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Japan Country Report

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Country Report (Japan)

I. Overview

Although Japan's economy had slowed down due to global economic confusion and the Great East Japan Earthquake of March 2011, a recovering trend had been apparent with the economy boosted by subsequent public investment centering on recovery/reconstruction works. A downturn in growth is expected for FY2014, due to the slowdown in consumer spending resulting from consumption tax increases that took effect in April, the rebound from last-minute demand in residential investment, and reduced public investment even with the inclusion of the FY2013 supplementary budget. Although growth in FY2015 is forecast to match the level of growth in FY2014, while consumer spending will increase due to further consumption tax increases scheduled for October 2015 and residential investment will increase due to the effects of last-minute demand in the first half of the fiscal year, as rebounds in the latter half of the fiscal year will result in decreases, efforts that will lead to continuous economic growth are anticipated.

After peaking at approximately ¥84.0 trillion in FY1992, construction investment in Japan fell rapidly, and has, in more recent years remained at around half the peak investment level of about ¥40 trillion – ¥50 trillion. Although difficult times continue for the construction industry, construction investment is gradually picking up due to recoveries in public and private investment for recovery/reconstruction following the Great East Japan Earthquake. For private non-residential construction investment, there is a nationwide trend of improvement in office space vacancy rates/rents, with a year-on-year increase of 5.6% due to expected increases in construction starts (floor area), and with the added contribution from capital investment by civil engineering infrastructure related companies, an overall year-on-year increase of 5.2% is anticipated. While there is a negative year-on-year growth rate for government construction investment in FY2014, due to the FY2013 supplementary budget, an investment amount greater than that of FY2012 is anticipated.

The recent status of the construction industry in Japan can be summed up as follows.

①There was a slight increase of 0.2% in the number of licensed construction companies over the same month of the previous year, but in comparison to the peak in 2000, this figure is a reduction of ▲21.7%.

②The number of persons employed in the construction industry shifted to a declining trend, and FY2013 showed a declining year-on-year trend centering on steel working businesses.

③Japan's overseas construction orders received was affected by the worldwide recession and dropped to ¥697 billion in FY2009. However, this increased to ¥1,602.9 billion in FY2013.

④Prices for construction materials continued to soar, however, even with repeated wild fluctuations, prices have recently tended towards staying high indicating a return to calmer markets.

II. Macro-economic review and forecast

1. Overview of Japan's economy (Figures 1, 2)

Due to the Great East Japan Earthquake of March 2011, Japan's economic growth rate temporarily fell to 0.3% in FY2011. However, the subsequent upward trend has continued, and in FY2013, consumer spending and residential investment resulting from last-minute demand prior to increases in consumption tax drove the economy, and with subsequent last-minute demand reaching full momentum by the end of the fiscal year, the economic growth rate reached 2.3%.

With regards to future economic trends, the slowdown in the recovery of Asian economies such as China and the deteriorating situation in the Middle East have been mentioned as downward swing risk factors, and a delayed economic recovery due to a downturn in last-minute demand prior to increases in consumption tax is expected.

As there will be a slowdown in growth potential in response to last-minute demand in residential investment, etc. in FY 2014, private final consumption expenditure will decline by ▲0.6%. Meanwhile, consumer spending will pick up and with signs of improvement in opinions on corporate outlook, a 5.9% increase in private corporate facilities is expected. In addition, while public fixed capital formation will decline by ▲7.7% together with the decrease in earthquake recovery/reconstruction works, economic recovery is anticipated, and a year-on-year real GDP increase of 0.9% is forecast for FY2014.

Figure 1　Macroeconomic Trends (FY)

(Unit: Billion yen)

Fiscal year	1995	2000	2005	2010	2011	2012	2013	2014 (Forecast)	2015 (Forecast)
Real GDP	459,058	476,723	507,158	512,424	514,148	517,526	529,320	533,895	540,890
(YoY change)	2.7%	2.0%	1.9%	3.4%	0.3%	0.7%	2.3%	0.9%	1.3%
Real private final consumption expenditures	265,891	275,056	292,579	299,724	303,910	308,450	316,363	314,585	316,758
(YoY change)	2.3%	0.3%	1.9%	1.6%	1.4%	1.5%	2.6%	-0.6%	0.7%
(Contribution rate)	1.3	0.2	1.1	0.9	0.8	0.9	1.6	-0.3	0.4
Real government final consumption expenditures	73,617	83,960	92,363	97,886	99,079	100,594	102,436	103,901	104,127
(YoY change)	4.3%	4.8%	0.4%	2.0%	1.2%	1.5%	1.8%	1.4%	0.2%
(Contribution rate)	0.6	0.8	0.1	0.4	0.2	0.3	0.4	0.3	0.0
Real private housing	23,609	20,080	18,345	12,534	12,936	13,619	14,918	14,025	14,099
(YoY change)	-5.7%	-0.1%	-0.7%	2.2%	3.2%	5.3%	9.5%	-6.0%	0.5%
(Contribution rate)	-0.3	0.0	0.0	0.1	0.1	0.2	0.3	-0.2	0.0
Real private corporate facilities	60,326	64,986	70,599	64,876	68,001	68,516	70,326	74,455	77,050
(YoY change)	3.1%	4.8%	4.4%	3.8%	4.8%	0.8%	2.6%	5.9%	3.5%
(Contribution rate)	0.5	0.7	0.6	0.5	0.6	0.1	0.4	0.8	0.5
Real public fixed asset formation	41,704	35,071	24,113	20,715	20,056	20,315	23,386	21,586	18,694
(YoY change)	6.7%	-6.1%	-6.7%	-6.4%	-3.2%	1.3%	15.1%	-7.7%	-13.4%
(Contribution rate)	0.6	-0.5	-0.3	-0.3	-0.1	0.1	0.7	-0.3	-0.5
Real inventory increase	1,291	341	807	-136	-1,478	-1,922	-3,996	-3,117	-3,067
(YoY change)	-241.5%	-110.2%	-46.3%	-97.3%	988.9%	30.1%	107.9%	-22.0%	-1.6%
(Contribution rate)	0.6	0.8	-0.1	1.1	-0.5	-0.1	-0.4	0.2	0.0
Real financial services net exports	-4,509	-2,087	8,349	16,847	11,974	8,359	7,068	9,642	14,410
(YoY change)	596.5%	102.6%	56.0%	43.8%	-28.9%	-30.2%	-15.4%	36.4%	49.4%
(Contribution rate)	-0.6	0.0	0.6	0.8	-1.0	-0.8	-0.5	0.5	0.9
Nominal GDP	504,594	510,835	505,349	480,233	473,671	472,645	481,508	495,906	506,203
(YoY change)	1.8%	0.8%	0.5%	1.3%	-1.4%	-0.2%	1.9%	3.0%	2.1%

