

**The 15th
ASIA CONSTRUCT CONFERENCE**

19-21 October 2009

Japan Country Report

PREPARED BY



RICE

RESEARCH INSTITUTE OF CONSTRUCTION AND ECONOMY

Address NP-Onarimon Building,
25-33,Nishishinbashi 3-chome,
Minato-ku,Tokyo 105-0003,Japan
TEL +81-3-3433-5011
FAX +81-3-3433-5239
URL <http://www.rice.or.jp/english/index.html>
E-mail info@rice.or.jp

Country Report (Japan)

I. Overview

The Japanese economy entered into a recovery trend in FY2002 and recorded successive years of 2% economic growth from FY2003 to 2007. However, the economy has slowed drastically due to the effects of the global economic chaos triggered by the American subprime loan crisis in the summer of 2008, as well as high resource prices.

Japan's construction investment, which has been decreasing since the mid-1990s, was valued at ¥47.2 trillion yen in FY2008 (¥17.4 trillion in government spending, ¥29.8 trillion in private spending), about half of the value of the peak year (FY1992). Private construction investment fell significantly in FY2007 by the reason that project starts were delayed due to the strengthening of procedures under the Building Standards Act, and also in FY2008 due to the global economic recession. Government construction investment had been continuously declining since 2000, but in FY2008, it actually increased as a result of economic stimulus policies.

The current condition of the Japanese construction industry can be summarized as follows:

- (1) Small and medium-sized companies with fewer than 100 employees account for 97.5% of the industry, and this share has been slightly rising in recent years.
- (2) The numbers of construction industry workers by trade/field show a noticeable decline in "general contractors" in the last ten years.
- (3) Labor productivity in the construction industry remains at low levels as a result of reduced construction investment and various impediments to productivity at construction sites and within companies.
- (4) The cost of materials has risen in recent years due to high steel and resource prices worldwide. Wages of construction workers are below the average for male workers in all industries and in the manufacturing industry.
- (5) Orders for overseas construction projects were valued at ¥1,681.3 billion in FY2007, the highest level ever recorded, but fell to ¥1,034.7 billion in FY2008 as a result of the global economic slowdown. There was a particularly sharp decline in orders from the US (down 41.2% from the previous year) and the Middle East (down 47.3% from the previous year).

II. Macroeconomic Review and Future Projections

1. Overview of the Japanese Economy

The Japanese economy has grown by 2% annually since 2003, continuing on a path of moderate recovery. Nonetheless, the effects of the global economic chaos triggered by the American subprime loan crisis in summer 2007, combined with high resource prices, ended the longest economic recovery in the postwar period, which had been ongoing since February 2002. The Japanese economy has been faltering dramatically since fall 2008. In its monthly economic report issued in August 2008, the Cabinet Office made a downward adjustment to its overall assessment of the state of the economy. In December, it adjusted its assessment even further, indicating that “the economy is worsening.” In June 2009, the Cabinet Office made an upward adjustment, stating that “improvements are being seen in some sectors,” but with “major decreases” in the employment situation, corporate earnings, and capital investment. The overall economic constriction remains.

The outlook for the future of the economy suggests that, in spite of the ongoing deterioration in the employment situation, expectation of gradual economic recovery by the progress of inventory adjustments and economic stimulus policies that supporting the economy overall.

The Research Institute of Construction and Economy (RICE) forecasts that economic growth in FY2009 will be at least 3 percentage points less than the year before as a result of last year’s global recession. As a result of the government’s economic policies, RICE expects public fixed capital formation to increase 16.4% and government final consumption expenditures to rise 1.8%, but expects private business capital to be down 15.4%, net exports of goods and services to fall 44.8%, and the real GDP to decrease by 3.6% over the previous year.

Figure 1 Macroeconomic Trends (FY)

(Unit: Billion yen)

Fiscal year	1990	1995	2000	2005	2006	2007	2008	2009 (Forecast)	2010 (Forecast)
Real GDP	453,604	483,023	505,622	540,015	552,236	562,344	544,058	524,572	528,917
(YoY change)	6.2%	2.3%	2.6%	2.3%	2.3%	1.8%	-3.3%	-3.6%	0.8%
Real private final consumption expenditures	249,501	273,691	283,758	302,156	305,595	308,222	306,605	305,291	306,596
(YoY change)	5.4%	2.2%	0.7%	1.8%	1.1%	0.9%	-0.5%	-0.4%	0.4%
(Contribution rate)	2.8	1.3	0.4	1.0	0.6	0.5	-0.3	-0.2	0.2
Real government final consumption expenditures	63,471	75,094	85,714	94,604	95,676	97,678	97,998	99,743	101,208
(YoY change)	3.8%	3.9%	4.3%	0.8%	1.1%	2.1%	0.3%	1.8%	1.5%
(Contribution rate)	0.5	0.6	0.7	0.1	0.2	0.4	0.1	0.3	0.3
Real private housing	25,915	23,953	20,361	18,429	18,384	15,908	15,418	14,567	15,450
(YoY change)	5.5%	-5.6%	-0.1%	-1.2%	-0.2%	-13.5%	-3.1%	-5.5%	6.1%
(Contribution rate)	0.3	-0.3	0.0	0.0	0.0	-0.4	-0.1	-0.2	0.2
Real private corporate facilities	82,448	67,881	72,963	83,200	87,787	89,619	80,864	68,410	69,170
(YoY change)	11.5%	3.1%	7.2%	6.2%	5.5%	2.1%	-9.8%	-15.4%	1.1%
(Contribution rate)	2.2	0.4	1.0	0.9	0.8	0.3	-1.6	-2.3	0.1
Real public fixed asset formation	28,377	40,603	34,445	23,157	21,109	19,772	18,900	22,004	19,064
(YoY change)	4.3%	7.5%	-7.6%	-5.6%	-8.8%	-6.3%	-4.4%	16.4%	-13.4%
(Contribution rate)	0.3	0.6	-0.6	-0.3	-0.4	-0.2	-0.2	0.6	-0.6
Real inventory increase	1,698	1,825	2,068	1,815	2,840	2,989	3,154	2,899	2,816
(YoY change)	-28.5%	-3224.5%	-193.1%	0.7%	56.5%	5.2%	5.5%	-8.1%	-2.9%
(Contribution rate)	-0.2	0.4	0.8	0.0	0.2	0.2	-0.1	0.0	0.0
Real financial services net exports	2,366	951	6,295	17,065	21,569	28,156	21,121	11,659	14,612
(YoY change)	29.2%	-80.4%	7.5%	21.3%	26.4%	30.5%	-25.0%	-44.8%	25.3%
(Contribution rate)	0.2	-0.8	0.1	0.6	0.8	1.2	-1.3	-1.7	0.6
Nominal GDP	451,683	497,740	504,119	503,187	510,899	515,823	497,422	480,619	481,698
(YoY change)	8.6%	1.7%	0.9%	0.9%	1.5%	1.0%	-3.6%	-3.4%	0.2%

Source: *Construction and Economic Forecasts*(RICE) for 2009 and 2010, Annual Report on National Accounts(Cabinet Office) for 1990-2008

Note: Real values reflect 2000 prices.

2. Major Economic Indicators

Figure 2 List of Major Economic Indicators

	2004	2005	2006	2007	2008	2009 (Forecast)
GDP (real, FY, ¥1billion)	527,980	540,015	552,236	562,344	544,058	524,572
GDP (nominal, FY, ¥1billion)	498,491	503,187	510,899	515,823	497,422	480,619
GDP growth (FY, %)	2.0%	2.3%	2.3%	1.8%	-3.3%	-3.6%
Agriculture, forestry, and fishery	-2.8%	-5.3%	-2.5%	-0.5%	—	—
Manufacturing	2.6%	2.3%	-0.1%	-0.9%	—	—
Services	0.6%	1.2%	0.8%	0.7%	—	—
Mining	-14.4%	1.5%	-10.9%	-6.1%	—	—
Construction	1.9%	-3.3%	0.0%	-2.6%	—	—
Demographic Indicators						
Population (thousands)	127,787	127,768	127,770	127,771	127,692	127,600
Population growth rate (%)	0.07%	-0.01%	0.00%	0.00%	-0.06%	-0.07%
Total labor force (thousands)	6,642	6,650	6,657	6,669	6,650	6,614
Labor force growth rate (%)	-0.36%	0.12%	0.11%	0.18%	-0.28%	-0.54%
Unemployment rate (%)	4.7%	4.4%	4.1%	3.8%	4.0%	4.9%
Inflation rate	0.0%	-0.3%	0.3%	0.0%	1.4%	-1.1%
Financial Indicators						
	0.1017	0.1033	0.5418	0.86	0.7425	0.5727
Short-term interest rate (%)	0.03	0.04	0.26	0.63	0.81	0.26
Long-term interest rate (%)	1.445	1.456	1.634	1.478	1.382	1.527
Exchange rate against US\$	108.28	109.64	116.25	117.93	104.23	96.22

Source: *Construction and Economic Forecasts* (RICE, July 2009), *Annual Report on National Accounts (Final Report for 2007, Cabinet Office)*, *Financial and Economic Statistics Monthly* (Bank of Japan), Ministry of Internal Affairs and Communications website.

