

Construction Economy Report
No. 55

The Japanese Economy and Public Investment
– Maintenance and Repair and the Construction Industry –

December 2010

Research Institute of Construction and Economy
(RICE)
Tokyo, JAPAN

This is an English translation of a summarized report in Japanese,
announced in October 2010

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Chapter 1 Trends in the Construction Investment

1.1 Trends in the Japanese economy and construction investment

- This section examines the most recent trends of construction investment based on the Construction Investment Outlook announced by RICE in July 2010(Note 1), and by referring to Statistics on Building Construction Starts, Quarterly Estimates of GDP (QE), the Bank of Japan's Short-term Economic Survey of Enterprises in Japan, and other economic reports.
- **Private-sector housing investment** in FY2010 was estimated at 13.7 trillion yen (an increase of 0.1% from the previous year). The number of housing starts was 859 thousand units (up 10.8% from the previous year). The figures for FY2011 are 14.4 trillion yen (+ 5.2%) for the former, and 905 thousand units (+ 5.4%) for the latter. Apart from in urban centers, suppliers are reluctant to build rental housing and condominiums, pushing down the number of housing starts.
- **Private-sector non-housing investment** in FY2010 was estimated at 11.8 trillion yen (up 2.2% from the previous year) and 13.1 trillion yen in FY2011 (+ 10.7%). While real private-sector business investment levels and machinery orders received are gradually recovering, the Bank of Japan's Short-term Economic Survey of Enterprises in Japan (the "Tankan") shows a sharp decline in the diffusion index (DI) for manufacturing and housing starts in recent months have been very slow. Coupled with the strong yen and sluggish stock prices, concerns about the recovery of business investment remain.
- **Government construction investment** in FY2010 was estimated at 13.8 trillion yen, or down 18.5% from the previous year. The sharp drop is due to an estimated 18.3% decrease in public works expenditure and a fall of investment in local-government-financed projects of 3.3%. In FY2011 government construction investment is expected to further decline by 9.1% to 12.5 trillion yen if the amount of public works expenditure and investment in local-government-financed projects remain at the same level compared with FY2010. The amount from the budget carried forward to FY2011 is expected to be within the normal range, whereas in FY2010 a greater amount than usual was carried forward from FY2009.
- **Nominal construction investment** for FY2010 was estimated at 39.3 trillion yen (down 6.8% from the previous year) and that for FY2011 was 40.1 trillion yen, (+ 1.9%).
- The above estimates are as of July this year. Changes since then are described in the main report which include: a) delays in the recovery of private-sector non-housing investment due to the canceling or postponement of business investment in Japan accompanying yen appreciation; and b) delays in the recovery of private-sector housing investment due to continued high unemployment rates and income deterioration (recent recovery in housing starts may not continue on a stable basis). We should be prepared as these delays may continue to have negative effects on the industry in FY2011.

● Trends in construction investment (FY)

Actual ← | → Tentative | → Forecast

FY	1995	2000	2005	2006	2007	2008	2009	2010	2011
Nominal CI (Increase rate)	79,167 0.3%	66,195 -3.4%	51,568 -2.4%	51,329 -0.5%	47,796 -7.1%	47,650 -0.1%	42,170 -11.5%	39,320 -6.8%	40,050 1.9%
Nominal government CI (Increase rate) (Contribution rate)	35,199 5.8% 2.5	29,960 -6.2% -2.9	18,974 -8.9% -3.5	17,797 -6.2% -2.3	16,946 -4.8% -1.7	16,210 -4.3% -1.5	16,900 4.2% -1.4	13,770 -18.5% -7.4	12,520 -9.1% -3.2
Nominal private CI (Increase rate) (Contribution rate)	24,313 -5.2% -1.7	20,276 -2.2% -0.7	18,426 0.3% 0.1	18,750 1.8% 0.6	16,602 -11.5% -4.2	16,390 -1.3% -0.4	13,700 -16.4% -5.6	13,720 0.1% 0.1	14,440 5.2% 1.8
Nominal private NH CI (Increase rate) (Contribution rate)	19,505 -1.8% -0.4	15,959 0.7% 0.2	14,170 4.0% 1.0	14,782 4.3% 1.2	14,150 -4.3% -1.2	15,050 6.4% 1.9	11,570 -23.1% -7.3	11,830 2.2% 0.6	13,090 10.7% 3.2
Real CI (Increase rate)	77,727 0.2%	66,195 -3.6%	51,520 -3.4%	50,600 -1.8%	45,776 -9.5%	44,599 -2.6%	40,742 -8.6%	38,350 -5.9%	3,9120 2.0%

(Units: billion yen. Real figures are based on FY2000 prices)

Notes:

1. CI: construction investment NH: non-housing
2. Private NH CI = private non-housing construction investment + private civil engineering investment.
3. Data from the "Construction Investment Outlook (July 2010)" announced by RICE on July 27, 2010.

1.2 Maintenance and repair of social infrastructure: future projections

- Maintenance, repair and renewal of existing facilities is a promising field, as construction investment continues to decline.
- The total estimated social infrastructure stock in the 15 sectors that comprise the majority of construction investment is about 750 trillion yen in FY2010. (These 15 sectors are: roads and highways, ports, airports, railways, subway, public rental housing, sewers, water supply, city parks, educational facilities, flood control, landslide control, coastal protection, agriculture, forestry&fishery and industrial water supply.) The estimate assumes a certain service life for the infrastructure in each category, with the infrastructure being demolished and replaced with new infrastructure at the end of its service life. The service life of each facility is the weighted average of; a) the service life of the structures that comprise these facilities specified in the Ordinance of the Ministry of Finance, and b) the amount invested in these facilities. Depreciation was not considered.
- Figure 1 shows that if the current level of investment continues, the amount of stock will peak in the middle of the 2020s and then begin to decline as no money for new investment or renewal will be made available.
- Based on these estimates, forecasts for maintenance, repair, and renewal markets were made. The amount of investment needed for the maintenance, repair, and renewal of existing facilities is expected to exceed the amount of new investment sometime around 2020. More money should be spend on the maintenance and repair of old and deteriorated facilities. Less money will be available for the more costly reconstruction of existing facilities, let alone for building of completely new facilities. This in turn may put the safe and secure life of the Japanese people at risk (Figure 2).
- The annual expenditure for maintenance and repair of existing facilities is now estimated to be two to three trillion yen, and that of renewal is estimated to be 20 trillion yen annually, and both will continue to increase. To avoid an infrastructure crisis of the future, a fair amount of funding for public works budgets should continue to be secured, and strategies should be set up to enable the scheduled maintenance and repair of the existing facilities to avoid sudden increases in expenditure on facility renewal.
- By category of infrastructure, the greatest renewal demand over the next decade is expected to be for sewers, educational facilities and other life-related facilities that have high renewal expenses. Demand for renewal of roads and highways will start to increase from around 2040. The peak period for renewal will differ, depending on the category of infrastructure. Adequate planning of the renewal process should be started immediately.

