Section 2
Expo 2025 Osaka-Kansai: Infrastructure Development in View of the Opening of the Osaka Integrated Resort

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Expo 2025 Osaka, Kansai, Japan is scheduled to be held at Yumeshima Island in Osaka City. With less than three years to go before the Expo, infrastructure improvements are underway around the venue and in the center of Osaka City. In the previous section, it was pointed out that the reason for the long-term stagnation of the Kansai economy over the past 50 years was the lack of investment relative to the rest of Japan. The infrastructure development that is underway for the Osaka-Kansai Expo is expected to make up for the lack of investment in Kansai and to contribute to a positive turnaround in the growth of the Kansai economy.

This section discusses infrastructure development in Kansai in preparation for hosting the Expo. First, we summarize the economic effects of infrastructure development, and then we review the state of social infrastructure and public investment in Kansai prefectures. Next, we outline the Expo, the largest infrastructure development project in the Kansai region, and the attraction of IR (Integrated Resort) facilities to Yumeshima, the proposed site of the Expo. Finally, we estimate of the economic impact of the Expo based on the costs of hosting the Expo and related projects.

1. The Economic Effects of Infrastructure Development and the Current Situation in Kansai

(1) The Economic Effects of Infrastructure Development

As shown in Figure 4-2-1, infrastructure development has two types of economic effects: a flow effect and a stock effect. The flow effect refers to the short-term expansion of the economy due to the induced economic activities such as production, employment, consumption, etc., during the period of investment in the construction, maintenance, and renewal of the relevant infrastructure. The economic effects estimated in the next section are flow effects.

The stock effect, on the other hand, is realized in the medium-to-long term as infrastructure is accumulated and starts functioning as social infrastructure. The stock effect can be further classified into three types: safety and security effects; quality of life effects; and productivity effects. The safety and security effects improve disaster safety against earthquakes, tsunamis, floods, etc., to

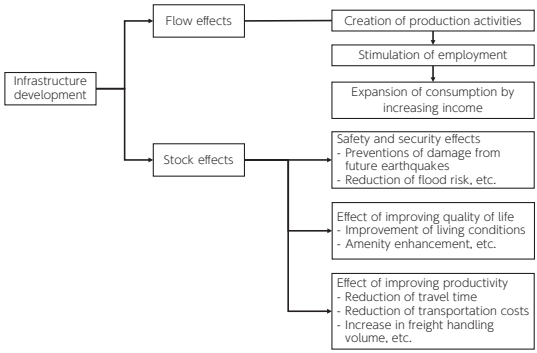

Figure 4-2-1 The Economic Effects of Infrastructure Development

Source: Prepared based on the White Paper on Land, Infrastructure, Transport and Tourism published by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

ensure safety and security. The quality of life effects enhances the quality of life by improving living standards, such as hygiene and amenity conditions. The productivity effects increase productivity by reducing travel time, lowering transportation costs, etc., which leads to economic growth.

As a concrete example of infrastructure development, let us consider the economic effects of the development of transportation networks such as railroads and roads. Transportation infrastructure provides a means of transportation for people, goods, and money, which contributes to improving the quality of life and productivity by reducing travel time and transportation costs. It also provides evacuation routes to protect people from disasters and increases the number of visitors from outside the region. In other words, the development of transportation infrastructure produces all of the three stock effects mentioned above. APIR has conducted a study to estimate the economic effects of reducing travel time associated with the development and expansion of expressway networks on the prefectures and industries in Kansai (see the box below entitled “APIR Research Projects on the Economic Effects of Infrastructure Development”).

(2) The state of Infrastructure Development in Kansai

Next, we will look at the status of infrastructure development in Kansai from the perspective of flow and stock effects.