Notes:

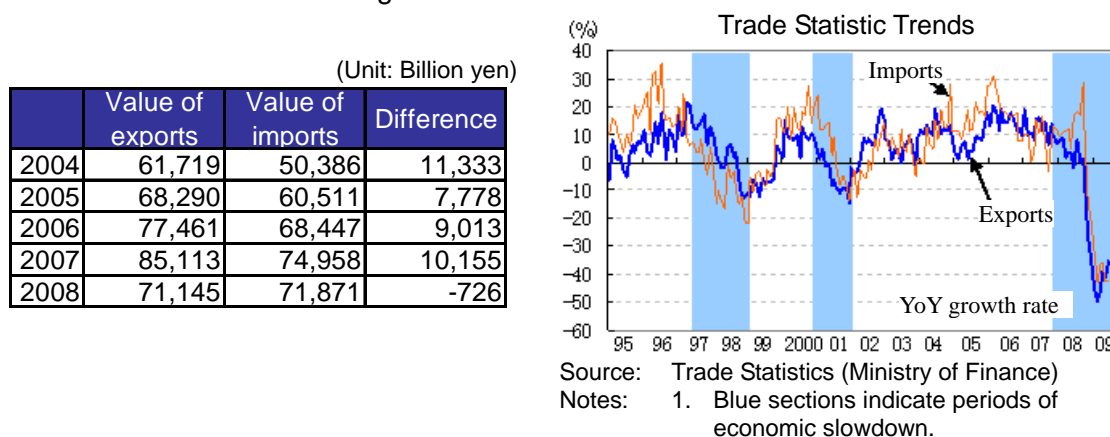
1. The GDP figure for FY2009 is a forecast. Real values: 2000 prices.
2. Population figures are estimates as of October 1 each year. The FY 2009 figures are estimates as of July 1.
3. The workforce population and unemployment rates are average values for 12 months. For 2009, the figure is an average value for five months.
4. The inflation rate is a percentage as compared with the previous year's consumer price index. For FY2009, the figure is the rate of increase between FY2008 and May 2009.
5. Interest rates for 2009 are as of the end of June. 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 2009 is as of the end of June. Others are annual averages.

III. International Trade

1. Export and Import Statistics

Japan's trade volumes, both imports and exports, had increased for six consecutive years since FY2002, but in FY2008, due to the global economic slowdown, exports decreased dramatically, particularly exports of autos and electronic parts including semiconductors. Imports also fell, particularly imports of electronics including semiconductors, and nonferrous metals.

Figure 3 Trade Statistic Trends



2. Trading Partners

Japan has the highest trading volumes, for both exports and imports, with the US and China. Among imports, following the two countries, providers of crude oil and other resources are at the top of the list.

Figure 4 Trading Partners

Exports (Unit: Billion yen)			Imports (Unit: Billion yen)		
Rank	Partner country	Value	Rank	Partner country	Value
1	US	12,088	1	People's Republic of China	13,955
2	People's Republic of China	11,761	2	US	7,376
3	South Korea	5,483	3	Australia	4,926
4	Taiwan	4,115	4	Saudi Arabia	4,458
5	Hong Kong	3,652	5	United Arab Emirates	4,080

Source: Trade Statistics (Ministry of Finance)

3. Trade Goods

Japan's top export is autos, followed by major products for the manufacturing industry. Its top three imports are energy-related products, followed by clothing.

Figure 5 Trade Goods

Exports (Unit: Billion yen)			Imports (Unit: Billion yen)		
Rank	Product	Value	Rank	Product	Value
1	Autos	11,130	1	Crude oil and petroleum	13,640
2	Steel	4,227	2	Liquefied natural gas	4,499
3	Electronic parts(semiconductor,etc)	4,068	3	Coal	3,253
4	Automotive parts	2,627	4	Clothing, accessories	2,624
5	Engines	2,232	5	Nonferrous metals	2,147

Source: Trade Statistics (Ministry of Finance)

IV. Overview of the Construction Industry

1. Construction Investment

Japanese construction investment in FY2008 was estimated to value at ¥47.2 trillion yen, including ¥17.4 trillion in government spending and ¥29.8 trillion in private spending. Total construction investment was down 43.7% from the peak in FY1992, while government investment was down 50.6% from the peak in FY1995 and private investment was down 46.5% from the peak in FY1990.

Figure 6 Construction Investment Trends

(Unit: ¥1 billion)

	2004	2005	2006	2007	2008	2009 (Forecast)
Public projects						
Government residential investment	668.2	541.7	597.8	550.0	520.0	500.0
Government non-residential investment	1,716.1	1,511.0	1,446.9	1,400.0	1,440.0	3,460.0
Government civil engineering investment	18,443.9	16,921.1	15,751.8	15,200.0	15,430.0	15,880.0
Machinery installation work	907.2	1,047.7	907.2	907.9	—	—
Maintenance and repair work	3,447.7	3,365.5	3,331.5	3,155.8	—	—
Private projects						
Private residential investment	18,374.8	18,425.8	18,749.9	16,600.0	15,930.0	15,370.0
Private non-residential investment	8,936.2	9,235.7	9,789.0	9,170.0	9,570.0	8,430.0
Private civil engineering investment	4,685.4	4,932.3	4,992.7	4,980.0	4,340.0	3,580.0
Machinery installation work	3,052.1	3,333.7	3,532.3	3,206.3	—	—
Maintenance and repair work	9,252.9	9,422.0	9,810.0	9,790.3	—	—

Source: *Construction Investment Forecast 2009, Statistics on Construction Undertaken* (2005 and 2007) (Ministry of Land, Infrastructure and Transportation [MLIT]).

Note: Machinery installation work includes electrical work.

2. Construction Companies

There were 509,174 licensed construction companies in Japan as of the end of March 2008, up 0.3% from the same month the previous year. Compared with the end of March 2000, when the number of licensed construction companies was at its peak, there are 91,000 fewer (a 15.3% decrease).

A breakdown of the number of licensed construction companies shows that “corporations with ¥3 million up to ¥10 million in capital” account for the highest percentage (36.8%), followed by “corporations with ¥10 million up to ¥20 million in capital” (25.6%) and “sole proprietors” (20.8%).

Figure 7 No. of Licensed Companies, Composition Ratio, and Cumulative Composition Ratio by Capital Classification

	Capital classification	No. of licensed companies (thousand)	Percent of total	Cumulative percent of total
1	Sole proprietor	106.0	20.8%	20.8%
2	Corporation with less than ¥3 million in capital	4.3	0.8%	21.7%
3	Corporation with ¥3 million up to ¥10 million in capital	187.2	36.8%	58.4%
4	Corporation with ¥10 million up to ¥20 million in capital	130.2	25.6%	84.0%
5	Corporation with ¥20 million up to ¥100 million in capital	75.3	14.8%	98.8%
6	Corporation with ¥100 million up to ¥1 billion in capital	4.5	0.9%	99.7%
7	Corporation with ¥1 billion up to ¥10 billion in capital	1.1	0.2%	99.9%
8	Corporation with ¥10 billion or more in capital	0.4	0.1%	100.0%
		509.0	—	—

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

Figure 8 Number of Construction Companies by Size (No. of Employees) in 1996, 2006

No. of employees	1996			2006		
	No. of companies (thousand)	Percent of total	Cumulative percent of total	No. of companies (thousand)	Percent of total	Cumulative percent of total
9 or fewer	164.7	55.6%	55.6%	137.8	59.3%	59.3%
10-99	124.5	42.0%	97.6%	88.8	38.2%	97.5%
100-999	6.3	2.1%	99.8%	5.3	2.3%	99.8%
1,000 or more	0.7	0.2%	100.0%	0.5	0.2%	100.0%
Total	296.2	—	—	232.4	—	—

Source: *Statistics on Construction Undertaken* (MLIT)

A breakdown by the number of employees reveals that, of the 232,000 companies executed with projects valued over ¥1 million for the year in FY2006, 59.3% had fewer than 10 employees. This highlights the weight of small and medium-sized companies in the market. Compared with 1996, 10 years prior, the number of companies had fallen by 63.8thousand (down 21.7%). Of these, the share of companies with fewer than 100 employees had fallen while the share of companies with fewer than 10 employees had grown. This shows small and medium-sized companies is increasing.

The number of construction-related consultants is shown in Table 9.