Source: *Construction and Economic Forecasts* (RICE) for 2014 and 2015, Annual Report on National Accounts(Cabinet Office) for 1995-2013
Note: Real values reflect 2005 prices.

2. Major Economic Indicators

Figure 2 List of Major Economic Indicators

	2009	2010	2011	2012	2013	(Forecast) 2014
GDP (Real,(2005prices), billion yen)	495,491	512,424	514,148	517,526	529,320	533,895
GDP (Nominal, billion yen)	473,934	480,233	473,671	472,645	481,508	495,906
GDP growth (%)	-2.0%	3.4%	0.3%	0.7%	2.3%	0.9%
Agriculture, forestory, and fishery	-9.4%	-1.0%	2.0%	0.3%	－	－
Manufacturing	-17.7%	19.6%	-2.5%	-0.5%	－	－
Services	-4.7%	0.0%	0.6%	2.8%	－	－
Mining	-43.6%	5.9%	1.1%	-1.3%	－	－
Construction	-2.0%	-2.3%	0.9%	1.0%	－	－
Demographic Indicators						
Population (thousands)	128,032	128,057	127,799	127,515	127,298	127,116
Population growth rate (%)	0.27%	0.02%	-0.20%	-0.22%	-0.17%	-0.14%
Total labor force (thousands)	66,420	66,290	65,768	65,552	65,776	65,830
Labor force growth rate (%)	-0.48%	-0.20%	-0.79%	-0.33%	0.34%	0.08%
Unemployment rate (%)	5.2%	5.0%	4.5%	4.3%	3.9%	3.6%
Inflation rate (%)	-1.4%	-0.7%	-0.3%	0.0%	0.4%	2.0%
Financial Indicators						
Interbank interest rate (%)	0.46	0.34	0.34	0.31	0.22	0.21
Short-term interest rate (%)	0.09	0.08	0.08	0.08	0.07	0.07
Long-term interest rate (%)	1.36	1.19	1.15	0.86	0.72	0.61
Exchange rate against US$(yen)	93.53	87.77	79.78	79.79	97.60	102.34

Source: Construction and Economic Forecasts (RICE, July 2014), Annual Report on National Accounts (Final Report for 2012, Cabinet Office), Financial and Economic Statistics Monthly (Bank of Japan), Ministry of Internal Affairs and Communications website.

Notes:

1. The GDP figure for FY2014 is a forecast.Real values: 2005 prices.
2. Population figures are estimates as of October 1 each year. The FY2014figure is an average value for five months.
3. The workforce population and unemployment rates are average values for 12 months. For 2014, the figure is an average value for three months.
4. The inflation rate is a percentage as compared with the previous year's consumer price index. For FY2014, the figure is the rate of increase between FY2013 and July 2014.
5. Interbank Interest rates for 2014 are as of the end of August. Others reflect the year-end rates.
6. Short-term interest rates are calculated using the average published interest rate for domestic commercial paper.
7. Long-term interest rates are the rates on 10-year government bonds.
8. Exchange rate for 2014 is as of the end of August. Others are annual averages.

III. Overview of the Construction Industry

1. Construction Investment Outlook (Figure 3)

Construction investment in Japan for FY2013 (nominal: same hereinafter) was approx. ¥48.7 trillion, of which approx. ¥20.6 trillion was government investment and approx. ¥28.1 trillion was private investment. All three showed significant decreases in comparison to peak levels, with construction investment at ▲42.0% (peak FY1992), government investment at ▲41.5% (peak FY1995) and private investment at ▲49.6% (peak FY1990).

Construction industry forecasts announced in July 2014 state that construction investment for FY2014 is expected to decrease by 1.8% from the previous fiscal year to ¥47.86 trillion.

While government construction investment will be ▲5.1% from the previous year in reaction to the FY2012 supplementary budget, with the emergence of the effects of the "15-month budget", formulated through the combination of the FY2013 supplementary budget and the FY2014 initial budget, investment amounts exceeding FY2012 are forecast.