- “Infrastructure asset management” is a method that may help the government cope with the demand for renewal expenditure. The methods of infrastructure asset management include minimizing the total cost (lifecycle cost) of the facility from its design to its demolition, and utilizing the private sector’s resources and expertise for social infrastructure improvement.
- The national and local governments have already started formulating plans to extend infrastructure service life as one method of asset management. Unlike conventional projects in which extensive repairs are made to deteriorating facilities, service life extension is more preventive: it involves frequent small-scale maintenance projects, thereby reducing the maintenance and repair cost, and hence the total lifecycle cost. One cost estimate made on bridges expects that a total 17.4 trillion yen will be saved over the next 50 years by service life extension.
- On the other hand, project finance used in PFI and revenue bonds planned to be issued by Aomori Prefecture are methods to finance the cost of renewal from the private sector. Under these methods, projects are assessed independently of the financial and other risks associated with the operating body (e.g. local governments and municipalities) and thus project finance used in PFI and revenue bonds are attractive to many municipalities that are under financial stress. Nearly ten years have passed since PFI began in Japan. Many successful results have been achieved, but more discussions and studies are needed for this approach to become more widely used. When introducing new financing systems like these ones, ways to separate risks and redemption methods and other details should be carefully considered.
- Effective asset management requires the disclosure of information so that anyone can access objective data on the conditions of social infrastructure. For this purpose each local government should develop “infrastructure accounting” to enable the objective review of facilities, to set clear standards for management, and to give priority to investment. An example of an organization endeavoring to establish new, objective and transparent accounting methods is the Government Accounting Standards Board (GASB), an independent, private-sector organization that establishes the financial accounting and reporting standards for U.S. state and local governments. The GASB proposes an accounting method that does not calculate depreciation based on service life on the assumption that the facility is properly maintained.
- Under the current fiscal conditions in Japan, it is unlikely that public works expenditure will significantly increase in the future. Smarter maintenance and improvement of facilities that minimizes lifecycle costs will be needed. Some facilities may need to be downsized when they are renewed. Citizens may be forced to select which infrastructure is necessary in the coming era of a depopulating and maturing Japanese society.
- These changes will force construction companies to face new challenges, including new competition and contracting systems different from those that have been used in traditional public works projects.

Figure 1 Estimated amount of social infrastructure in 15 sectors

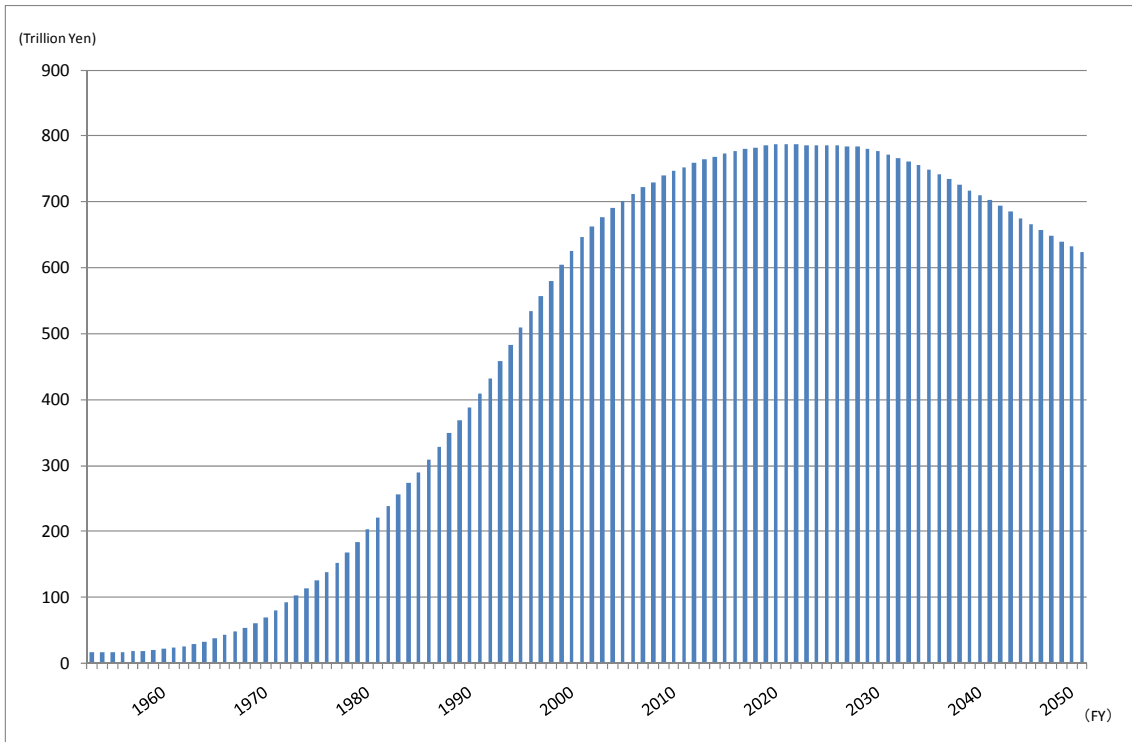
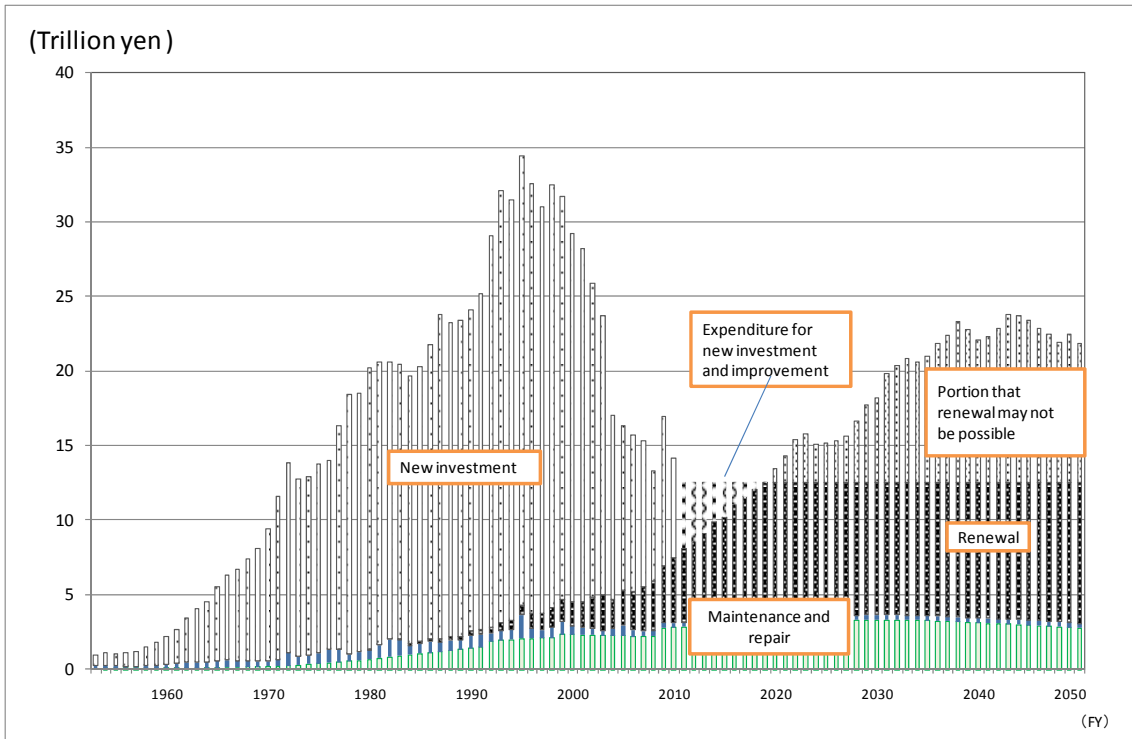