Figure 9 No. of Registered Construction-Related Businesses (by Business Type and Net Registered Number)

Business Type	Fiscal Year ²	2002	2003	2004	2005	2006	2007	2008
Surveying ¹	No. of registered companies	14,620	14,750	14,485	14,161	13,895	13,683	13,324
	YoY (%)	—	100.8	98.2	97.8	98.1	98.5	97.4
Construction consulting ¹	No. of registered companies	4,005	4,169	4,174	4,214	4,142	4,042	3,993
	YoY (%)	—	106.5	100.1	101	98.3	97.6	98.8
Geological surveying ¹	No. of registered companies	1,345	1,388	1,386	1,390	1,376	1,336	1,305
	YoY (%)	—	104	99.9	100.3	99	97.1	97.7
Net number of companies	No. of registered companies	16,332	16,655	16,893	16,704	16,413	15,140	15,057
	YoY (%)	—	102.0	101.4	98.9	98.3	92.2	99.5

Source: *Registration Status of Construction-Related Companies* (MLIT)

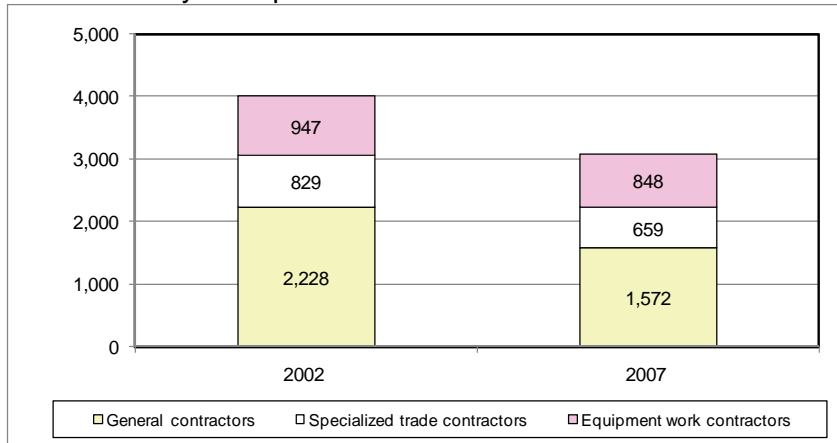
Notes:

1. Including companies with multiple registrations.
2. As of the end of March in each fiscal year.

3. Employees and Construction Labor

The numbers of construction industry employees by trade/field shows that 1,572,000 (51.1%) work for “general contractors,” 659,000 (21.4%) for “specialized trade contractors,” and 848,000 (27.2%) for “equipment work contractors,” for a total of 3,078,000 employees. This total is down 930,000 from FY2002, reflecting a particularly large decrease in the number of general contractors.

Figure 10 Number of Construction Industry Employees by Occupation in FY 2002 and FY 2007



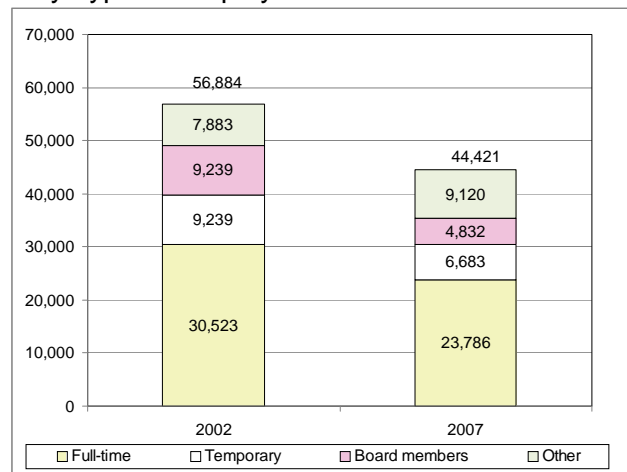
(unit: thousand)

	2002		2007	
General contractors	2,228	55.6%	1,572	51.1%
Specialized trade contractors	829	20.7%	659	21.4%
Equipment work contractors	947	23.7%	848	27.6%
Total	4,004	100.0%	3,078	100.0%

Source: *Statistics on Construction Projects Implemented* (MLIT)

Of the total 44,400 foreign employees in the construction industry in 2007, 23,800 are full-time employees (53.5%), 6,700 are temporary employees (15.0%), and 4,800 are members of the board (10.9%). Compared with 2002, the total number has decreased by about 12,000 employees.

Figure 11 Number of Foreign Construction Industry Employees by Type of Employment in FY 2002 and 2007



	2002		2007	
Full-time	30,523	53.7%	23,786	53.5%
Temporary	9,239	16.2%	6,683	15.0%
Board members	9,239	16.2%	4,832	10.9%
Other	7,883	13.9%	9,120	20.5%
Total	56,884	100.0%	44,421	100.0%

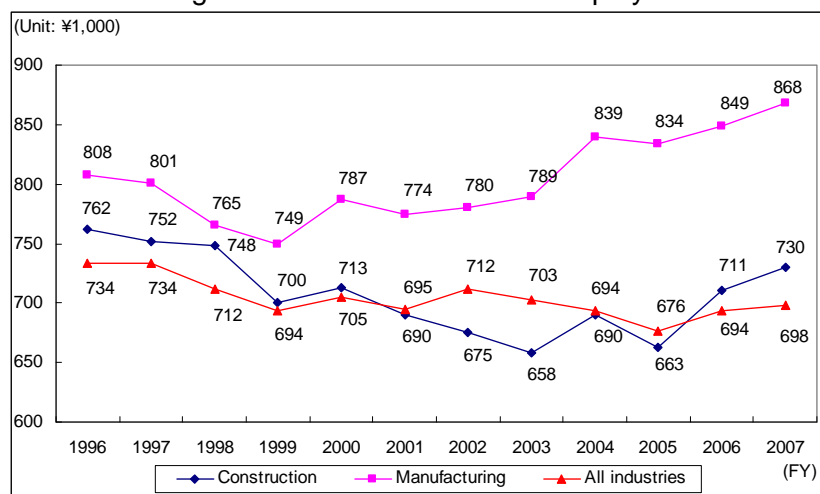
Source: *National Census* (Ministry of Internal Affairs and Communications)

4. Productivity

The low level of labor productivity in the construction industry versus manufacturing and other industries is largely due to macroeconomic factors, such as the failure to eliminate surplus labor even under conditions of decreasing construction investment. However, micro-level impediments to productivity also exist at work sites and in companies. The major factors involved are as

- (1) Productivity improvement in workplace that would bring about major reforms in the production system has not been adequately developed.
- (2) Production system has been ineffective because of that the state of “too many layers of subcontractors” leads to increased overhead costs.

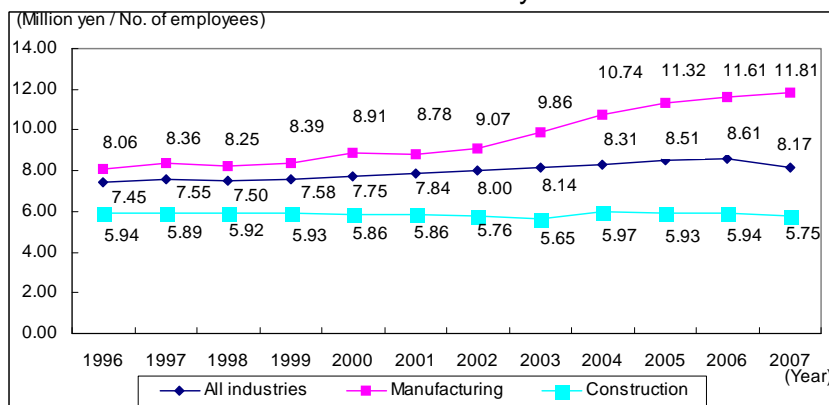
Figure 12 Added Value Per Employee



Source: *Corporate Statistics* (Ministry of Finance)

Note: Added value = operating income + personnel expenses + interest expenses/discount expenses + taxes and public fees, etc.

Figure 13 Trends in Real Labor Productivity in the Construction Industry



Source: *National Accounts (2007 Final Version)* (Cabinet Office)

Notes:

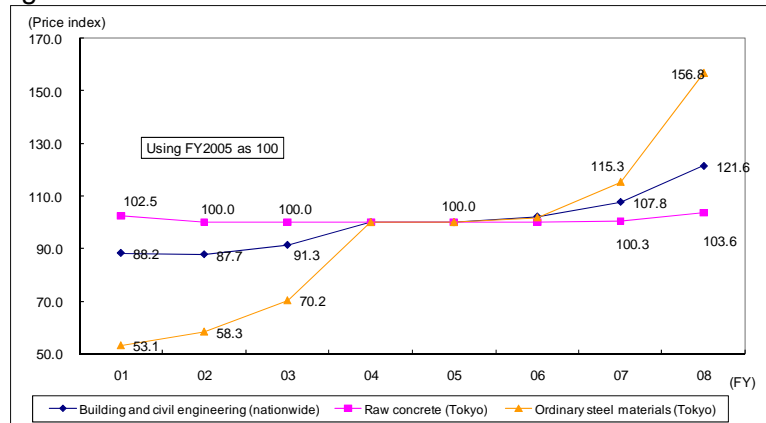
1. Real labor productivity = GDP by economic activity / no. of employees engaged in each economic activity
2. Benchmark year 2000. Real prices: Fixed standard year method.

5. Construction Costs

(1) Average Construction Material Prices

Figure 14 shows the trends in prices of major materials in the form of an index based on the average prices in 2000 (construction materials price index). The nationwide index combining building and civil engineering has been slightly increasing since 2003. This is largely due to the steep rise of steel product prices. Worldwide increase of demand for steel products caused sharp price increases in 2003-2004. In 2007-2008, rising shipping costs resulting from recent natural resource price hikes caused the next sharp rise. Given this spike in resource prices, the MLIT decided to activate the “special clause for sliding contract totals due to steep per-unit price hikes” in June 2008, for the first time in 28 years, and thus bringing about a revision in unit prices.

