster prevention of residents
  
  [2014: - to 2020: 100%]

- Number of underground shopping centers, etc. which have already secured evacuation and taken flood prevention measures for largest-scale floods, etc.
  
  [2014: 0 to 2020: Approx. 900]

- Implementation rate of measures against sediment disaster to protect human life, such as protecting facilities used by persons requiring special assistance and a disaster management base
  
  [2014: Approx. 37% to 2020: Approx. 41%]

- Number of publications of basic research results and designated areas concerning sediment disaster alert areas, etc.
  
  ([Published] 2014: Approx. 420,000 areas to 2019: Approx. 650,000 areas, [Designated] 2014: Approx. 400,000 areas to 2020: Approx. 630,000 areas)

### 2-3 Enhancing risk management measures in order to reduce risks when a disaster occurs

Promote enrichment and enhancement of TEC-FORCE, and introduction of a time line*

* The time line is a summary of the disaster prevention actions listed in a time series which must be taken in advance by the party concerned.

- Number of prefectures which have conducted training in cooperation with TEC-FORCE
  
  [2014: 17 prefectures to 2020: 47 prefectures]

- Number of established time lines created for government managed rivers
  
  [2014: 148 municipalities to 2020: 730 municipalities]

- Rate of ports that have formulated Port Business Continuity Plans (Port-BCP) in International Container Hub Ports, International Hub Ports, and Major Ports
  
  [2014: 36% to 2016: 100%]

### 2-4 Securing traffic safety for land, sea and air

Deterrence of traffic accidents on roads and railways, maritime accidents and aviation accidents

- Deterrence of human casualty accidents in road transportation
  
  ([Number of deterrents of human casualty accidents by improving signals, etc.) Deterrence of approximately 27,000 cases/year by FY2020, etc.]

- Number of stations that have installed platform doors
  
  [2013: 583 stations to 2020: 800 stations]
Priority goal 3: Forming sustainable local societies responding to declining population and aging society, etc.

3-1 Forming compact cities which promote maintenance and improvement of community life support services, etc.

Formation of compact cities and traffic networks around cities, etc.
- Number of municipalities establishing location rationalization plans [2020: 150 municipalities]
- Rate of population who are living in areas with highly convenient public transportation [(Local city areas) 2014: 38.6% to 2020: 41.6%, etc.]
- Rate of prefectures that have established a concept for construction of sustainable sewage treatment systems [2014: Approx. 2% to 2020: 100%]
- Percentage of road links that provide a fast connection between major cities [2013: 49% to 2020: Approx. 55%]
- Rate of public rental housing complexes at a scale of 100 households or more established with senior citizen facilities, disable persons facilities, and childcare support facilities, etc. [2013: 19% to 2020: 25%]

3-2 Securing comfortable living and moving space (Promotion of barrier-free universal design)

Realize environments where senior citizens, disabled persons, and the child-rearing generation, etc. can live and move in comfort
- Percentage of the adoption of barrier-free public facilities, etc. [(Designated roads) 2013: 83% to 2020: 100%, etc.]

3-3 Forming beautiful landscapes and favorable environments, and maintaining and recovering a healthy water cycle

Promotion of landscape formations which improve the individuality of regions and implementation of green infrastructures
- Number of regions which promote implementation based on landscape plans (Number of municipalities) [2014: 458 organizations to 2020: Approx. 700 organizations]
- Secured amount of public spaces of water and greenery in urban areas [2012: 12.8m²/person to 2020: 14.1m²/person]
- Diffusion rate of sewage treatment among the population [2013: Approx. 89% to 2020: Approx. 96%]

3-4 Promoting Global Warming Countermeasures, etc.

Promotion of reductions in the volume of greenhouse gas emissions “Mitigation Measures *1,” and handling various impacts caused by global warming “Adaptation Measures *2”
*1 Urban greening, introduction of LED in buildings, and modal shift, etc. *2 Measures against flood and sediment disaster, etc.
- Greenhouse gas absorption volume by urban greening, etc. [2013: Approx. 1,110,000 t-CO₂/year to 2020: Approx. 1,190,000 t-CO₂/year]
- Rate of turning sewage sludge into energy [2013: Approx. 15% to 2020: Approx. 30%]
### Priority goal 4: Enhancing global competitiveness in metropolitan areas

#### 4-1 Enhancing global competitiveness in metropolitan areas

- Forming global level urban environments and enhance functions of international airports and ports
  - Number of completed urban development projects which contribute to global competitiveness enhancement in specified urgent development areas for urban regeneration [2014: 8 to 2020: 46]
  - Percentage of length of ring roads in operation in the three major metropolitan areas [2014: 68% to 2020: Approx. 80%]
  - Number of cities which the airports in metropolitan areas provide international flights to [2013: 88 cities to 2020: Equal to major airports in Asia]
  - Frequency of container vessels on International Container Hub Ports through major routes [(North American Route) 2018: Maintain daily or more, etc.]