For private residential investment, while the continuation of rental housing starts as tax-saving measures against increases in inheritance tax that will take effect from 2015 is assumed, an unavoidable overall decrease in units started is expected due to a downturn in last-minute demand for owner-occupied housing, with forecasts of ▲8.1% year-on-year for housing starts and ▲2.8% for private residential investment.

For private non-residential investment, as there will be a year-on-year increase in construction starts (floor area) for FY2014, private non-residential construction investment will show a year-on-year increase of 5.6%, and with the added contribution from capital investment by civil engineering infrastructure related companies, an overall year-on-year increase of 5.2% in private non-residential construction investment is forecast.

Figure 3　Construction Investment Forecast

(Unit: ¥1 billion)

FY	1990	1992	1995	2011	2012	2013	2014 (Forecast)	2015 (Forecast)
Nominal construction investment	81,440	83,971	79,017	43,292	44,200	48,720	47,860	46,020
(YoY change)	11.4%	1.9%	0.3%	3.3%	2.1%	10.2%	-1.8%	-3.8%
Nominal government construction investment	25,748	32,334	35,199	18,611	18,690	20,600	19,540	17,160
(YoY change)	6.0%	12.8%	5.8%	3.5%	0.4%	10.2%	-5.1%	-12.2%
(Contribution rate)	2.0	4.4	2.5	1.5	0.2	4.3	-2.2	-5.0
Nominal private residential construction	25,722	22,663	24,313	13,375	14,090	15,740	15,300	15,580
(YoY change)	9.3%	-2.0%	-5.2%	3.1%	5.3%	11.7%	-2.8%	1.8%
(Contribution rate)	3.0	-0.6	-1.7	0.9	1.7	3.7	-0.9	0.6
Nominal private non-residential construction	29,970	28,974	19,505	11,307	11,420	12,380	13,020	13,280
(YoY change)	18.4%	-5.4%	-1.8%	3.1%	1.0%	8.4%	5.2%	2.0%
(Contribution rate)	6.4	-2.0	-0.4	0.8	0.3	2.2	1.3	0.5
Real construction investment	84,221	83,603	77,935	40,771	42,208	45,460	43,310	41,090
(YoY change)	7.6%	0.6%	0.2%	1.8%	3.5%	7.7%	-4.7%	-5.1%

Source: *Construction and Economic Forecast* (RICE), *Construction Investment Forecasts* (MLIT).
Notes:
1. Real values reflect 2005 prices.
2. Private non-residential construction investment = private non-residential building investment + private civil engineering investment.

2. Construction Companies

The number of licensed construction companies in Japan as of end March 2014 was 471 thousand, an increase of 0.2% over the same month of the previous year. (Figure 4)

In comparison to end March 2000, when the number of licensed construction companies was at its highest, there has been a decrease of 130,000 companies (▲21.7%).

Looking at the number of licensed construction companies by capital classification, the highest proportion, 38.0%, is comprised of "Corporation with ¥3 million up to¥10 million in capital", followed by "Corporation with ¥10 million up to¥20 million in capital (23.9%)", and then " Sole proprietor (19.4%)".

Figure 4　No. of Construction Companies, and Composition Size

Year	2000		2011		2012		2013		2014	
	(thousand)	Percent of total	(thousand)	Percent of total	(thousand)	Percent of total	(thousand)	Percent of total	(thousand)	Percent of total
No. of registered contractors (total)	601	100.0%	499	100.0%	484	100.0%	470	100.0%	471	100.0%
Breakdown of registered contractors by size classification										
8 Sole proprietor	158.2	26.3%	102.4	20.5%	97.0	20.1%	91.8	19.5%	91.2	19.4%
7 Corporation with less than ¥3 million in capital	1.0	0.2%	7.2	1.4%	8.4	1.7%	9.7	2.1%	11.1	2.4%
6 Corporation with ¥3 million up to ¥10 million in capital	195.3	32.5%	186.2	37.3%	181.9	37.6%	178.2	37.9%	179.0	38.0%
5 Corporation with ¥10 million up to ¥20 million in capital	166.0	27.6%	123.6	24.8%	118.4	24.5%	113.5	24.2%	112.7	23.9%
4 Corporation with ¥20 million up to ¥100 million in capital	74.1	12.3%	73.6	14.8%	72.3	14.9%	71.0	15.1%	71.1	15.1%
3 Corporation with ¥100 million up to ¥1 billion in capital	4.8	0.8%	4.4	0.9%	4.3	0.9%	4.2	0.9%	4.2	0.9%
2 Corporation with ¥1 billion up to ¥10 billion in capital	1.6	0.3%	1.0	0.2%	1.0	0.2%	1.0	0.2%	1.0	0.2%
1 Corporation with ¥10 billion or more in capital	0.4	0.1%	0.4	0.1%	0.4	0.1%	0.4	0.1%	0.4	0.1%

Source: *Survey of on the Number of Licensed Construction Companies* (MLIT)

The number of construction consultant businesses is shown in the figure below. (Figure 5)

Figure 5　No. of Registered Construction-Related Businesses
(by Business Type and Net Registered Number)