Figure 14 Trends in the Construction Materials Price Index

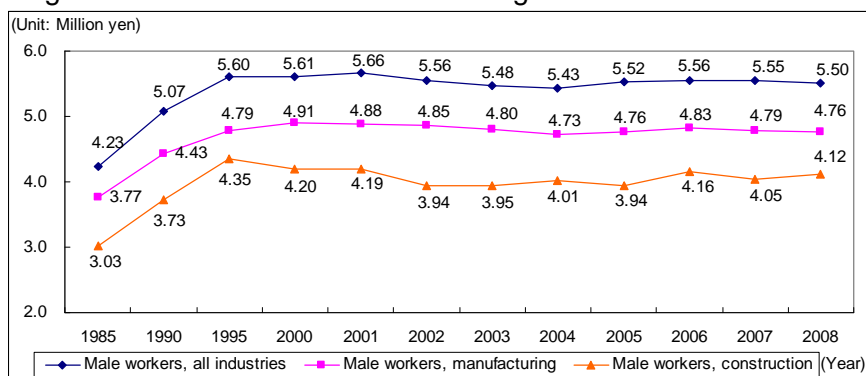


Source: *Market Conditions and Price Trends for Major Commodities* (Economic Research Association)

(2) Construction Industry Wages

Until the early 1990s, wages of production workers in the construction industry had been rising alongside of workers in other industries. However, the decrease of wages began in 1995, earlier and larger than other industries, and this drop caused the gap between the construction industry and other industries to widen. In 2008, annual construction wages were about ¥1.4 million lower (27.0%) than the average wage for male production workers in all industries and about ¥650,000 lower (15.5%) than the average wage of male production workers in the manufacturing industry, but the wage gap did shrink slightly from the previous year.

Figure 15 Trends in Total Annual Wages of Production Workers

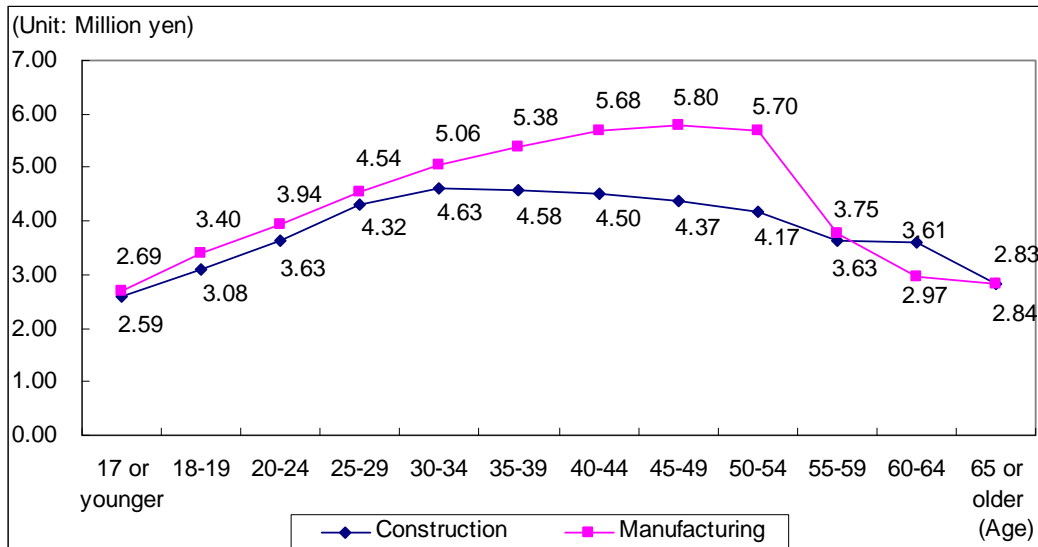


Source: *Basic Survey of Wage Structures* (Ministry of Health, Labor, and Welfare)

Note: Total annual wages = fixed monthly salary × 12 (months) + annual bonus and other special pay

The wage curve for production workers by age in the construction industry shows that wage increases level off at around 35-59 years old when workers likely own homes and have a burden of payment for their children's education. A large gap between this curve and that of the manufacturing industry is highly visible.

Figure 16 Annual Wages for Male Production Workers in Construction and Manufacturing



Source: *Basic Survey of Wage Structures* (Ministry of Health, Labour, and Welfare)

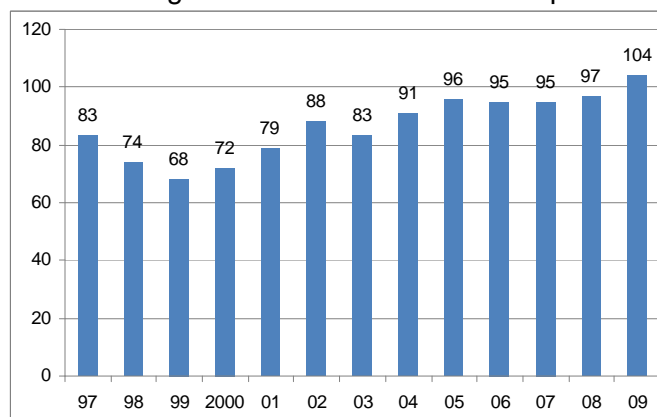
Note: Total annual wages = fixed monthly salary × 12 (months) + annual bonus and other special pay

6. International Transactions in the Construction Market

(1) International Construction Companies in Japan

In FY2009, there were 104 international construction companies holding construction licenses in Japan (foreign corporations and Japanese corporations with 50% or greater foreign ownership). The WTO Agreement on Government Procurement in 1996 was the trigger for this internationalization. The country with the most licensed companies in Japan is the US, with about 40 companies operating in Japan.

Figure 17 No. of International Construction Companies Holding Construction Licenses in Japan



Source: MLIT

Figure 18 shows the current minimum value of construction work covered by the WTO Agreement on Government Procurement. The value of orders received in Japan by international construction companies is not statistically tabulated. The number of orders and their ratio to all orders received is expected to be small.

Figure 18 Minimum Value of Construction Work Covered by WTO Agreement on Government Procurement

(Unit: Million yen)

	Construction work	Design and consulting
Central government (including a part of independent administrative agencies)	790	79
Government agencies	2,630	79
Prefectures, designated cities	2,630	260

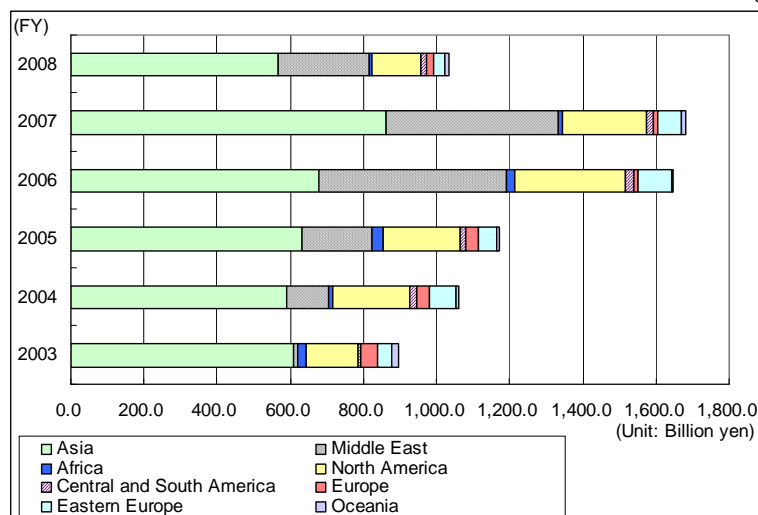
Source: The Overseas Construction Association of Japan, Inc

(2) Japanese Construction Companies Overseas

Construction orders of Japanese companies from overseas trended at about the ¥1 trillion level for more than 20 years since first crossing the ¥1 trillion threshold in FY1983. Orders received in FY2007 set a new record of ¥1,681.3 billion. However, as a result of the global economic downturn, orders received in FY2008 fell to ¥1,034.7 billion.

The orders received in FY2008 by region showed the largest declines in the US (down 41.2% from the previous year) and the Middle East (down 47.3% from the previous year).

Figure 19 Overseas Construction Orders Received in 2003–2008 (by Region)



	2003	2004	2005	2006	2007	2008
Asia	610.6	588.5	630.4	677.2	861.6	565.3
Middle East	10.9	117.0	194.3	514.3	472.7	249.2
Africa	22.9	11.3	29.8	24.3	11.7	10.7
North America	141.7	210.0	209.3	299.4	227.3	133.6
Central and South America	6.3	20.2	16.0	23.8	20.1	14.8
Europe	47.5	31.6	33.3	12.6	12.2	19.9
Eastern Europe	39.0	76.5	50.5	91.7	66.1	30.2
Oceania	15.4	6.7	7.5	5.1	9.6	11.0
Total	894.2	1,061.7	1,171.0	1,648.4	1,681.3	103.5

Source: The Overseas Construction Association of Japan, Inc

Overseas sales of Japanese construction companies grew in FY2008, but since the orders received in FY2008 fell sharply, sales in FY2009 are likewise expected to be down.