Figure 2 Estimated amount of maintenance, repair, and renewal cost in 15 social infrastructure sectors



1.3 Maintenance and repair

- Estimating market size -

- The ratio of maintenance and repair in construction investment in general is increasing, providing more business opportunities for construction companies. However, methods for calculating the amount of maintenance and repair investment and estimating future trends have yet to be developed. Unlike investment in new facilities, maintenance and repair have largely been ignored. In this report RICE examined methods to forecast the size of the maintenance and repair market.
- Firstly, two reports by the Ministry of Land, Infrastructure and Transport (MLIT), the latest versions of “Construction Work Statistics” and “Construction Investment Outlook” (both FY2008) were used to make an adjusted estimate of construction maintenance and repair. As a result, the total amount of construction investment (tentative) came to 47.65 trillion yen, and the total amount of investment in maintenance and repair came to 11.58 trillion yen (Table 1).
- Secondly, based on the amounts above, a projection of maintenance and repair investment from FY2009 to FY2011 was made. Here the same two reports were used to first calculate the amount of maintenance and repair costs of “private-sector housing” and “private-sector non-housing” from FY1990 to FY2008. These figures were used as dependent variables, and a multiple regression analysis was performed. The explanatory variables used are: trends in the amount of existing stock (a factor describing trends in the accumulation of stock), and interest rates and other major economic indicators and trends in estimated new construction investment (factors explaining economic changes). The results indicate that, a) the amount of investment in maintenance and repair of “private-sector housing” will gradually increase from FY2009 and; b) that of “private-sector non-housing” will first decrease in FY2009 but start increasing again after FY2010 (Figure 1). The effect of the eco-point system for housing (those who build or renovate eco-friendly houses are awarded “eco-points” which can be exchanged with gift certificates, local specialties and other goods) was not considered.
- Besides estimates of “private-sector housing” and “private-sector non-housing” made this time, methods to estimate investment in “private-sector civil engineering,” “public buildings” and “public-sector civil engineering not included in public works” should be examined in the future, to get a better overall view of the maintenance and repair market.
- Methods to provide more timely maintenance and repair investment statistics are required as the “Construction Work Statistics” is based on the fiscal year and takes a full year to be announced.

- International comparisons -

- RICE then examined methods to enable more accurate international comparisons of the ratio of maintenance and repair to overall construction investment. RICE has conventionally used two reports, “EUROCONSTRUCT-Conferences” (overseas) and “Statistics of Construction Works” (Japan), to compare maintenance and repair costs in different countries. These reports however define maintenance and repair slightly differently, “renovation” in the Euroconstruct report and “maintenance and repair” in the Japanese report. Adjustments have thus been made to allow a more accurate comparison.
- The major difference between “renovation” and “maintenance and repair” is that the latter does not include “remodeling and/or extension of housing” and “remodeling and large-scale alteration of non-housing,” whereas the former includes them. RICE added these two to figures from Japan’s construction works conducted between 2006 and 2008 and recalculated the ratio of maintenance and repair in the total construction works. As a result, the ratio increased from 3.3% to 3.7% (Figure 2).
- No statistics are yet available for civil engineering works to allow similar adjustments and to enable more accurate international comparisons. We should further continue studying ways to improve existing statistics, to change definitions, and to collect new statistics.