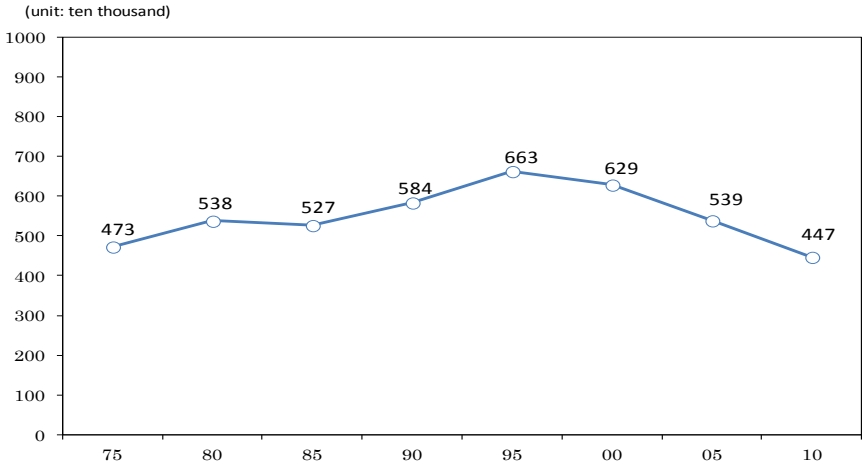
Business Type	Fiscal Year[2]	2010	2011	2012	2013	2014
Surveying[1]	No. of registered companies	12,974	12,695	12,566	12,436	12,272
	YoY change (%)	-2.6	-2.2	-1.0	-1.0	-1.3
Construction consulting[1]	No. of registered companies	3,952	3,991	3,935	3,941	3,945
	YoY change (%)	-1.0	1.0	-1.4	0.2	0.1
Geological surveying[1]	No. of registered companies	1,286	1,289	1,265	1,263	1,259
	YoY change (%)	-1.5	0.2	-1.9	-0.2	-0.3
Net number of companies	No. of registered companies	14,605	14,200	13,951	13,773	13,714
	YoY change (%)	-3.0	-2.8	-1.8	-1.3	-0.4

Source: Registration Status of Construction-Related Companies (MLIT)
Notes:
1. Including companies with multiple registrations.
2. As of the end of March in each fiscal year.

3. Employees and Construction Labor

The number of construction industry employees in 2010 was 4.47million, a decrease of ▲32.6% in comparison to the 6.63million in 1995. (Figure 6)

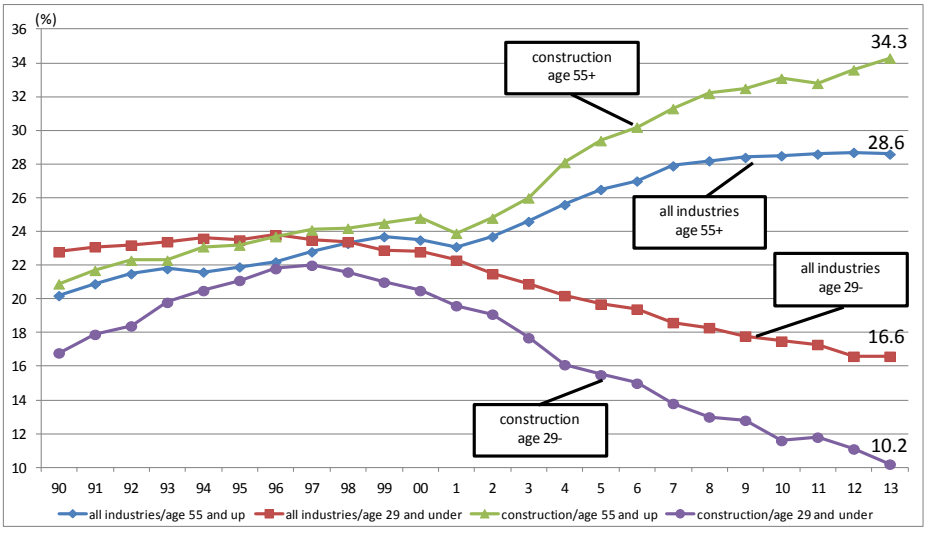
Figure 6　Number of Construction Industry Employees



Source: National Census (Ministry of Internal Affairs and Communications)

Looking at trends in age composition among construction industry employees, in 2013, about 34% of employees were aged 55 or higher, while about 10% were aged 29 and under, indicating that aging in the employee population is progressing. In addition, the percentage in the young adult age group has dropped significantly, and the passing of skills to the next generation has become a major issue. (Figure 7)

Figure 7　Age Composition of Construction Industry Employees



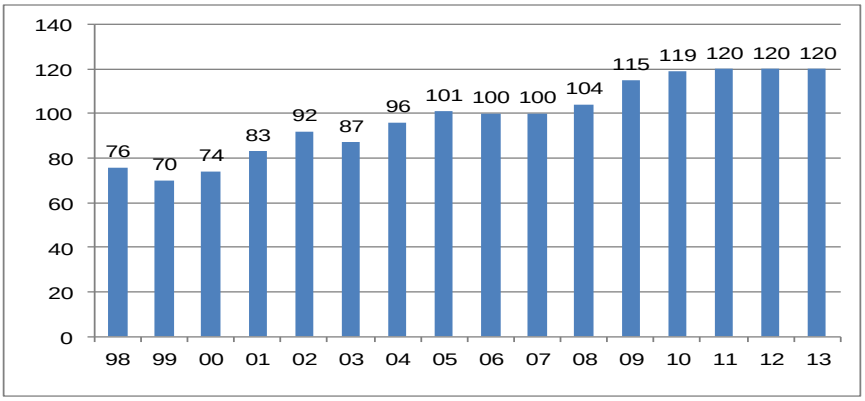
Source: *Labour Force Survey* (Ministry of Health, Labour and Welfare)

4. International Transactions in the Construction Market

① Overseas construction companies in Japan (Figure8)

As of FY2013, there were 120 overseas construction companies (overseas corporations and Japanese corporations with over 50% foreign capital) holding construction licenses in Japan.