Figure 20 Overseas Construction Sales of Major Japanese Companies (by Region)

(Unit: Billion yen)

Company name	2007		2008	
	Total sales	Overseas sales	Total sales	Overseas sales
Kajima Corporation	1,894.0	350.6	1,948.5	397.0
Ohbayashi Corporation	1,691.6	305.9	1,682.5	395.4
Taisei Corporation	1,711.7	214.8	1,641.2	280.3
Shimizu Corporation ¹	1,459.5	108.9	1,693.0	144.2
Takenaka Corporation	1,308.6	185.8	1,297.8	136.9
Penta-Ocean Construction	352.8	54.9	398.5	84.5

Source: Annual reports of each company

Note 1: Shimizu Corporation does not publish its consolidated overseas sales, so its non-consolidated figures were used.

V. Outlook for the Construction Industry (2009/2010)

RICE's FY2009–2010 construction investment forecast was published in July 2009. Construction investment in FY2009 is expected to decrease by 2.9% from FY2008 to ¥45.84 trillion. Government construction investment is expected to increase for the second consecutive year, due to the effect of government economic stimulus policies taken in response to the global recession. Private residential construction investment is expected to decrease for the third consecutive year, by 6.9%. Private non-residential construction investment is expected to decrease by a significant 16.2% overall, reflecting a 7.1% decrease in private civil engineering and a 20.4% decrease in private non-residential building investment.

Construction investment in FY2010 is expected to decrease 3.6% from FY2009 to ¥44.17 trillion. Government construction investment is expected a 13.6% decline over the previous year on the rebound of the previous year's economic stimulus policies, if additional government measures are not enacted. Private residential construction investment is expected to increase by 6.6% over the previous year due to the effects of the government's tax cutting measures.

Figure 21 Construction Investment Forecast

FY	(Unit: ¥1 billion)									
	1990	1995	2000	2005	2006	2007 (Forecast)	2008 (Forecast)	2009 (Forecast)	2010 (Forecast)	
Nominal construction investment (YoY change)	81,440 11.4%	79,017 0.3%	66,195 -3.4%	51,568 -2.4%	51,328 -0.5%	47,900 -6.7%	47,230 -1.4%	45,840 -2.9%	44,170 -3.6%	
Nominal government construction investment (YoY change) (Contribution rate)	25,748 6.0% 2.0	35,199 5.8% 2.5	29,960 -6.2% -2.9	18,974 -8.9% -3.5	17,797 -6.2% -2.3	17,150 -3.6% -1.3	17,390 1.4% 0.5	19,360 11.3% 4.2	16,730 -13.6% -5.7	
Nominal private residential construction (YoY change) (Contribution rate)	25,722 9.3% 3.0	24,313 -5.2% -1.7	20,276 -2.2% -0.7	18,426 0.3% 0.1	18,750 1.8% 0.6	16,600 -11.5% -4.2	15,930 -4.0% -1.4	14,830 -6.9% -2.3	15,810 6.6% 2.1	
Nominal private non-residential construction (YoY change) (Contribution rate)	29,970 18.4% 6.4	19,505 -1.8% -0.4	15,959 0.7% 0.2	14,168 4.0% 1.0	14,782 4.3% 1.2	14,150 -4.3% -1.2	13,910 -1.7% -0.5	11,650 -16.2% -4.8	11,630 -0.2% 0.0	
Real construction investment (YoY change)	84,045 7.6%	77,727 0.2%	66,195 -3.6%	51,520 -3.4%	50,600 -1.8%	46,099 -8.9%	44,335 -3.8%	43,960 -0.8%	42,370 -3.6%	

Source: *Construction and Economic Forecast* (RICE), *Construction Investment Forecasts* (MLIT).

Notes:

1. Real values reflect 2000 prices.
2. Private non-residential construction investment = private non-residential building investment + private civil engineering investment.

The Japanese construction industry remains significantly affected by the increase or decrease in government construction investment, and a good number of companies, particularly among small and medium-sized companies, receive a large proportion of their orders from the government. In the general election held at the end of August 2009, political power shifted to the Democratic Party of Japan, with public attention called to trends in government construction investment.

In Japan, with its rugged terrain and susceptibility to earthquakes, local construction companies play an important role during times of disaster recovery, and their presence is absolutely essential.

**The 15th
ASIA CONSTRUCT CONFERENCE**

19-21 October 2009

Japan Theme Paper

PREPARED BY



RICE

RESEARCH INSTITUTE OF CONSTRUCTION AND ECONOMY

Address NP-Onarimon Building,
25-33,Nishishinbashi 3-chome,
Minato-ku,Tokyo 105-0003,Japan
TEL +81-3-3433-5011
FAX +81-3-3433-5239
URL <http://www.rice.or.jp/english/index.html>
E-mail info@rice.or.jp

Integration of the Value Chain to Enhance the Productivity and Efficiency of the Construction Industry

I. Summary

Up until about 1960, general contractors in Japan generally adopted a direct management style in which they procured their own labor and equipment, but since then, as construction volumes increased with economic growth, division of labor and specialization in construction production have come to be implemented as a more rational and efficient form of corporate management. General contractors have begun building value chains by forming loose groupings of companies that retain their independence. Plentiful investments in construction continued up until the mid-1990s, and there were enough construction works for every company, including newcomers. Based on collaborative relationships with clients, general contractors improved their technological and construction skills while earning a reasonable profit. They rarely filed claims to their clients, and managed their businesses with an emphasis on respect for project deadlines, outstanding quality, and safety. Thus, over a long period of time spanning the past half century, the Japanese construction industry has been building an environment in which clients and contractors, working as business partners, have promoted projects by forming cooperative win-win relationships.

In this decade after the collapse of the bubble economy, however, construction investment shrank from more than ¥80 trillion to the ¥50 trillion level, the number of construction companies compared to the downsized market resulted in oversupply, and the number of bankruptcies increased. All of these factors left the Japanese construction industry facing a serious downturn. Given that the size of the domestic construction market is not expected to expand any time soon, it has become difficult for general contractors to remain in business on the strength of their long-term relationships with clients alone.

The Japanese construction industry is entering a period of genuine corporate competition, leaving construction companies with little option but to restructure themselves or to be shaken out. These conditions can give rise to several kinds of problems, including low-price bids (dumping bids), concerns about construction quality, and unfair pressures on subcontractors. On the other hand, the social infrastructure is growing and buildings are being developed, so there will be growing needs for the maintenance, management, and upgrading of those facilities in the future. Facility management is thus going to have to be performed with an eye toward life-cycle costs. Stakeholders in construction production are going to have to create new value chains that can enhance productivity and efficiency to levels that can meet the needs of a new era while taking advantage of contractual relationships that have been long maintained through mutual trust.

To ensure the development of a more appealing construction industry, the government has a large role to play in the integration and improvement of value chains, and the standardization of basic administrative procedures has been implemented nationwide. The most important process, the building certification application, is being standardized across Japan. The bidding, contracting, delivery, and technology registration processes of the Ministry of Land, Infrastructure and Transportation (MLIT) have all been digitized and are now managed through a database.

General contractors are also using information and communication technologies (ICT) to create an environment where supply chain members can use information regarding project management and materials/labor procurement, easily and at low cost. This is designed to promote information sharing, to accelerate the decision-making process, and to increase

efficiency. General contractors, in particular at the work-site, are striving to adhere to project deadlines and quality requirements by improving the production process through constant, detailed ingenuities in their daily work.

The technological capability and know-how that has been accumulated in the Japanese construction industry can contribute to economic growth and help improve people's everyday lives in developing nations as well as developed nations. By engaging in construction activities in countries around the world, including those in Asia, Japanese construction companies hope to contribute to the economic development of the countries and regions in which they establish operations, using their internally developed technological capabilities and expertise. They also hope to contribute to the advancement of local construction companies and businesses through technology transfers, and to promote the development of outstanding social infrastructure.

II. Initiatives and Measures to Integrate the Construction Industry Value Chain

1. Integration of the Construction Industry

1.1 Features of the Japanese Construction Industry

An Environment That Breeds Advanced Technological Skills and Excellent Construction Skills

Japan has made enormous investments in domestic construction in both the public and private sectors since the postwar recovery period (1950-55), and has developed an advanced industrial state in spite of its small land area and tough natural conditions. Over the course of a half-century of activity, the Japanese construction industry has accumulated advanced technological skills and know-how that are one of the best in the world. Also, because the construction industry is typically highly localized, with a strong emphasis on domestic demand, construction industry activities tend to involve the same players in a given region who interact with one another on a long-term, continuous basis. For this reason, highly collaborative relationships are built between clients, designers, and builders, and Japanese construction companies that have thus far had filed few claims against clients, have developed advanced technological capabilities and excellent on-site construction skills by emphasizing respect for project deadlines, outstanding quality, and safety. The British concept of partnering was derived out of a desire to learn the collaborative methods adopted by Japanese clients, designers, and builders. In this way, over a long period of time spanning the past half century, the Japanese construction industry has been creating an environment in which clients and contractors, working as business partners, have promoted projects by forming cooperative win-win relationships.