Table 1 Adjusted estimates of FY2008 construction investment

			New construction, extension and remodeling	Maintenance and repair	Total
Construction	Housing	Government	5,300	3,229	8,529
		Private-sector	163,900	32,776	196,676
	Non-housing	Government	15,300	7,589	22,889
		Private-sector	99,900	43,793	143,693
Civil Engineering	Government	Public works	97,461	26,139	123,600
		Others	17,900	4,801	22,701
	Private-sector		50,600	23,600	74,200
Total			450,361	141,927	592,288
The amount included in the construction investment outlook			476,500	—	—
The amount of investment added as a result of adjustment (shaded parts)			—	115,788	—

Figure 1 Trends in maintenance and repair investment

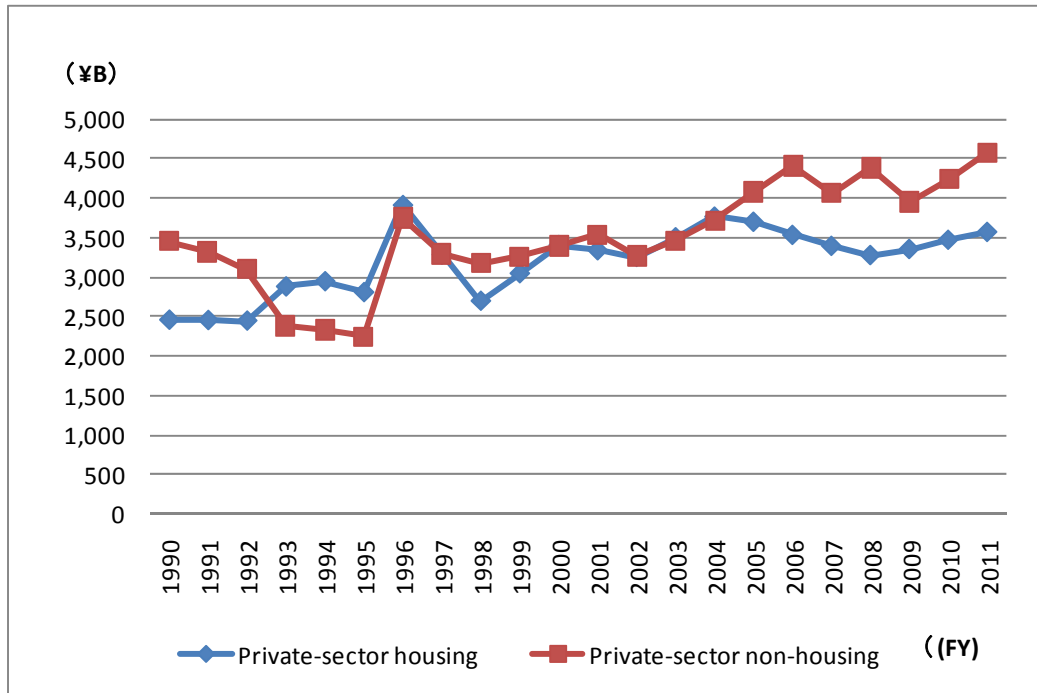
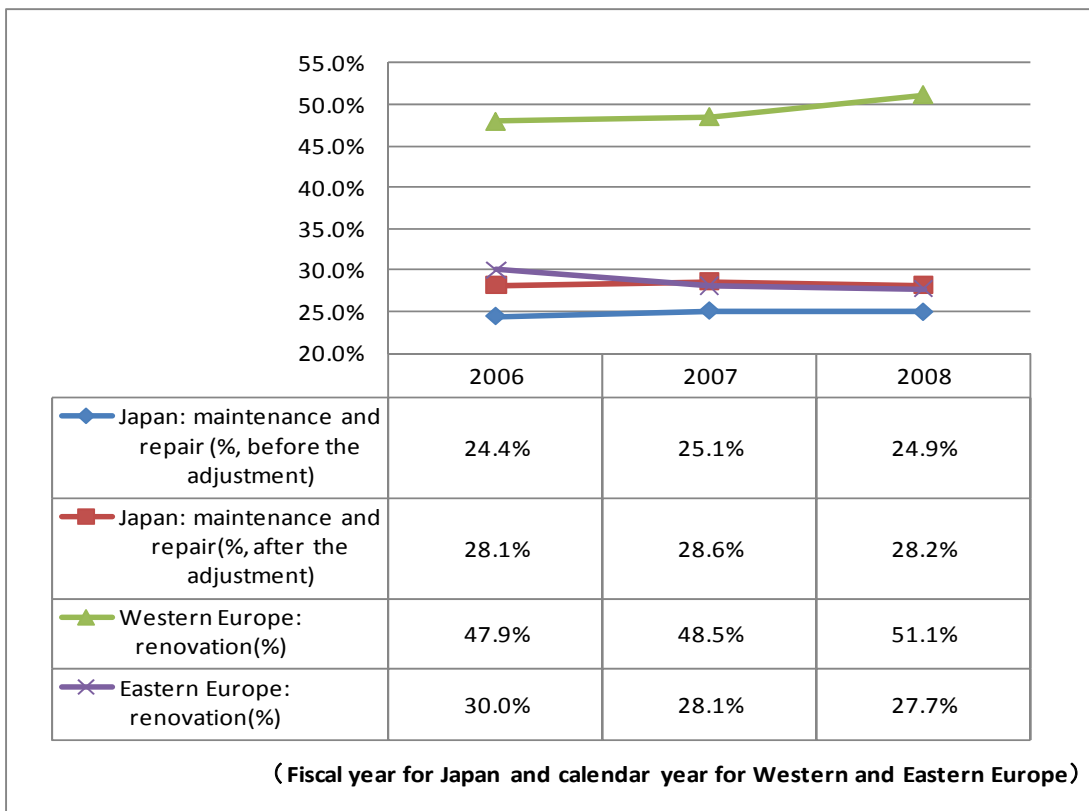


Figure 2 Trends in the ratio of “maintenance and repair” and “renovation” to total construction investment