### 4-2 Promoting urban and regional development which induces industry and tourism investment in regional areas

Priority development of infrastructures, such as enhancement of traffic networks which contribute to the inducement of private investment including regional relocation of corporations

- Percentage of road links that provide a fast connection between major cities [2013: 49% to 2020: Approx. 55%]
- Cost reduction of maritime transport (Compared to total costs in FY2013) [(Domestic) 2020: Approx. 3%, (International) 2020: Approx. 5%]
- Number of foreign passengers who enter into Japan by cruise ships from ports nationwide [2014: 416,000 people to 2020: 1 million people]
- Rate of municipalities which have implemented integration activities of waterfronts and cities towards the creation of waterfront prosperity [2014: 25% to 2020: 50%]
- Number of PPP/PFI regional platforms to increase business opportunities [2014: 0 to 2020: 8]

### 4-3 Overseas expansion of excellent infrastructure systems of Japan

Promotion of overseas expansion of infrastructure systems related to transportation and urban development by partnership between the government and private sector

- The amount of overseas infrastructure projects taken on by Japanese enterprises [(Construction Industry) 2010: 1 trillion yen to 2020: 2 trillion yen]

*Regarding the indications in the [ ] concerning KPI, the “year” refers to the “calendar year.” The others are “fiscal year”.*
Efforts to be made after the formulation of the 4th Priority Plan

Thorough application of PDCA Cycle including Stock Effects

- Grasping and announcement of the condition of achievement of planned KPI (Key Performance Indicators) every two years
- Conducting follow-ups on such issues as the objective evaluation method of Stock Effect and the direction of effective public-private partnership for maximizing Stock Effect in the subcommittees

※ The planning subcommittee of the Council of Infrastructure Development and the planning subcommittee of the Council of Transport Policy

Formulation of the regional priority plans for infrastructure development in the region blocks

- Formulation of the Priority Plans incorporating specific projects with clear time lines and with a focus on Stock Effect by each of 10 blocks in Japan.
The Stock Effects of infrastructure are divided into the following three effects:

A) **Safety and security effect**
   Effect of improving safety in case of disasters such as earthquakes, tsunami and floods and securing safety and security

B) **Effect of life quality improvement**
   Effect of enhancing the quality of life by contributing to the improvement of the living standards including improvement of sanitary conditions and living amenities

C) **Effect of improved productivity**
   Effect of improving the productivity of economic activities by reducing the travel time and transportation cost, etc.
**Stock Effect Ken-O (Metropolitan Inter-City) Expressway**

In the sections opened earlier in the Ken-O Expressway, the value of manufactured goods shipped has increased.

- Hamura City 166%
- Iruma City 137%
- Hidaka City 124%
- Hino-deicho 120%
- Saitama Prefecture + Tokyo Metropolis 103%

**KPI**

Percentage of length of ring roads in operation in the three major metropolitan areas:

- **68% in FY2014** → **About 80% in FY2020**

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**The description in the Priority Plan for Infrastructure Development**

- Given the prospects of the declining population, in particular the declining working-age population, it is indispensable to improve productivity in order to realize sustainable economic growth and it is necessary to implement strategic improvements and utilize infrastructure in order to maximize the **Stock Effect on the growth of infrastructures**, ultimately reinforcing Japan’s competitiveness and revitalizing regional economy.

- Prioritizing investment in infrastructure contributes to the elimination of traffic congestion and efficient and advanced logistics, while it also stimulates private investment, expands demand, supports the expansion of supply over medium-to-long term and contributes to sustainable economic growth.

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**Location example**

- Prologis Park Zama
  - Total floor space: approx. 218,000 m² (total of two buildings)
  - Completion: May in 2009, July in 2014

- Logisquare Kuki
  - Total floor space: approx. 43,800 m²
  - Completion: to be completed in summer 2016

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**March 8 2015**

Local Value:到处 more than average of the prefecture which the each area belongs

Eguna (Kanagawa Prefecture) about three times the value
Kuki (Saitama Prefecture) about four times the value
The number of cases of inundation due to flood damage in the Nakagawa/Ayase River Basin has been drastically reduced down to 10% or less due to development of the Metropolitan Area Outer Underground Discharge Channel.*1

approx. 7,000 building → approx. 500 buildings
(average from 1975 to 1984) (average from 2005 to 2014)

Kasukabe City designated the area for attracting corporations after the partial opening

→ **28 corporations have newly established** in the designated area

**Number of newly established corporations**

* The numbers are on preliminary basis and may be modified in future.