Relationships between Clients and General Contractors

Since the ability to build trust with clients is an important factor in the survival of a general contractor in Japan, they pour all their efforts into the goals of meeting deadlines and ensuring quality on construction projects. It is therefore rare for a general contractor to complain to a client about a project. It must be noted that this relationship differs from the British system of partnering in that it tries to prevent complaints in advance by emphasizing transparency and establishing decisions ahead of time about how matters will be handled if a profit or loss is incurred on a particular project.

Highly Reliable On-Site Construction System: Relationship between General Contractors and Subcontractors

As is the case in the relationship between the client and general contractor, subcontractors prefer to earnestly discuss issues with the general contractor out of a sense of loyalty, rather than debate issues based on a contract. They express a positive attitude on moving forward with a project, indicating their intent to meet the deadline and perform quality work. Many general contractors form groups comprised of their preferred subcontractors, allowing them to build highly reliable on-site construction systems.

1.2 Current State of the Japanese Construction Industry

Moving from a Time of Cooperative Prosperity to a Time of Corporate Competition

Up until the collapse of the bubble (1992 to 2004), there were enough construction projects for everyone, including new construction companies. Japanese construction companies, based on collaborative relationships with clients, continued to thrive and prosper while earning a reasonable profit. In this decade after the collapse of the bubble economy, however, construction investment shrank from more than ¥80 trillion to the ¥50 trillion level, the number of construction companies compared to the downsized market resulted in oversupply, and the number of bankruptcies increased. All of these factors left the Japanese construction industry facing a serious downturn. Given that the size of the domestic construction market is not expected to expand any time soon, it has become difficult for construction companies to remain in business on the strength of their long-term relationships with clients alone. The Japanese construction industry is entering a period of genuine corporate competition, leaving construction companies with little option but to restructure themselves or to be shaken out. These conditions can cause changes in the win-win relationship and trust that has evolved between clients, general contractors, and subcontractors, and can result in several kinds of problems, including low-price bids (dumping bids), concerns about construction quality, and unfair pressures on subcontractors.

Changes in the Value Chain

Up until about 1960, general contractors generally adopted a direct management system in which they procured their own labor, equipment and materials. Since then, however, as construction volumes increased with economic growth, the system of using subcontractors has come to be viewed as more efficient in terms of the management and use of technologies, human resources, and equipment compared to the directly managed system of general contractors. In this process, on-site construction work has been outsourced to subcontractors, and general contractors themselves have become specialized in coordinating the management of those various outsourced subcontractors. In this way, general contractors have been building value chains by forming loose groupings of companies that retain their independence. (See Figure 1-1.)

However, with the domestic construction market shrinking as was mentioned earlier, general contractors are showing a strong tendency, as a result of intense price competition, to select subcontractors based on whether they can do the work needed at the lowest cost, rather than their membership in the general contractor's group. On the other hand, because subcontractors need to ensure that they receive a certain amount of work, they are starting to work for multiple general contractors. This is reducing the uniqueness of the value chains that the general contractors have created with their subcontractors. (See Figure 1-2.)

Figure 1-1 Changing Roles in the Relationship between General Contractors and Subcontractors

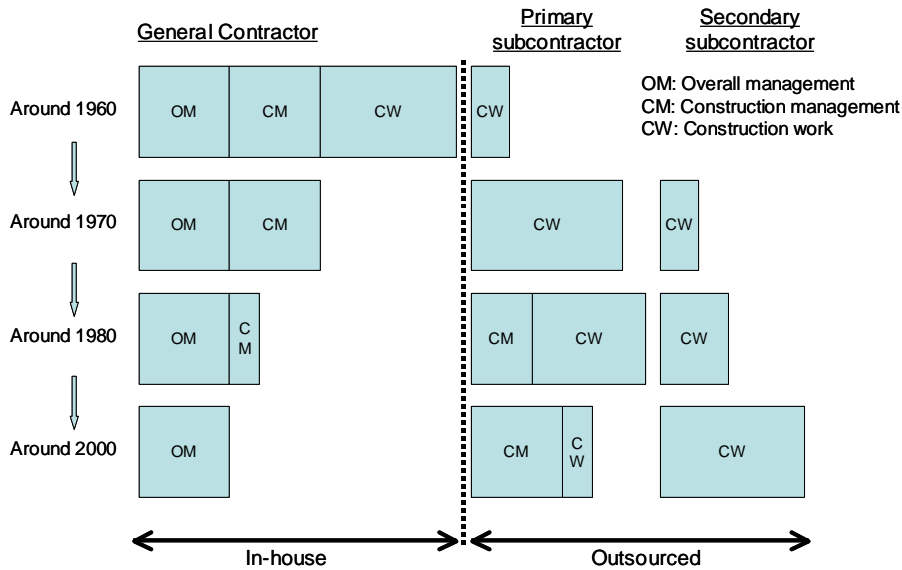
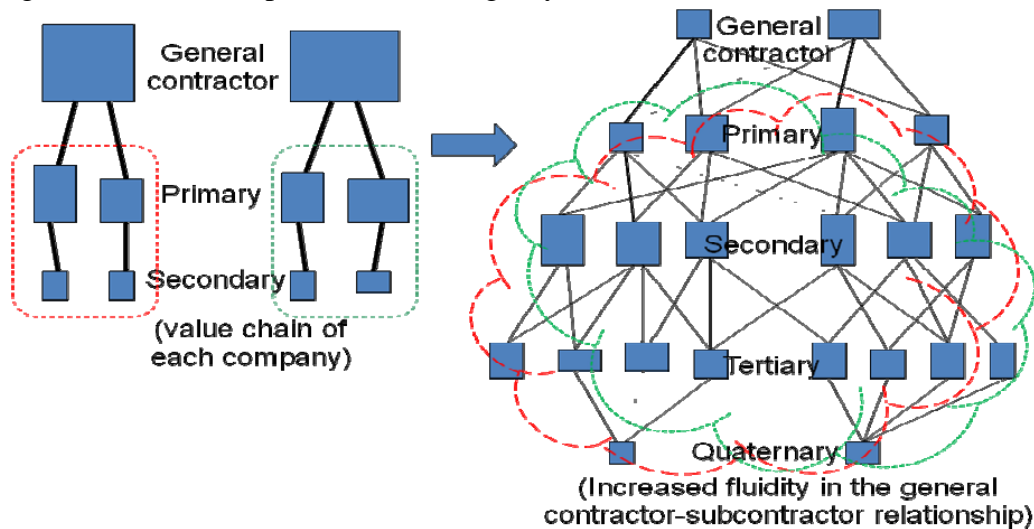


Figure 1-2 Development of Less Rigidity and Greater Stratification in Subcontractors



1.3 Future Issues the Construction Industry Must Address

The Formation of a More Appropriate Competitive Environment

To develop a more appealing construction industry in the future, it is important to build a systematic framework in which doing better work will give construction companies access to greater work opportunities in the future. That is, efforts must be made to create a competitive environment in which the principle of competition functions properly, and the companies that excel in technologies and management capabilities can be fairly selected by customers and given the chance to grow. In this case, the British partnering concept may very well serve as a useful point of reference, but investigations must proceed with a full awareness of the differences between the historical context of Japan and the UK, where partnering emerged against the backdrop of frequent complaints regarding construction delays and cost overruns.

Clarification of Roles and Responsibilities

Given the particular traditions and customs of Japan, contractual clauses between clients, designers, and construction companies often contain wording such as “After deliberations between A and B, changes may be made to the project deadline or contracted amount, as needed.” This is a very vague clause premised on the principle of good faith and trust, which does not explicitly state the cases in which such changes might be made. In some cases, work orders are not even documented between subcontractors who are closer to the bottom end of the supply chain, and work often begins based on a verbal agreement alone. However, due to changes in the bidding and contract system for public projects, such as the expansion of general competitive bidding, and due to increased competition for private construction work as a result of the contraction in the domestic construction market, it is feared that the number of complaints between these parties is going to increase, and that the members of the value chain will need to clarify the roles and responsibilities of each party involved by promoting active dialogue and more clearly documenting contract terms.

Global Development of Outstanding Technological Capabilities and Expertise: Contributing to Destination Countries and Regions

Today, there is a growing need for infrastructure development to promote economic growth and improve the lives of citizens in developing as well as developed countries. Japanese construction companies engage in construction activities all over the world, including Asia. They hope to contribute to the economic development of the countries and regions in which they establish operations using the technological capabilities and know-how they have developed thus far. They also hope to contribute to the fostering of local construction companies and businesses through technology transfers, and to promote the development of outstanding social infrastructure .