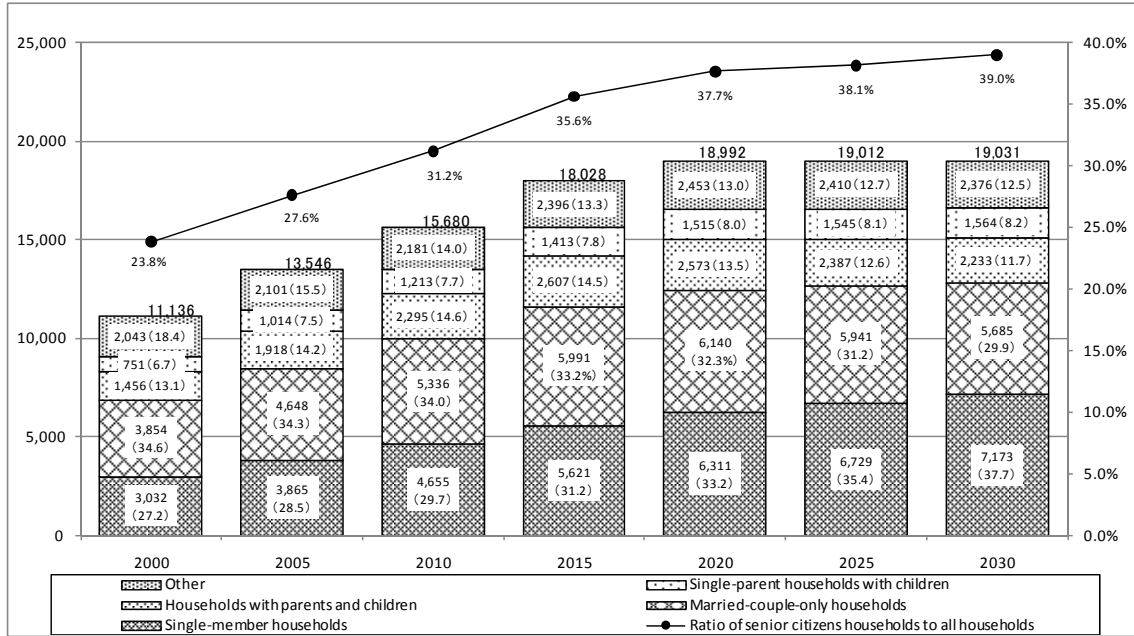


1.4 Prospects of housing for senior citizens

- In the previous issue of the Construction Economy Report (No. 54) we discussed the need to establish senior-citizen-friendly facilities and housing, and provide nursing and support services for the elderly as Japan faces the reality of a “super-aged” society.
- Japan’s baby-boomers are reaching retirement age. As their lifestyles are more diverse than those of the previous generation, so are their needs for housing. More people will move from one type of housing to another as their life stage changes, rather than continue to live in the same house their entire lives – as did the previous generation. Housing for the new generation of senior citizens, both for sale and for rent, is drawing public attention and is attracting the construction industry as a promising market.
- This section focuses on such housing for senior citizens and discusses the different forms of demand and the market.
- The senior citizen housing market, as mentioned above, is expected to continue growing with increased demand for housing tailored to the needs of the elderly. Factors influencing demand are a greater number of seniors moving from one house type to another, and changing household structure.
- How this market will develop will be greatly influenced by government policies – those of the Ministry of Land, Infrastructure and Transport and the Ministry of Health, Labour and Welfare in particular. To produce and operate convenient, affordable and comfortable housing for senior citizens, and make this market attractive for businesses, both citizens and businesses should keep an eye on government policies.
- There are already problems emerging: There have been cases of revenue shortfalls and problems with the maintenance of quality, both physical and functional. Problems arising from an aging society – including housing for the elderly – have become issues for the nation as a whole to consider.

Trends in the number of senior citizens households and their ratio to all households

(Thousand households)



Chapter 1 Trends in the Construction Investment

1.5 The role of public investment and its effect on the economy

- Public investment in Japan has played a great role in stimulating the economy during downturns and recessions, in addition to improving social infrastructure stock. Due to government policy to reduce the fiscal deficit, however, public investment continued to decline from 1998 until 2008.
- The bankruptcy of Lehman Brothers (the so-called “Lehman Shock”) in 2008 triggered a synchronized global recession. It was felt that the effect of fiscal policies would be limited. Governments in major countries increased public spending, including public investment, for the first time in many years. Japan was no exception, and government investment in construction was increased in 2008 for the first time in 11 years.
- In FY2010, public works expenditure was drastically reduced by 18.3% (compared with the initial budget amount of FY2009) while allowances for families (e.g. “child allowance”) were greatly increased. Policies concerning public investment are changing and triggering debates.
- RICE compared the multiplier effect of the tax deduction for households (in this case, the allowances for families) with public investment in stimulating the economy, by referring to the Cabinet Office’s economic model and Nikkei’s macro model. At any period in the past, public investment was found to have a higher multiplier effect and also a larger impact on unemployment (Figure 1 and 2) than a tax deduction for households.
- It cannot be denied that the production inducement coefficient of gross domestic fixed capital formation (public investment included) reported in the Inter-industry Relations Table has been on the decrease in recent years. However, the decrease is observed in the production inducement coefficient of other expenditures, i.e., that of general government consumption expenditure, private-sector consumption expenditure and consumption expenditure outside household. The effect of triggering production is still higher for gross domestic fixed capital formation.
- Public investment projects have been criticized for not being productive and for wasting money. However, in recent years their cost effectiveness has been more objectively assessed at each project to eliminate ineffective and wasteful projects (Figure 3).
- Public investment has been criticized for worsening public finances while contributing little to stimulating the economy. Again, it may be argued that this view is misleading; it should be noted that the pump-priming effect of public investment stock is higher than that of other types of expenditures in increasing overall demand and regulating unemployment.

Figure 1 Nominal GDP growth rate (2003 – 2005) when implementing various policies (“Short-term Macroeconomic Model of the Japanese Economy 2008” by the Cabinet Office)