To analyze flow effects, we look at the weight of public gross fixed capital formation (hereinafter, “public investment”) in the economy of each prefecture. Figure 4-2-2 compares the ratio of public investment to nominal GRP in the prefectures of the Kansai region. The share of public investment is high in Wakayama and Nara prefectures, indicating that the economic structure

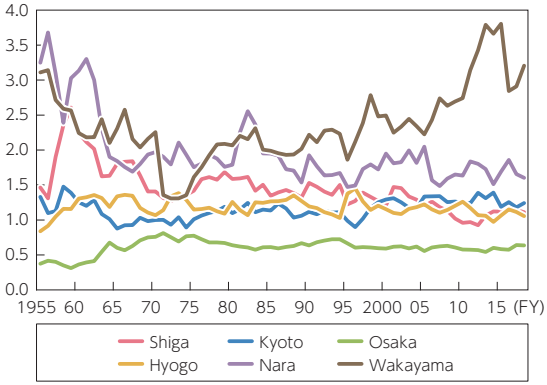

Figure 4-2-2 Public Investment Relative to Economic Size in Each Kansai Prefecture

Note: Share of public gross fixed capital formation in Kansai/nominal GDP share
Source: Prepared by the author based on the System of Prefectural Accounts published by the Cabinet Office

is relatively tilted toward public investment. In Osaka Prefecture, the share of public investment has remained low for a long time. This indicates that in Kansai, the importance of public investment is unbalanced between urban and rural areas.

Next, we look at stock effects. Figure 4-2-3 shows the share of social infrastructure (total and roads) of the six prefectures in Kansai relative to the national level. After peaking at 16.6% in FY 1975, the share declined to 14.2% in FY 2014.

When focusing on roads only, the share of social infrastructure relative to the national level rose to 17.7% in 1969. This is due to the road development projects related to the Osaka Expo (EXPO'70). According to Sumitomo Mitsui Trust Realty, of the total Expo-related project costs of JPY 650 billion, road-related projects accounted for JPY 334.2 billion, or 51.4% of the total. After the Kinki Expressway and Suita IC opened to traffic in 1970, the Expo-related road development effects declined, and so did Kansai's share of road infrastructure – it declined to 13.8% of Japan's in FY 2014.

As mentioned earlier, after the Osaka Expo in 1970, the Kansai economy entered a prolonged period of stagnation due to a lack of investment, partly because of the loss of the effects of roads development. We hope that the infrastructure developed for the upcoming Expo and the opening of IR facilities will be the legacy of Expo 2025, so that Kansai can reap the benefits of the stock effects of infrastructure development.

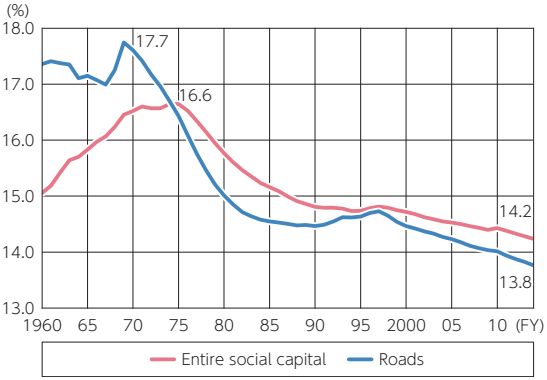

Figure 4-2-3 Changes in Shares of Social Infrastructure in Kansai

Note: Kansai = six prefectures in the Kansai region
Source: Prepared by APIR based on Social Infrastructure Statistics published by the Cabinet Office

2. Expectations for the Osaka-Kansai Expo and Integrated Resorts

The Osaka-Kansai Expo 2025 will be the largest ever infrastructure development project in Kansai in recent years. Below, we first provide an overview of the Osaka-Kansai Expo based on the Expo Master Plan presented by the Japan Association for the 2025 World Exposition. We also outline the plans to attract IR facilities to Yumeshima Island where the Expo site will be located.

(1) Overview of the Osaka-Kansai Expo 2025 in the Master Plan

The Osaka-Kansai Expo will be held for about half a year from April 13 to October 13, 2025. The site for the Expo is located in Yumeshima, an artificial island on the waterfront of Osaka City. The venue area is 155 hectares, which accounts for approximately 40% of Yumeshima's total area of 390 hectares.

On December 25, 2020, the Japan Association for the 2025 World Exposition formulated and announced the Master Plan in preparation for the Expo. Table 4-2-1 summarizes the overview of the Osaka-Kansai Expo shown in the Master Plan.