2. Standardization of Administrative Practices and Procedures

The standardization of administrative practices and procedures plays a major role in integrating and improving the value chain. There are many different government permits and other procedures involved in the implementation of a construction project. Integrating them nationwide, ensuring the transparency of the procedures, and making it possible to estimate how long it will take to complete the necessary procedures would all go a long way toward improving construction production efficiency. For example, Japanese buildings are built in accordance with the Building Standard Law of Japan, which establishes minimum standards regarding building lots, structures, equipment, and use. Since the Act was enacted in 1950, all buildings located throughout Japan have been built to meet the basic standards established therein. One of the basic administrative procedures established by the Act is the building certification application. The application process is the same throughout Japan. Because the applications are submitted to either a building official or [a private designated certification inspection agency], there are very few problem cases. Also, since the inspection period is determined by the authorization office, there is little chance that the project will be delayed if the project schedule includes a reasonable allowance for the inspection period.

Figure 2-1 Inspection Periods for Building Certification

General buildings	Max. 35 days
Buildings using advanced structural calculations	Max. 70 days

In addition, procedures related to public project procurement, urban planning procedures, and procedures regarding the use of public facilities are also standardized by the Acts respectively.

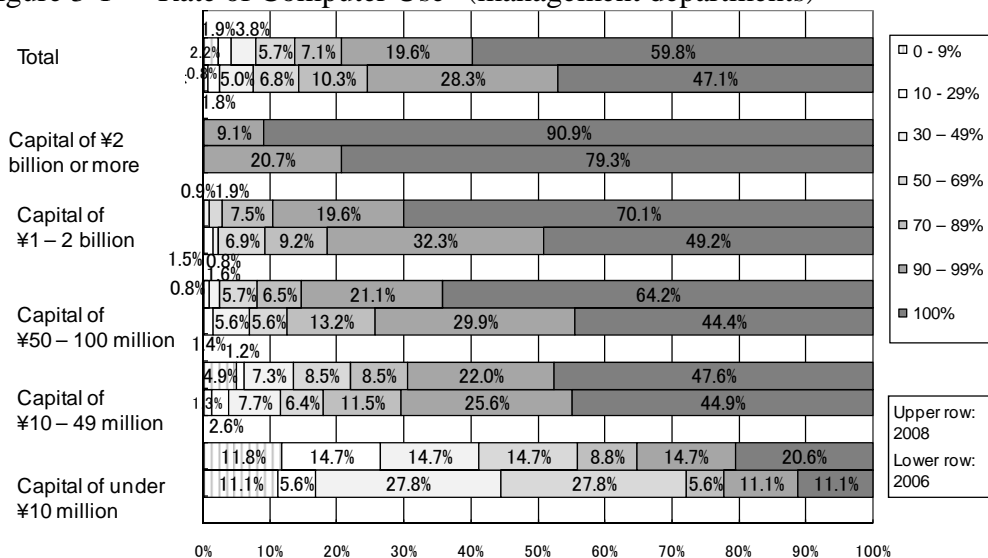
To improve convenience and simplify procedures, efforts began in 2001 to launch the “e-Japan” project. This project aimed to digitize all administrative procedures nationwide, starting by enabling users to submit applications and reports to the national government and local government agencies online. The information systems of the national government and major local governments have been enhanced, but because security and identity verification procedures are complicated, the rate of use is only a low 17% (2006). The goal is to raise the rate of use to 50% by 2010.

3. Use of Information and Communications Technology (ICT)

3.1 ICT Use in the Construction Industry

ICT is being used in increasingly sophisticated ways in the construction industry. Government and businesses are using ICT to improve administrative efficiency, cut costs, boost added value, improve customer satisfaction, and ensure transparency and fairness.

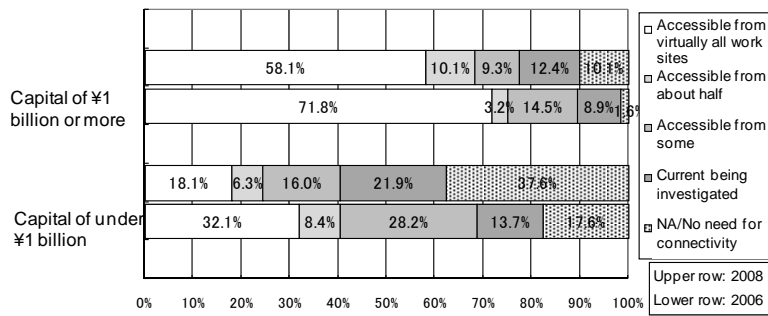
Figure 3-1 Rate of Computer Use (management departments)



The rate of computer use among Japanese construction companies increased dramatically in the 2000s, at the same time the Internet came into more widespread use. Construction company management departments handle huge volumes of information arising from financial transactions between subcontractors and clients, the payment of employee salaries, welfare benefits, and human resource issues. The larger the company, the higher the volume and complexity of information they will handle. Computers offer the most efficient way to process all that information.

The use of corporate intranets is also increasing. Survey results show that 70% of companies with ¥1 billion or more in capital have their own intranets.

Figure 3-2 Rate of Use of Corporate Intranets



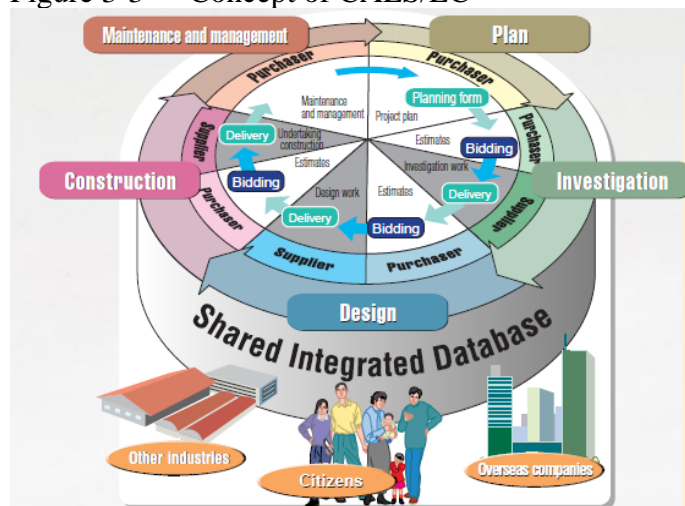
In the construction industry, information tends to stop at the boundaries of the construction site, but information sharing between management and the construction site may be able to help reduce costs and improve efficiency.

3.2 Efforts by the Ministry of Land, Infrastructure and Transportation (MLIT)

The MLIT uses a government-private ICT system known as the Continuous Acquisition and Life-cycle Support/Electronic Commerce (CALs/EC) for the electronic bidding, electronic approvals, electronic contracts, and electronic delivery. It improves efficiency and promotes information sharing, and is helping to improve the quality of public projects.

The system also has advantages for private companies in that it reduces administrative work and makes it easier to obtain bid information. Electronic bidding was used in about 90% of the projects directly managed by the MLIT in FY 2006.

Figure 3-3 Concept of CALs/EC

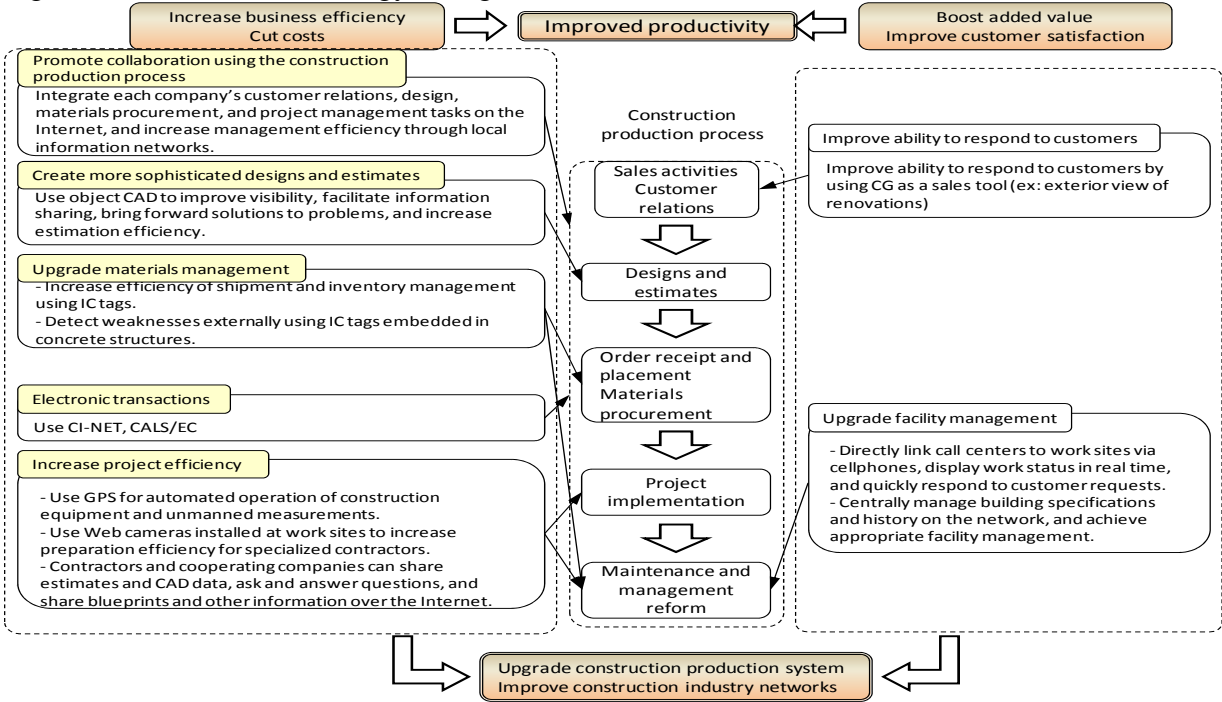


3.3 Efforts by Private Companies

To cut costs, boost added value, and improve customer satisfaction, private companies have been striving to increase efficiency across the entire construction production process by creating networks that include clients, partner companies, and other relevant parties, and by incorporating ICT into bidding, delivery, ordering, project management, materials management, and contract management. To set themselves apart from other competing companies in their order-receiving processes and their commitment to finding solutions for

customers, many companies in recent years have been proposing ways to integrate the construction process with security, inventory management, and sound management systems, and have developed businesses that involve sharing maintenance information and long-term repair plans for completed construction projects with customers.