Figure 8　No. of International Construction Companies Holding Construction Licenses in Japan

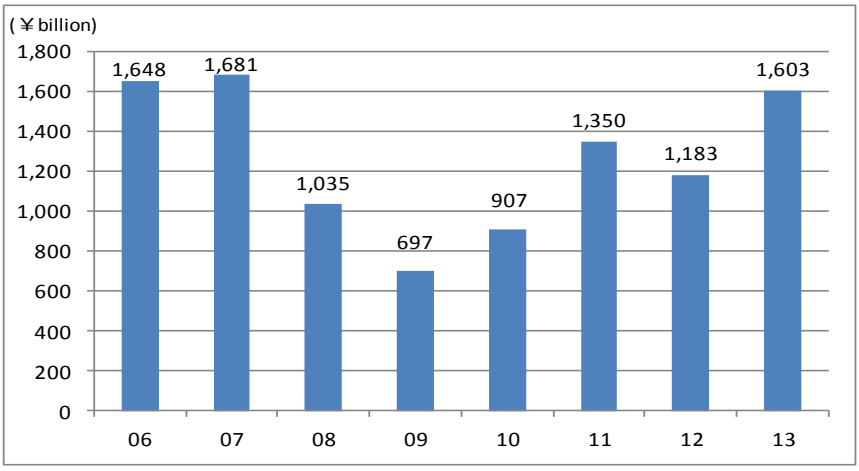


Source: MLIT

② Japanese construction companies overseas (Figure 9)

The value of Japan's overseas construction orders received exceeded ¥1 trillion for the first time in 1983. Since then, this remained at around ¥1 trillion for about twenty years, and in FY2007, the value of orders received reached the highest recorded value of ¥1.6813 trillion. With the effects of the global recession, the figure dropped to ¥0.697 trillion in FY2009, but this recovered to ¥1.6029 trillion in FY2013, just shy of the 2007 peak.

Figure 9　Overseas Construction Orders of Japanese Companies



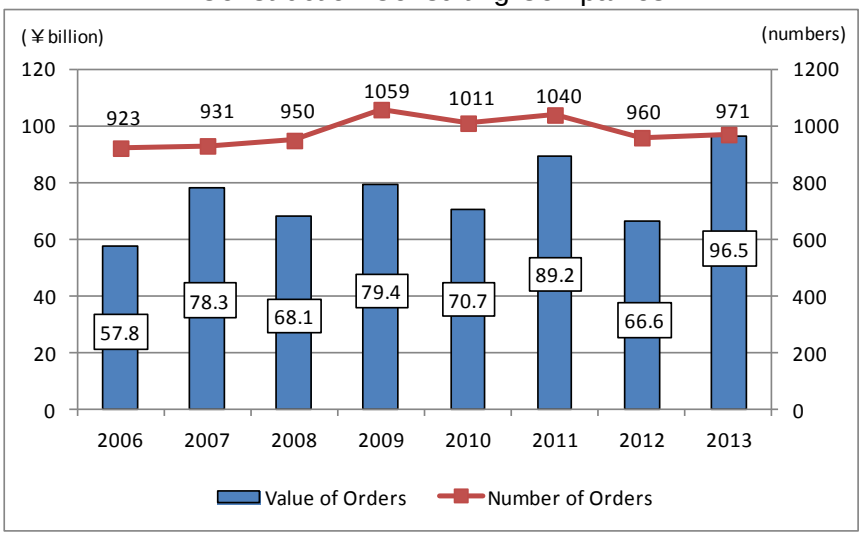
Source: The Overseas Construction Association of Japan. Inc

③ Japanese construction consultant companies overseas (Figure 10)

Regarding the overseas sales of Japanese construction consultant companies, the total value of orders received in FY2013 was the highest ever recorded. The total value of orders received was ¥95.6 billion, a year-on-year increase of ¥29.9 billion, and the number of projects increased by 11 to 971.

When looking only at the number of orders received, FY2013 is weak when compared to the preceding five years, but the increase in orders received for large-scale projects worth over ¥1 billion per project has resulted in a significant increase in the total value of orders received.