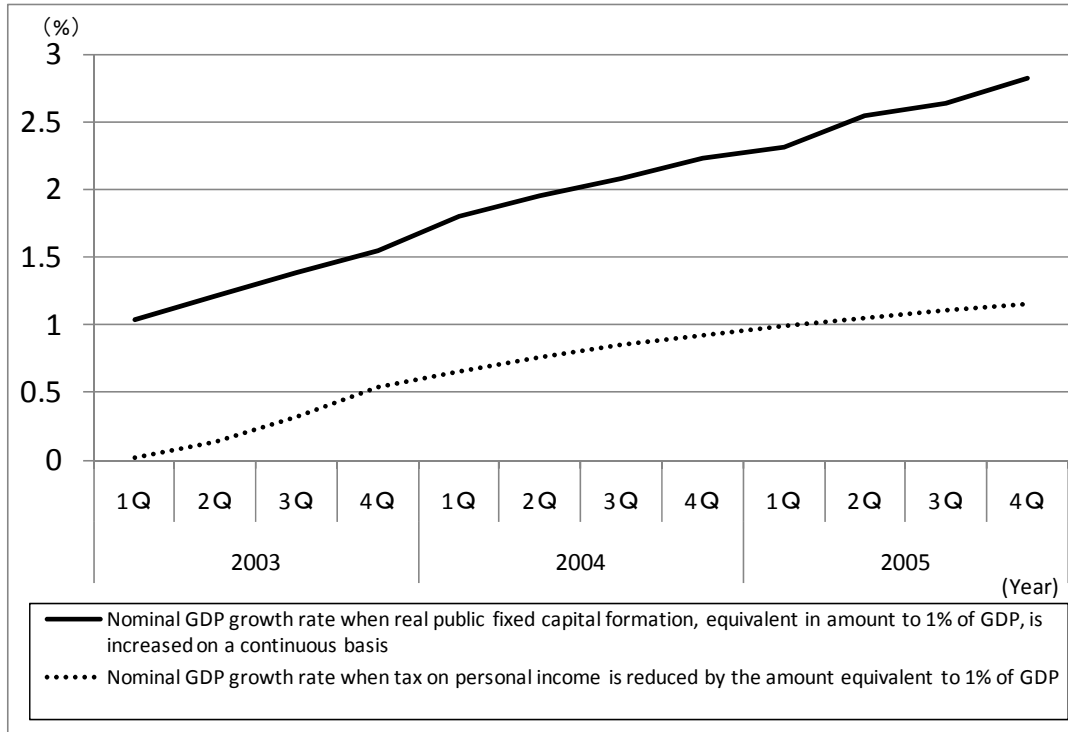


Figure 2 Projected unemployment rate based on the latest version of the Japanese Economy Model (FY2011 – 2012)

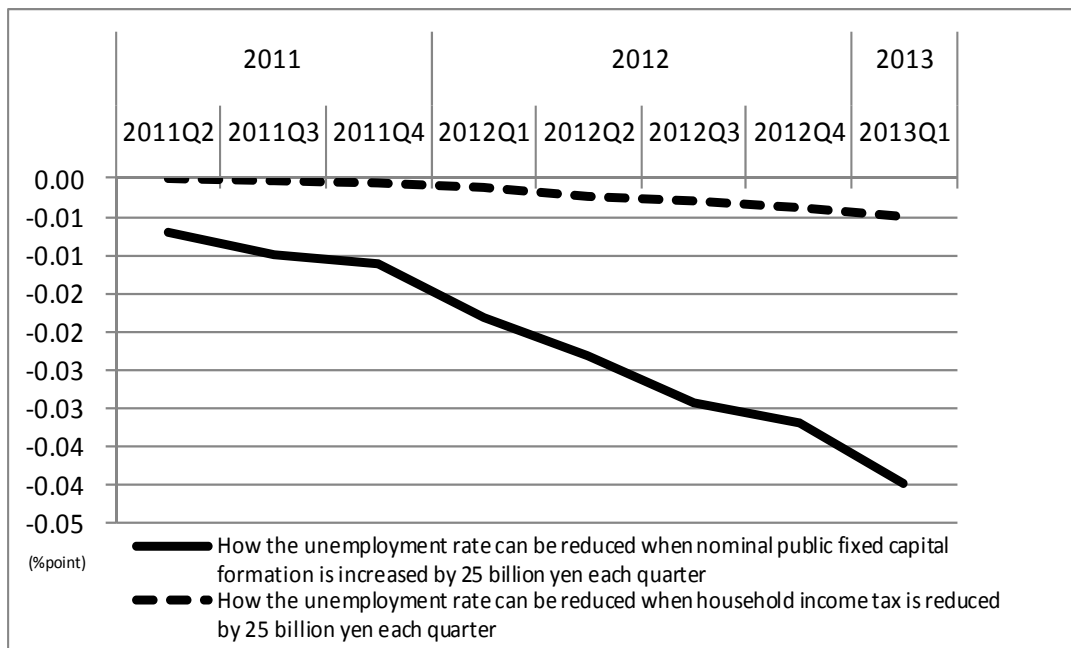
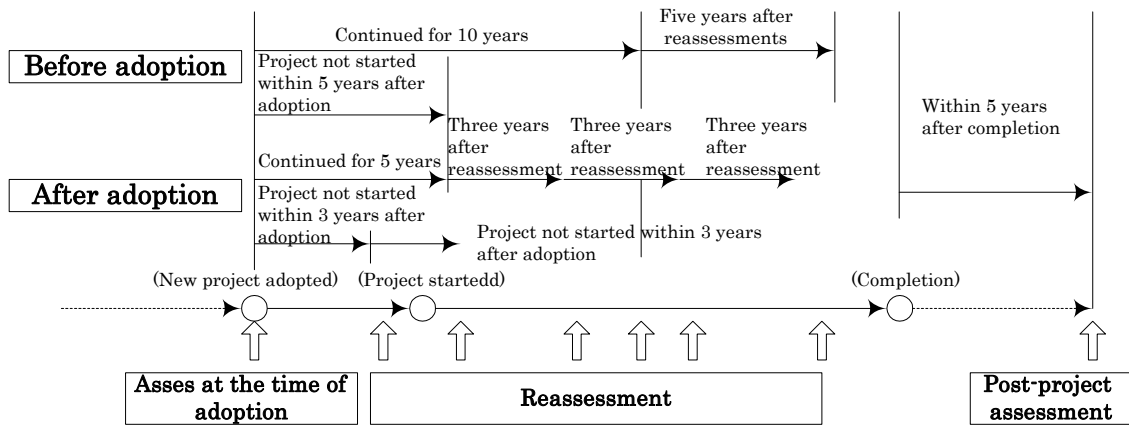


Figure 3 How public works projects are assessed: Before and after the change in method



Chapter 2 A Sustainable Local Construction Industry

2.1 The local construction industry and local construction companies

- Trends in local construction investment -

- Construction investment in FY2010 will likely decrease significantly due to decreases in: a) the national government's public works expenditure (by 18.3% in the initial budget from the previous year); b) local-government-financed project expenditure (by 3.3% based on the estimate by RICE); and c) the lack of a supplementary budget in the previous fiscal year or FY2009. Based on the most recent data available, the budget carried over from the previous year was used and no significant decrease was observed until the middle of FY2010. However, orders for public works projects are expected to drastically decline in the latter half of the fiscal year.
- RICE has compiled a list of orders received by general contractors by region for both public works projects and private-sector construction projects using MLIT's Monthly Report on Current Survey of Orders Received for Construction. Until July 2010, monthly orders received exceeded those of the previous fiscal year in Okinawa, Shikoku and Kyushu, but not in Koshinetsu and Hokuriku, Tokai and Tohoku. The increase in the former group (Okinawa and Shikoku) is partly due to local governments placing orders themselves. Statistics by councils in charge of coordinating local public works shows that public construction budgets in FY2010 are about the same or lower in most regions, but in this case too, the reduction in overall public works expenditure will start affecting these projects in the latter half of the fiscal year. Except in Kanto (Tokyo and its surrounding areas) where private-sector construction shows signs of recovery, most local regions, heavily dependent on public works projects, are expected to be seriously affected (Figures 1, 2).