Below is an overview of the Osaka-Kansai Expo according to the Master Plan. The Master Plan summarizes the site plan, the operation plan, the financial program, etc., including diverse forms of participation and projects and the site design that embody the theme of the Osaka-Kansai Expo, "Designing Future Society for Our Lives." Based on this Master Plan, activities will be promoted to invite participating countries and international organizations and to

Table 4-2-1 Overview of the Osaka-Kansai Expo 2025

Title	Expo 2025 Osaka, Kansai, Japan (abbreviated name: Osaka-Kansai Expo 2025)
Theme	Designing Future Society for Our Lives
Sub-themes	Saving Lives Empowering Lives Connecting Lives
Concept	People's Living Lab
Venue	Yumeshima (Konohana-ku, Osaka City)
Period	Sunday, April 13 to Monday, October 13, 2025
Projected number of visitors	Approx. 28.2 million

Source: Prepared based on the Master Plan of the Japan Association for the 2025 World Exposition

encourage the participation of and co-creation between businesses, organizations, grassroots bodies, etc. Also, an implementation plan for each project will be formulated and specific initiatives will be promoted.

The projected number of visitors is approximately 28.2 million based on the results of past international expositions, the location of the venue, etc., and the breakdown is as follows: approximately 15.6 million from Kansai, approximately 9.1 million from other regions of Japan, and approximately 3.5 million from abroad. The projected number of visitors from abroad is based on the registration applications submitted to the Bureau International des Expositions (BIE). It should be noted that the applications were submitted at the end of 2019 before the COVID-19 pandemic and that the estimates assume that Japan would welcome 50 million inbound travelers in 2025.

For the success of the Osaka-Kansai Expo, it is essential to ensure smooth access for the expected 28.2 million visits to the Expo venue. To access Yumeshima during the Expo, the plan is to secure transport routes by making the most of rail, land, sea, and air transport. As railways will be the main means of transport, the Osaka Metro Chuo Line is being extended and Yumeshima Station (provisional name) will be newly built. Railways are expected to carry approximately 40% of visitors to the venue. For access via road, shuttle buses will run directly from major railway stations and airports to the Expo venue. Phase 2 construction of the Yodogawa Left Bank Line, which Osaka City originally planned to complete by the end of FY 2026, will be brought forward for its early completion to tentatively use the line as an access route from Osaka Station, Shin-Osaka Station, and other stations. In addition, a park-and-ride system will be adopted, whereby general private car users will transfer to buses at off-site parking sites that will be installed within 15 km of the Expo site. Entry of general private cars into the site will be prohibited, in principle.

Next, we look at the financial program in the Master Plan. The financial program includes two expense items: site construction expenses and operating expenses. The total amount of site construction expenses is JPY 185 billion, consisting of JPY 118 billion for facility construction and JPY 67 billion for infrastructure construction. Site construction expenses have been agreed to be borne one-third each (JPY 61.7 billion) by the national government, Osaka Prefectural and City governments, and funds from the business community. Operating expenses are estimated to be JPY 80.9 billion, which will be covered by the organizer's own financial resources, such as admission ticket sales.

When the Government, local governments, foreign governments, international organizations, and private companies hold exhibitions at the Expo, the construction expenses and project cost of pavilions, etc., will be borne by the exhibitors. For this reason, the specific amounts are unknown at this time and are not recorded in the financial program in the Master Plan. The project costs for the Osaka Pavilion at which Osaka Prefecture and Osaka City and the economic world in Kansai will hold exhibitions are estimated to be approximately JPY 16 billion, which will be covered by private sponsorships and donations, in addition to public funds.

In addition, according to the budget information released by Osaka City, JPY 112.8 billion is expected as related project costs, such as for railway development, road improvement, and additional construction expenses for land reclamation. The details are discussed in the next sub-section.

(2) Plans to Attract Integrated Resort (IR) Facilities

Osaka Prefecture and Osaka City are promoting activities to attract IR facilities to Yumeshima Island where the Expo site will be located. The movements to attract IR facilities are detailed below.

In a Cabinet decision in 2019, the Government announced that the IR facilities should be based on the Act on Development of Specified Complex Tourist Facility Areas (the so-called IR Development Act) to realize internationally competitive and attractive stay-type tourism and to manifest the policy effects as soon as possible. The Government plans to develop up to three IR (Integrated Resort) facilities in Japan, including casinos, which are scheduled to open in the late 2020s, and development plan applications are being accepted.