Figure 10　Overseas Sales of Japanese Construction Consulting Companies



Source: Infrastructure Development Institute of Japan. Inc

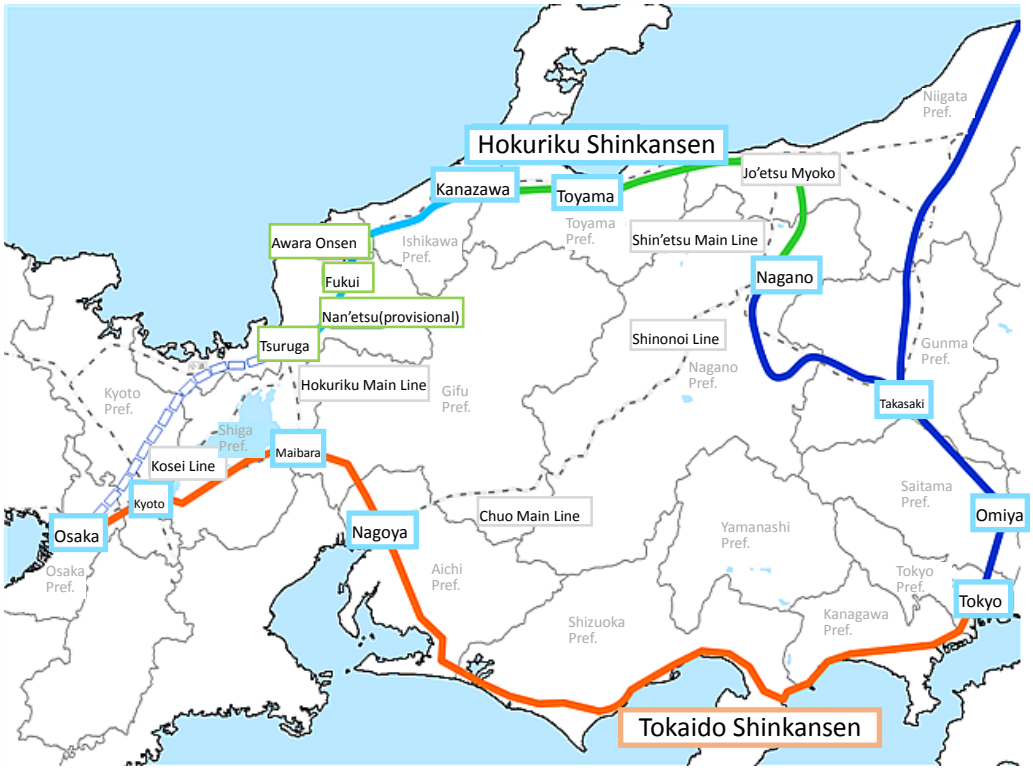
IV. Recent Trends -Maglev Chuo Shinkansen

Introduction

In March 2011, Japan experienced an unprecedented natural disaster in the form of the Great East Japan Earthquake. Although infrastructure was devastated in the immediate aftermath of the earthquake, the rapid pace at which reconstruction work was conducted to secure railway lines and roads needed for transportation of relief supplies and the movement of people and materials remains clear in our memories. Under the "Building National Resilience" initiative, the building of a nation resilient in the event of disasters is required, and as public infrastructure that plays a major role in socioeconomic development and regional revitalization, the railroads need to be constantly maintained at a high level in readiness for rapid responses in the event of natural disasters.

Given these conditions, the Hokuriku Shinkansen route connecting Tokyo to Kanazawa is scheduled to open in March 2015. Travel time from Tokyo to Kanazawa will be about 2 hours and 30 minutes, a reduction of about 1 hour and 20 minutes. Not only will the Hokuriku Shinkansen route serve to develop and revitalize the economy in the Hokuriku region, it is also expected to serve as an alternative transportation route for the Tokaido Shinkansen, connecting the Kanto and Kansai areas in the event of a natural disaster affecting the Tokai region.

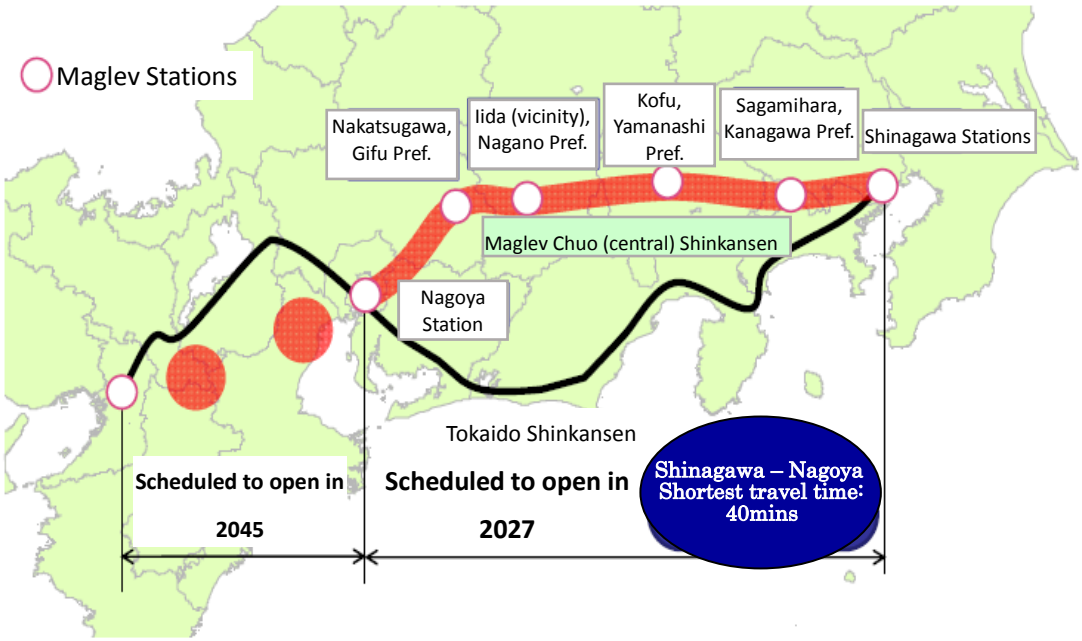
[Hokuriku Shinkansen]



(Source: Fukui Prefecture)

In view of preparations for the anticipated Nankai Trough Earthquake and age-related deterioration of the Tokaido Shinkansen route, the Central Japan Railway Company (JR Tokai) that operates this route, which comprises the main arterial rail line that connects the three major cities of Tokyo, Nagoya and Osaka, has also advocated preparations against future risks through the realization of parallel arterial transportation routes, and is specifically engaged in the realization of a Chuo (central) Shinkansen route that operates the Superconducting Maglev (linear motor-car). This chapter focuses on this huge "Maglev Chuo (central) Shinkansen" project and provides an outline of its economic and environmental aspects.