Figure 3-4 Business Strategy Using ICT

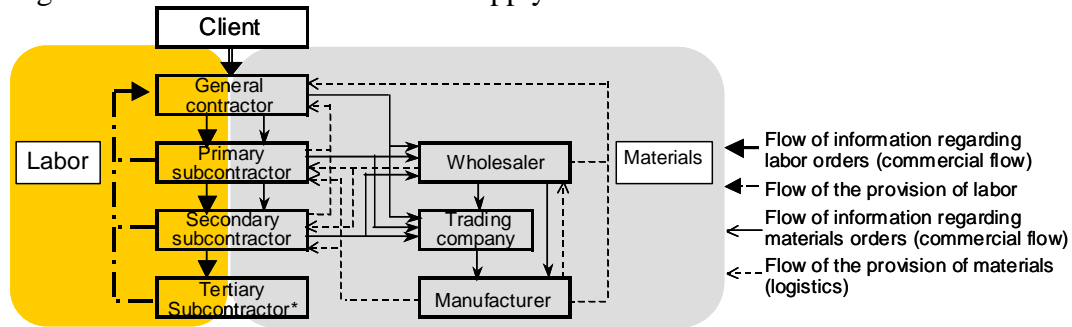


4. Innovation in Materials and Labor Procurement among Japanese Construction Companies: Centralized Procurement

4.1 Current State of the Supply Chain for the Procurement of Materials and Labor among Construction Companies

The Japanese construction market expanded dramatically during the period of high economic growth (mid-1950s to the 1970s) and the bubble economy (late 1980s to the early 1990s). As the construction companies as a whole pursued rationality and efficiency in construction production, they developed a production system with a vertical and decentralized structure. As a result, materials and labor procurement was handled by various suppliers at different levels of the hierarchy (Figure 4-1). Since the ability to meet project deadlines and perform quality work are their lifelines, general contractors, especially those that play a role on-site, strive for constant, detailed procurement management in their daily activities.

Figure 4-1 Materials and Labor Supply Chain in Construction Production



*Or lower-tier subcontractor

Materials Procurement Supply Chain

There are two main routes by which materials are procured. Either the general contractor procures materials from the manufacturer themselves, or a primary or secondary subcontractor procures materials on behalf of the general contractor. There are various intervening parties, which can include trading companies, processors, or wholesale merchants, depending on the type of material needed or the region where the work is being done. Materials can arrive at a worksite via several different logistical channels. They might come directly from the manufacturer, be shipped via a wholesaler, or be shipped after undergoing some kind of processing at a designated processing company.

Labor Procurement Supply Chain

General contractors most often procure labor by placing an order with a primary subcontractor. The primary subcontractors nowadays rarely have skilled workers working as direct employees. Rather primary subcontractors will procure skilled workers directly as temporary workers, or from secondary or tertiary specialized subcontractors. During the busy season, a general contractor may have to procure skilled workers from new companies if they cannot secure the workers they need from their secondary subcontractors. In this case, those workers may do lesser quality work if they are not managed appropriately.

Supply Chain for Integrated Materials and Labor Procurement

When the general contractor procures both materials and labor together from a primary subcontractor, the primary subcontractor may procure its own materials while procuring labor from a secondary or lower-tier subcontractor, or may provide some of the labor itself, as well.

4.2 Innovation in Materials and Labor Procurement Management among Construction Companies: Integrated Procurement

The procurement of materials and labor discussed above has conventionally been done for each construction site. However, because on-the-spot procurement makes it difficult for procurement information to be collected and used appropriately and efficiently, and also makes it difficult to take advantage of economies of scale, companies have begun instead to use centralized procurement, in which the company headquarters or purchasing departments handles all procurement activities centrally (see Figure 4-2).

In integrated procurement, the process planning and management of individual work sites is linked for the purpose of improving construction productivity and reducing production costs. Information is promptly and accurately conveyed to the supply chain, and materials and labor are delivered “just in time.” This makes it possible to reduce inefficiency and waste in the production process.

Integrated procurement also requires that the necessary information is provided to various suppliers at the appropriate times, that is, that procurement information be synchronized. Recent developments in ICT have made this possible. Large and medium-sized general contractors are using ICT and have created environments where their supply chain members can have easy and low-cost access to their purchasing information. Administrative efficiency is improved by the sharing of materials and labor procurement information and by accelerating the pace of decision-making.

4.3 Futures Issues in Materials and Labor Procurement

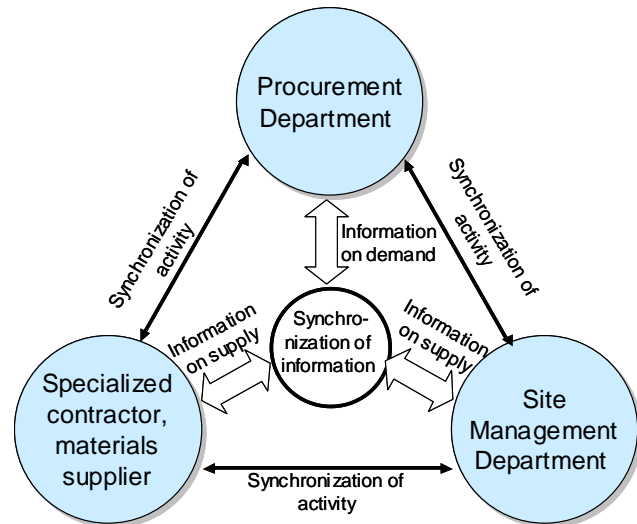
Improving Procurement Efficiency among Small and Medium-Sized Companies

Supply chain members, including general contractors, specialized subcontractors, materials manufacturers, and wholesalers are striving to use centralized purchasing to improve construction productivity and decrease production costs, and their efforts are yielding results. However, it is difficult for small and medium-sized companies to sustain these efforts due to limited purchasing power, human resources, and capital. Increasing procurement efficiency among small and medium-sized companies is going to be a particularly important issue in the future.

Promoting Green Procurement

Construction companies typically use a wide variety of materials in rather high volumes, and thus can have both a direct and indirect impact on the environment by purchasing materials. The Japanese construction industry has thus been making efforts to promote green procurement, taking an active role in building and maintaining a sustainable society. To achieve green procurement, construction companies have to adopt their own green

Figure 4-2 Synchronization of Activities through the Synchronization of Information



procurement standards and guidelines, and must create systems in cooperation with their suppliers to achieve their goals. Going forward, both parties need to work collaboratively to achieve green procurement. Even in the design stage, construction companies should make proposals to clients and designers for the use of recycled construction materials and environmentally friendly products. Also, construction companies need to promote green procurement by creating green procurement standards for everything from construction materials, to work uniforms, to office supplies.

III. Conclusion

After the collapse of the bubble economy (which lasted from 1992 to 2004), construction investment has declined slowly as the Japanese economy slowed down. In the current environment, where significant growth is not expected to occur in the near term, the construction industry is on the verge of a shakeout driven by increased competition.

Thus far in the Japanese construction industry, clients and construction companies entered into and carried out construction projects based on a general relationship of trust, which included the assurance of a certain level of price and quality. Also, clients have used general contracts that cover all of the tasks related to a construction project to take advantage of the construction companies' high capabilities in problem-solving skills during and post construction processes, including risk management and consensus formation skills. However, in an increasingly competitive environment, both sides are being required to cut costs and increase transparency. Under lump sum contract, construction companies have sometimes borne excessive risk because of the vague nature of the contract terms, but now there is a growing need to explicitly state the specific responsibilities of each party in the contract.

Given these circumstances, the Japanese government and construction industry are working hard to ensure that construction industry as a whole has the creativity and vitality required for the economic and social needs of the 21st century. They are also standardizing administrative procedures and developing an environment that is conducive to the use of ICT, and working to create a competitive environment in which market principles are functioning properly and the companies that excel in technology and management capabilities can be fairly selected by customers and given the chance to grow.