- Number of local construction companies and bankruptcies -

- The number of "active" general contractors who have a record of taking orders has been on the decline nationwide since FY1998. Trends differ from region to region: A continuous decrease was observed in Hokkaido and Okinawa, whereas the numbers increased until the early 2000s in Shikoku and Kyushu and then started to decline.
- The decline in the number of companies does not necessarily correlate with bankruptcy trends by region, although a sharp increase of bankruptcies from FY2000 to FY2002 affected construction companies in many regions. More detailed studies should be conducted on other reasons of withdrawal from the industry; going out of business and inability of receiving orders for example (Figure 3).

- Financial conditions of local construction companies -

- Loans from financial institutions to construction companies has been declining over this decade, both in terms of amount and in terms of the proportion of these loans to total loans made to all industries. While total lendings outstanding are gradually increasing in all regions, those to construction companies are on the decline (Figure 4).
- Lending to construction companies involves higher risks than lending to other industries. Among major industries, the proportion of uncollectible loans is the highest in the construction industry, except for in southern Kanto (Figure 5). The ratio of uncollectible loans to construction companies out of the total of uncollectible loan tends to level off or rise except in southern Kanto.
- However, when we examine individual financial institutions, there seems to be no significant correlation between the ratio of lending to construction companies out of total loans and the ratio of loans turning uncollectible. There are banks whose loans to construction companies account for a rather high proportion of their total loans but who are also successful in getting this money repaid.
- Local construction companies should endeavor to strengthen their financial and business positions to convince lenders to grant them loans. Local financial institutions, on the other hand, should understand that a high exposure to lending to construction companies does not necessarily result in greater risks in loan recovery. These financial institutions should also understand the important roles played by construction companies in the local economy. More loans to local construction companies will help facilitate the “relationship banking” action program initiated by the Financial Services Agency and carried out by local financial institutions.

Figure 1
Trends in public works order received (general contractor basis) and amount of money received by general contractors (both public and private-sector, Kyushu)

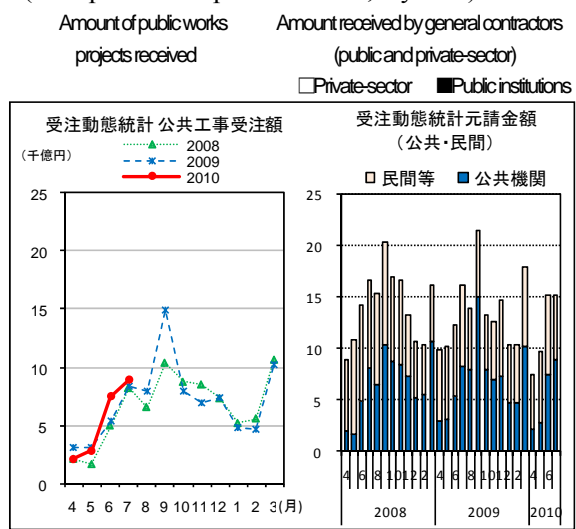
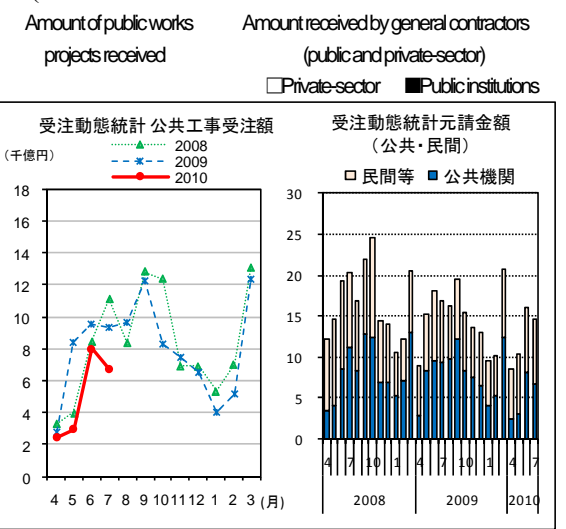


Figure 2
Trends in public works order received (general contractor basis) and amount of money received by general contractors (Koshinetsu & Hokuriku)



Source: Current Survey of Orders Received for Construction

Figure 3 Trends in the number of local construction companies and cases of bankruptcies (nationwide)

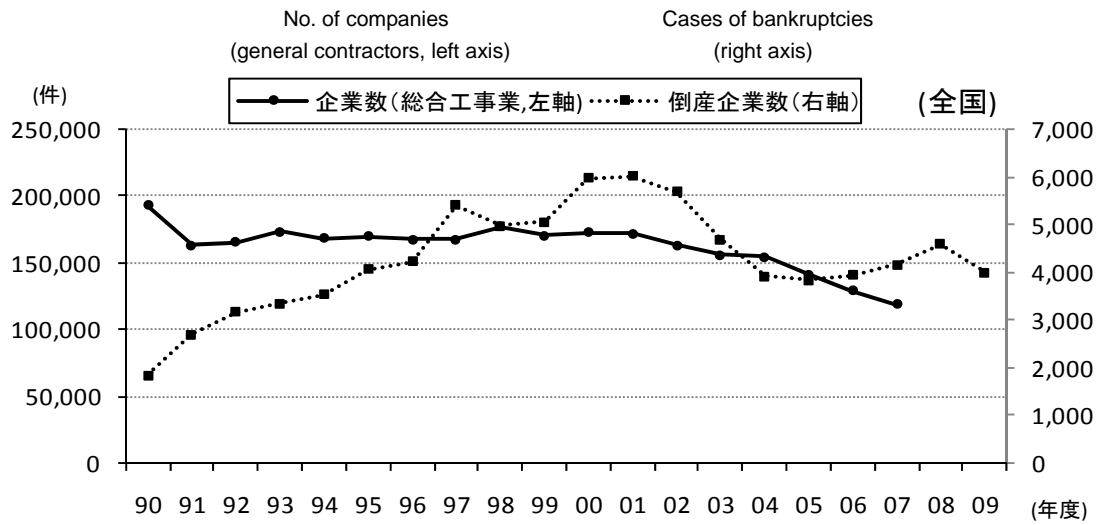


Figure 4 Trends in the total lendings outstanding and lending for construction companies by local banks (excerpt; selecting Hokuriku & Koshinetsu and Chugoku from the main report)