In Kansai, activities to attract IR facilities are being promoted by Osaka

Table 4-2-2 Outline of Planned IR Facilities in Osaka and Nagasaki

	Osaka	Nagasaki
Core operators	MGM, Orix	Casino Austria International Japan
Construction site	Yumeshima, Osaka City	Land adjacent to Huis Ten Bosch, Sasebo City
Opening schedule	Autumn to winter 2029	Autumn 2027
Facility floor area	770,000 square meters	640,000 square meters
Initial investment amount	JPY 1.08 trillion	JPY 438.3 billion
Annual target visitors	20 million visits	6.73 million visits

Source: Prepared based on various media reports

Prefecture and Osaka City with Yumeshima as a potential location[1]. In December 2019, the Osaka IR Fundamentals Plan was announced, in which the development of Japan's largest international convention hall and exhibition facilities that combine world-class scale and quality is planned. As of June 2022, Osaka and Nagasaki are planning to attract IR facilities (Table 4-2-2).

3. The Expo-related Infrastructure Development Plan

The infrastructure development that is underway for the Osaka-Kansai Expo is expected to make up for the lack of investment in the Kansai region, and to put the Kansai economy on a positive growth trajectory. In the previous section, we looked at the overview of the Osaka-Kansai Expo based on the Master Plan. The Master Plan provides rough estimates of the amounts, but it does not specify the details of infrastructure development. Therefore, this section discusses the state of infrastructure development related to the Expo based on the materials released by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Osaka Prefecture, and Osaka City, as well as information obtained through interviews with related parties.

At the 2nd meeting of the Headquarters for the World Expo 2025 held in August 2021, an infrastructure development plan for the Osaka-Kansai Expo 2025 was decided. According to this plan, infrastructure development will be

1) In Kansai, in addition to Osaka Prefecture and Osaka City, Wakayama Prefecture has also examined development plans to promote IR attraction with Wakayama Marina City as a candidate site. However, at the plenary session of the prefectural assembly held in April 2022, the proposal to submit the plan to the national government was rejected by a majority of opposition votes, making it impossible to apply for the plan by the deadline of April 28. Therefore, the attraction plan was essentially returned to a blank slate.

promoted to support the smooth holding of the Osaka-Kansai Expo and to enhance its effectiveness, as well as to provide a growth platform to support socio-economic activities in the region after the Expo. The five main projects are (1) infrastructure development around the venue, (2) improvement of access to the venue, (3) improvement of safety, (4) improvement of liveliness and attractiveness, and (5) the development of a wide-area transportation infrastructure, the details of which are described below.

Figure 5 in the EXPO 2025 Chronology (Part III) presented later shows the locations of the major development plans on the map.

(i) The infrastructure development around the Expo site aims to support the smooth holding of the Expo by enhancing passenger transportation capacity and facilitating traffic around the Expo site. This includes improving infrastructure such as roads and railways around ports and harbors, including the extension of the Osaka Metro Chuo Line, and improving the efficiency of container logistics functions at Hanshin Port.

(ii) Access to the venue will be improved in order to enhance transportation infrastructure such as railways, roads, air routes, and sea routes. This project covers not only the Yumeshima area, but also access roads from neighboring prefectures to the Osaka area. Specifically, fundamental functional enhancements are planned, including the front-loaded Phase 2 construction of the Yodogawa Left Bank Line and the expansion of international flight capacity of the Kansai International Airport.

(iii) The safety improvement plans include ensuring the safety of access routes to the venue, improving the earthquake resistance of facilities, and developing relief-activity bases in the event of a disaster. Countermeasures for the Nankai Trough Mega-Earthquake are also included.

(iv) The improvement of liveliness and attractiveness aims to facilitate exchanges between visitors in city centers and areas where visitors are expected to stay overnight by developing new water and sea networks centered on Yumeshima. At the time of the Expo, Yodogawa River ship transportation will be revived, and a wide-area transportation network will be formed to connect Osaka and the upper reaches of the Yodogawa. In Osaka City, the Umekita Phase 2 Development project, the creation of an attractive waterside space along the Dotonbori River, and the reorganization of the area around Namba Station, which is the southernmost point of Midosuji Avenue, are included in the plan for the recovery of inbound tourism, which was damaged by the COVID-19 pandemic.