[Maglev Chuo (central) Shinkansen]



(Source) Ministry of Land, Infrastructure, Transport and Tourism

1. Outline of the Maglev Chuo Shinkansen

The development of the linear motorcar began in 1962 with linear motor propelled levitated railway research. Later, plans based on the Shinkansen Railway Development Act were drafted in November 1973, and following the decision for development by the Ministry of Land, Infrastructure, Transport and Tourism in May, 2011, construction start has been scheduled for around autumn 2014.

The route will begin in Tokyo and end in Osaka, with the line from Tokyo up to Nagoya scheduled to open in 2027 and the line from Nagoya to Osaka scheduled to open in 2045. The Maglev is scheduled to travel underground for 86% of the total distance of 284km from Tokyo to Nagoya, approx. 240km, running at a deep underground depth of over 40m, however, this is considered to be an approach taken to simplify the necessary "noise/vibration" measures and "site acquisition" procedures needed to advance the project.

The Maglev will travel at a maximum speed of 505km/h and scheduled travel time will be approx. 40mins between Tokyo and Nagoya and approx. 1hour and 7mins between Tokyo and Osaka, respectively 50mins and 1hour and 10mins faster than the existing Tokaido Shinkansen travel times. There will be greater convenience in terms of shorter travel times and distances, effectively combining the three metropolitan cities of Tokyo, Nagoya and Osaka into a single mega-city area, thus heightening the efficiency of economic and social activities.

[Maglev Shinkansen Development Outline]

		Tokyo area-Nagoya area	Tokyo area-Osaka area
Running system		Superconducting magnetic levitation	
Scheduled		2027	2045
Travel time	Opening	40mins	1hour7mins
	Current	1hour30min	2hour18min
Length of Line	Opening	286km	438km
	Current	366km	504km
Project Cost		5.5235 trillion yen	*3.6000 trillion yen

*Project cost for Nagoya area-Osaka area

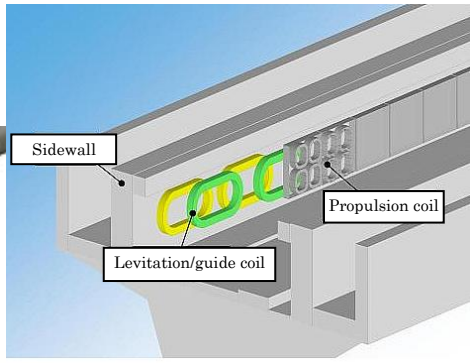
(Source) Created from JR Tokai materials, etc.

2. Running System

The Maglev Chuo Shinkansen, known as the "superconducting[1] maglev", refers to a transportation system that utilizes the magnetic forces of superconducting magnets installed in the carriages and coils attached to the ground to levitate and propel the train.

For the superconducting material, the superconducting maglev uses a niobium-titanium alloy, which is cooled to -269℃ using liquid helium to create a superconductive state. This superconducting technology allows the train to levitate and run at about 10cm off the ground

(Source) JR Tokai



(Source) Maglev Chuo Shinkansen Construction Committee

[1] Superconductivity refers to the phenomenon that occurs when certain types of metals, etc. are cooled to below a certain temperature, at which point electrical resistance becomes zero. When an electrical current is applied once to a coil in a superconductive state, the zero resistance means that this current continues to flow around the coil indefinitely, generating a powerful magnetic field.

Research on running tests are being carried out at the “Yamanashi Maglev Test Line” in Tsuru, Yamanashi prefecture, and a manned running test conducted in December 2003 recorded the world’s fastest speed of 581km/h. In April 2014, the total test runs recorded 1 million km without any major problems.

[Running test]

(Source) Yamanashi Prefectural Maglev Exhibition Center

3. Environmental Aspects

The Environmental Impact Assessment Act came into force in Japan in June 1999.

Environmental Impact Assessment is a system that requires developers to conduct their own surveys, forecasts and assessments regarding the environmental impacts associated with the implementation of a development project, then announce the results of such surveys and listen to the opinions of citizens/local governments, etc. and in view of said opinions, create better plans from the perspective of environmental conservation.

The Maglev Chuo Shinkansen is subject to this system, and for about two years from December 2011, JR Tokai implemented surveys, etc. into environmental impacts and announced the results in the “Chuo Shinkansen (Tokyo-Nagoya) Draft Environmental Impact Assessment”. Subsequently, after gathering opinions from residents and local authorities in towns/cities/prefectures along the route, JR Tokai created the “Chuo Shinkansen (Tokyo-Nagoya) Environmental Impact Assessment”, and submitted this to the Minister of Land, Infrastructure, Transport and Tourism. By holding such advance discussions between the project operators and the towns/cities/prefectures along the route, it became possible to bring about considerations for noise reduction measures and the natural environment, allowing the project to proceed with low impact in terms of environmental load.