In the wake of Typhoon No.18 on 2015, approximately 18,370 km³ of water was discharged into Edo River. (largest amount of water after the opening of the channel)

Kasukabe City

*1 Number of inundated houses in the Nakagawa/Ayase River Basin
*2 Within the designated industrial promotion area (the area for promoting the establishment of new corporations by Kasukabe City)

**The description in the Priority Plan for Infrastructure Development**

- The most important role of the infrastructure development is to protect the lives and properties of citizens from the natural disasters, etc.
- Reduction of the risk from disasters through implementation of safe and secure infrastructure contributes to the enhancement of the quality of lives and productive activities in the region and improving the safety of the region results in an expansion of the economic activities including inducement of private investment.

Before the development of the discharge channel (2000)

After the development (2014)

**Distribution warehouse, shopping center, etc. established after the development of the Metropolitan Area Outer Underground Discharge Channel**

**Designated industry promotion area**
By improving the quality of the infrastructures regarding their purpose and roles, and by selecting and concentrating the projects for maximizing their effects, it will be promoted to support the daily life and socio-economic activities in a wide range, with responding to the changes in the social and economic situation and the technological development. (P11)

Projects in which their effectiveness, including drastic mitigation of traffic congestion and company location, etc. appears by the opening of a road

Projects which contributes to increase the visits of large cruise ships by installing facilities such as mooring posts in the pre-existing cargo wharves.

**Higashi-Kyushu Expressway**
Miyazaki and Kitakyushu will be connected directly when the section between Shiida Minami IC and the Buzen IC is opened in the spring of 2016.

**Yatsushiro Port**
Number of foreign flagged cruise ships visiting the ports

- Capital investment: Approx. 7 billion yen
- No. of new employees: Approx. 230

* 2009 to 2013
Smart Use of Infrastructure

- To maximize the Stock Effect of infrastructure, it is important to make the most of the existing infrastructure that has already been constructed.
- The existing infrastructure can be used to achieve the maximum performance of its functions and be used in an effective and thorough manner to sophisticate and diversify the functions in order to heighten its additional value, while also responding to the changes in regional needs.

[Utilization of ETC* 2.0 in roads]

Utilization of bi-directional wireless communication between approximately 1,600 communication spots that are installed along the national expressways and on-board units.
- Optimal route guidance, based on wide area congestion information and toll-by-route pricing, that cooperates with the car navigation system is ensured.
- Efforts to reduce traffic congestions and accidents are promoted by using ETC 2.0, which enables diversified services such as leading the large-sized cars with large impact on road structures to an appropriate route.

*Electronic Toll Collection System

[Introduction of policy toll rates]

For the purpose of reinforcing Japan’s international competitiveness, it is important to make smart use of the existing infrastructure such as revising the navigation routes to Tokyo International (Haneda) Airport, etc.. This would allow the airport handling capacity of the Metropolitan airports (Haneda and Narita) to be enhanced up to 80,000 departures/landings per year by 2020

⇒ Increase the annual departures/landings by about 39,000 at Haneda Airport

Number of annual international departures/landings during daytime, about 60,000 → about 99,000 (about 1.7 times)

[Functional enhancement of the Metropolitan area airports]

Haneda Airport

(Total departures/landings: 80 times/hour)  
(Total departures/landings: 90 times/hour)

*Including revision of navigation routes, etc., specific measures are under discussion with the related regional government bodies, etc.
Integration and reorganization

- Pursuing functional change and **size optimization** of the necessary infrastructures through **integration and reorganization** when the opportunity arises in response to the changing socio-economic circumstances.

Instances of effective improvement and management/operation of the sewage treatment plant (Niigata City)

- In Niigata City, efficient facility management is promoted through consolidation of **facilities centering on the sewage treatment plants**
  - Of the five drainage facilities for agricultural communities, one facility has already been consolidated with the public sewage system.
  - By FY2018, one more facility will be consolidated.
- At the Chubu sewage treatment plant, about 36% of the power consumption of the plant is covered by **the sewage gas generation using sewage sludge**. Further increase of power generation amount will be promoted by aggregating biomass systems such as cut grass using the scale merit.

Example of consolidation and reorganization taking the opportunity of rebuilding the public housing (Osaka Prefecture)

- Develop the detached houses and the residence for the elderly with care provided in an integrated manner on the open space newly generated by the **rebuilding project of the prefectural housing (high-rise building) using PFI method**

Osaka Prefectural Hirakata Tanoguchi Housing Rebuilding Project Image of the panoramic view