(v) The development of a wide-area transportation infrastructure will promote the development of railways and the formation of a ring expressway

network as the foundation for growth of Osaka and Kansai, which is expected to contribute to the revitalization of socio-economic activities and the building of national land highly resilient to large-scale disasters. For example, if the development of Shin-Meishin Expressway progresses, it is expected to shorten the travel time between Osaka and Nagoya and to improve transportation convenience, contributing to revitalizing the local economy. In addition, the Naniwasuji Line will improve access from Shin-Osaka Station, which is connected to the east-west national axis, to Kansai International Airport via Kita-Umeda Station (provisional name), which will be newly constructed in the Umekita Phase 2 Development area.

Table 4-2-3 below provides an overview of the budgets for Expo-related projects based on the Infrastructure Development in Yumeshima, Osaka, announced in February 2022. A total of JPY 192.9 billion has been recorded as related project costs, and the breakdown is as follows: JPY 61 billion for the construction of railways including an extension of the Osaka Metro Chuo Line and to enhance transportation capacity, JPY 25 billion for road improvements including the widening of the Konohana Bridge and Yumemai Bridge, JPY 10.2 billion for land reclamation, and JPY 96.7 billion for others. These projects, however, include some that will continue after 2025 and also IR-facility related projects. Excluding the projects that are specified as those for IR facilities (marked with ◎ in the right column of Table 4-2-3), the project costs amount to JPY 112.8 billion. Table 5 in EXPO 2025 Chronology (Part III) presented later shows the timetable of the infrastructure development plan by Osaka City.

4. Conclusion: Challenges for Infrastructure Development in Kansai over the Medium to Long Term

So far, we have summarized the infrastructure development in the Kansai region in anticipation of the Osaka-Kansai Expo. Table 4-2-4 summarizes the new demand associated with the Osaka-Kansai Expo shown in this section. In the next section, we will estimate the economic effects of the Osaka-Kansai Expo using APIR's Kansai Inter-Regional Input-Output Table based on these expenditure figures.

Finally, we would like to conclude by describing the challenges for infrastructure development in the Kansai region in the medium to long term.

When looking beyond the Expo, one of the challenges for infrastructure development in the entire Kansai region is that it lags behind other regions in terms of developing infrastructure in an efficient manner. As a matter of course, the convenience of infrastructure is essential to improving productivity. No

Table 4-2-3 Overview of Related Project Costs

Expense item	Details	Budget amount (JPY 100 million)	IR project or not (Note)
Railway construction, etc.: extension of the Osaka Metro Chuo Line, transportation capacity enhancement, etc.		610	
	Railroad (southern route)[preliminary survey]	1	
	Railroad (southern route) [infrastructure (road construction-related)]	346	
	Railroad (southern route) [infrastructure (railway-related)]	230	
	Railroad (southern route)[Phase II urban development]	33	○
Roadway improvement: Konohana Bridge and Yumemai Bridge expansion, etc.		250	
	Tourist perimeter road	49	○
	Elevated road	98	
	Station facilities	30	
	Yumeshima trunk road	10	
	Maishima trunk road, Maishima East multi-level intersection	34	
	Konohana Bridge (6-lane roadway, pedestrian walkway)	26	
	Yumemai Bridge (6-lane roadway, pedestrian walkway)	2	
	Sakishima Cosmo North Line	1	
Reclamation costs, etc.		102	
	Reclamation and embankment (Expo)	89	
	Reclamation and embankment (IR)	13	◎
Others		967	
	Sewerage systems (pumping stations, drains, etc.: Expo)	115	
	Water supply systems (pumps, water pipes, etc.: Expo)	34	
	Mooring facilities (floating pier, waiting area, breakwater)	10	
	Firefighting base equipment	20	
	Land improvement (IR land)	788	◎
	Total	**1,929**	
	(excluding those used primarily for IR)	**(1,128)**	

Note: "○" indicates that the project includes some IR facilities, and "◎" indicates that the project is mainly for IR facilities.
Source: Prepared based on the website of Osaka City

matter how much infrastructure is developed, productivity will not improve unless that infrastructure can ensure convenience and efficiency.