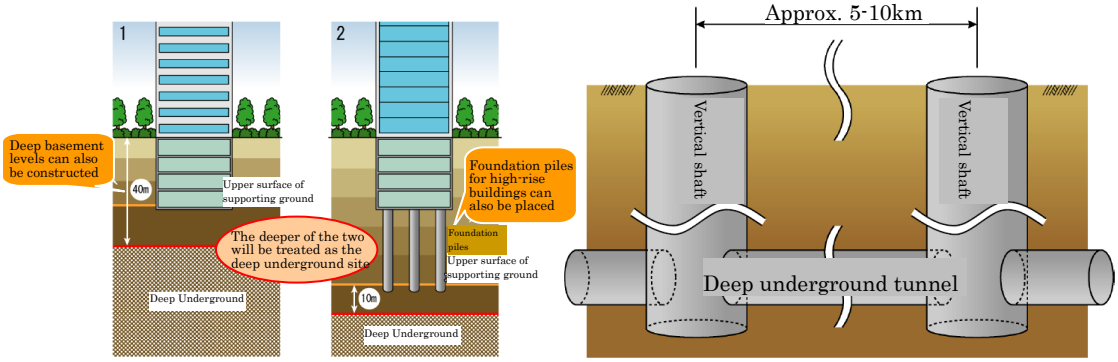
As the basic energy source of the Maglev Chuo Shinkansen is electricity, CO2 emissions are expected to be about one third in comparison to that of aircraft. Furthermore, as an inductive power collection system, which does not generate exhaust gases, looks set to be employed for on-board power, it would seem that the objective is to create a low environmental burden railway.

4. Project Structure

With construction costs from Tokyo to Nagoya at ¥5.5trillion and ¥3.6trillion for Nagoya to Osaka, total costs are estimated to be about ¥9.1trillion. As the site of construction works will be deep underground at a depth of over 40m and will also run through mountainous areas such as the Chuo Alps and the Minami Alps, tunneling works requiring high level skills look set to continue.

JR Tokai is progressing with this project as the sole operator, policy recommendations for the prompt development and utilization of high-speed transportation networks such as the Maglev Chuo Shinkansen were put forward during the growth strategy Cabinet meeting in June 2014, and, tax preferential treatment is put in place with regards to land acquisition.

[Deep underground structure]



(Source) JR Tokai

5. Economic Effects of the Project

The realization of the Maglev Chuo Shinkansen will, along with changes in the flow of people and materials, have a significant effect on consumer spending and corporate production activities, and a variety of economic effects are expected.

A shorter commute time will lead to greater work efficiency for the corporate employees. With regards to housing, if the commute time is less than one hour, then commuter towns between the Tokyo, Nagoya and Osaka areas can easily be developed. For consumer spending, as travel times to other cities will be shorter, traveling for tourism or shopping plans will be easier to arrange, and the scope of activity will expand. Peoples' lifestyles will change, and a ripple effect extending beyond the major city areas to the neighboring regions, creating a chain of demand, invigorating consumer activity and raising the base level of the overall economy, is anticipated.

The "Results of the Survey into the Economic Effects Accompanying the Opening of the Maglev Chuo Shinkansen" published by Osaka prefecture in June 2014, estimates that the nationwide ripple effect over 50 years from the opening of the Tokyo–Nagoya route to be ¥11.7trillion, while for the Tokyo-Osaka route, this figure will be ¥16.6trillion. In addition, for the opening fiscal year, the ripple effect figures for Nagoya and Osaka are ¥526billion and ¥741billion respectively.

[Economic Effects of Maglev Project] (Units: ¥billion)

	Tokyo-Nagoya route opening	Tokyo-Osaka route opening
Nationwide	526	741
Osaka pref.	65	106
Osaka area	96	156
Tokyo area	267	361
Nagoya area	75	98
Prefectures along the route	26	28
Other	62	98

(Source) Osaka prefecture

Conclusion

The "Basic Plan for National Resilience" was approved by the Cabinet in June 2014, and this plan refers to the Maglev Chuo Shinkansen as, "the principal construction company, JY Tokai, will push ahead with development through coordination and cooperation with the state and local authorities". In addition, the "Japan Overseas Infrastructure Investment Corporation(JOIN)" through public/private capital investment was established in October 2014 for promoting private investment in transportation/urban development projects and negotiations with partner countries regarding projects. Companies entering into overseas transportation projects will have access to various supports from the agency in terms of funds and specialist human resources, and the pro-active promotion of entry into overseas markets for transportation projects, etc. is anticipated.

Prime Minister Abe has positioned infrastructure export as a mainstay of his growth strategy, moving for top sales of the Maglev Shinkansen, and JR Tokai is also stepping in line and indicating a will to provide technological support for the countries that have development plans for high-speed railway networks.

Although the opening of the Maglev line is still more than ten years in the future, a variety of support structures are being prepared by the government. The idea is that the promotion and success of future Maglev business through a unified public/private approach, will lead to overseas market development and domestic economic recovery. In the future, the Maglev Shinkansen, which exploits the full range of Japan's unique technologies, is expected to be the world leading infrastructure project.