For example, expressways in Kansai have many more missing links

Table 4-2-4 Final Demand Estimates Associated with the Expo

(Unit: JPY 100 million)

Site construction costs (organizers)	
Developing the foundation (civil engineering, pavements, landscaping, etc.)	130
Developing infrastructure facilities (electricity, water supply and drainage work, etc.)	285
Parking lots, entrance	171
Pavilion construction and service facilities	1,103
Arrangement of the venue	50
Other (research and design costs, administrative costs)	108
Total	**1,847**
Operating costs	
Organizers (total cost only)	**809**
Related business expenses	
Railway construction, etc. (extension of the Osaka Metro Chuo Line, transportation capacity enhancement, etc.)	610
Roadway improvement (Konohana Bridge and Yumemai Bridge expansion, etc.)	250
Reclamation costs, etc.	89
Other	179
Total	**1,128**

Source: Prepared by APIR based on the Master Plan of the Japan Association for the 2025 World Exposition and other materials

(undeveloped sections) on roads accessing international airports and harbors than those in the Kanto and Chubu regions. In addition, the construction of ring road networks, which are necessary to alleviate congestion in city centers, has significantly lagged behind other regions. In addition to the problem of domestic logistics, the inconvenient access from Kansai International Airport to tourist destinations such as Kobe and Hyogo also serves as an obstacle to wide-area excursions within the Kansai region. For example, it is reported that the opening of the section between Yawata-Kyotanabe Junction/Interchange (JCT/IC) to Takatsuki JCT/IC of Shin-Meishin Expressway is four years behind schedule and will not open in time for the Osaka-Kansai Expo in 2025[2)].

In this regard, it is crucial for the future of the Kansai economy that the Infrastructure Development Plan for Osaka-Kansai Expo 2025 formulated by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) can actually be implemented. The Development Plan was formulated from a medium- to long-term perspective, looking beyond the Expo, including transportation infrastructure for areas adjacent to the Expo venue, such as Osaka city, as well as

2) Reference: Nihon Keizai Shimbun, February 9, 2022

transportation infrastructure covering wider areas. We hope that the realization of a series of development plans will bring about the success of the Osaka-Kansai Expo, and that this will be a major achievement in terms of both flow and stock effects, which will put the Kansai economy, including the private sector, on a trajectory of positive growth.

Box APIR Research Projects on the Economic Effects of Infrastructure Development

In this section, we outlined the social and economic significance of enhancing infrastructure. The economic effects of infrastructure development have been quantitatively analyzed using various approaches such as production functions, macro-econometric models, input-output analysis, and CGE models. With regard to the Kansai region, APIR conducted a series of research projects on the economic effects of the development and expansion of transportation networks between 2015 and 2017.

Since previous research did not sufficiently examine the impact on the local economy of a more efficient local economic structure achieved through the development of social infrastructure, including expressways, in 2015, APIR estimated the transportation accessibility in the six prefectures in the Kansai region from 2005 to 2014 by focusing on "transportation accessibility" as an indicator that expresses the ease of interaction between living areas through the use of expressways. Then, in 2016, we estimated production functions that incorporate transportation accessibility by prefecture and examined the impact of changes in transportation accessibility due to the development of expressways on gross prefectural product (GRP) of the six Kansai prefectures. In 2017, we expanded the above analysis by examining the effects of improving transportation accessibility by industry.

Based on our analyses, we find that positive economic effects can be observed in five of the six Kansai prefectures (except Nara), that and the economic effects are particularly large in Kyoto Prefecture. The reason for the large effects in Kyoto Prefecture is that the extent of transportation accessibility improvement there is larger, and the positive impact of the transportation accessibility improvement on the economy is greater in Kyoto Prefecture than in other prefectures. On the other hand, in the case of Nara Prefecture, transportation accessibility improvements generate negative spillover effects, which cause translate into negative economic growth.

By industry, we find that the effects of transportation accessibility improvement are not uniformly spread across industries. While a positive

impact is observed on the electricity, gas, and water industries, almost no impact can be seen on the wholesale and retail trade, and the transportation and communications industry. A negative impact is observed on the agriculture, forestry and fisheries, manufacturing, construction, and service industries. One possible reason for this is that the use of expressways differs in each industry. Using the Kansai Intra-Regional Input-Output Table, we compare the size of freight-related transportation costs in the total production of each region by industrial sector and we clarify the existence of differences in the cost structure of cargo transportation.

In summary, APIR's research projects analyzed the economic effects brought about by the improvement of transportation accessibility through the development of infrastructure that affects a wide economic area, such as expressways. When the results are broken down by region and industry, the economic effects are far from uniform. In consideration of this, it is necessary to formulate development plans from regional and industrial perspectives when considering the ideal form of wide-area social infrastructure development.

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