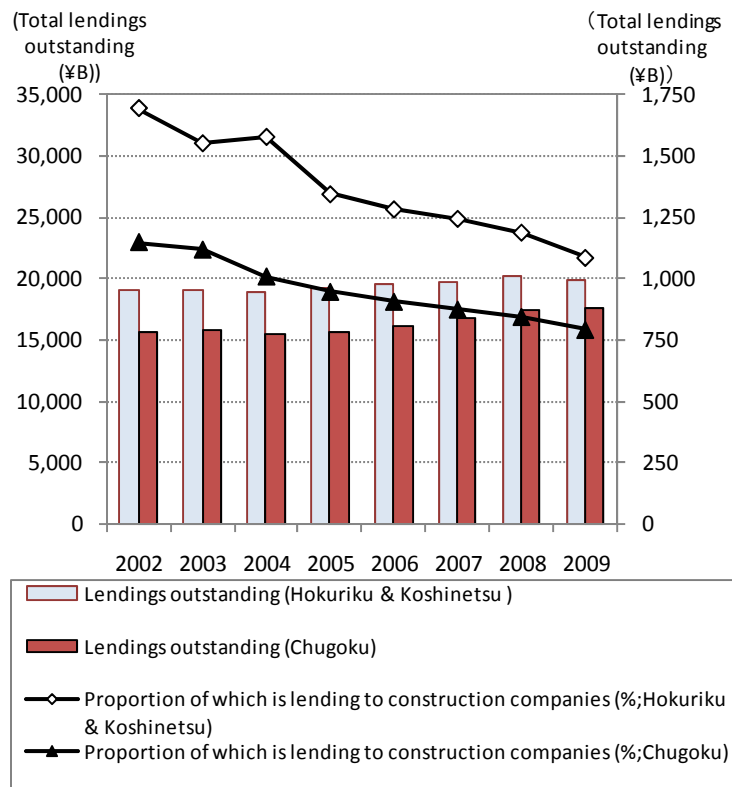
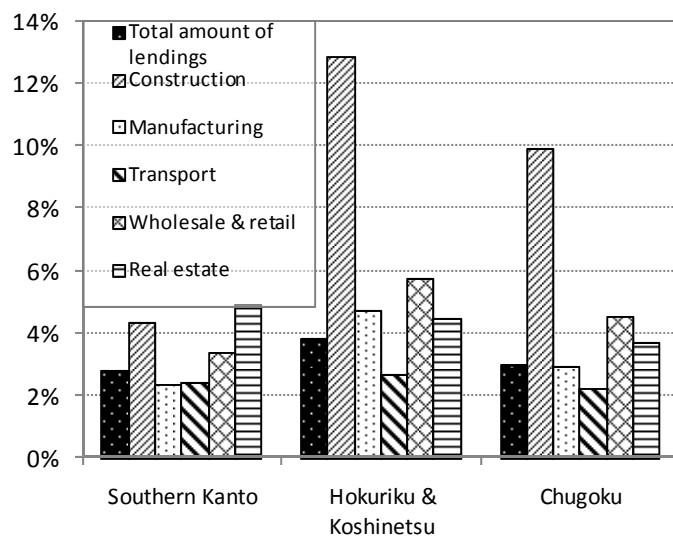


Figure 5 Rate of the amount of risk monitored loans in total lendings outstanding by local banks by industry (excerpt)



Chapter 2 A Sustainable Local Construction Industry

2.2 Construction companies and local community

- The significant decrease in construction investment in recent years is severely affecting the businesses of local construction companies. These conditions may worsen due to further declines in public investment expected from the latter part of FY2010. If more construction companies – important players in local economies – fail or leave the business, the quality of life and the economies of local communities will be greatly affected.
- RICE conducted a questionnaire survey of local construction industry associations to find out what roles these associations think construction companies play in their local community, why they are indispensable to the local community, and what government policies and programs they want. The results of this survey are summarized below.
- Many respondents answered that they have experienced a “failure of bidding due to lack of offers or due to all bidders indicating a price higher than the scheduled price.” This is one of the indicators of a tough business environment. The major reason cited was that no profit was expected in the price indicated by the procurer.
- Respondents also replied that the lack of local construction companies may pose more problems in works related to “emergency repair” and “checking and inspection” than in “new construction.” (Figure 1) Companies need to maintain offices to meet demand. Each local community should understand the risks of losing these important players and should seek ways to sustain their local construction business.
- Many construction companies and industry associations are voluntarily conducting inspections of dangerous sections of buildings and other structures without formal agreements or contracts. Many are engaged in, or hosting a wide range of social activities having longstanding traditions in Japan – such as festivals – and these services are often taken for granted by the local community. More people should be aware that if these activities suddenly end due to lack of resources and support, it may weaken the fabric of the local community (Figure 2).
- Some construction-related works may be ordered to, and carried out jointly by several local companies rather than a single company. Examples are “maintenance and repair works” and “facility management.” As mentioned earlier, demand for these types of work is expected to increase while new construction will decline. Examples of joint order-taking mentioned in the questionnaire survey are “maintenance and management of roads” and “snow removal and winter road management,” though only a few have actually tried them. Such cases may increase however, as the Ministry of Land, Infrastructure and Transport has listed in its policy agenda the promotion of joint order-taking of public facilities management by plural construction companies.
- Construction industry associations are taking various measures to sustain local construction companies. These include: a) improving the public works contract-awarding environment (making it more open, fair and keeping prices up so that construction companies and workers can survive); b) improving managerial skills and competitiveness by strengthening core business; c) advancing into new business fields (collaborating with companies in other industries); d) seeking new directions in construction-related fields; e) cooperation, collaboration and tie-ups with peer companies; and f) balancing supply and demand between construction investment (demand) and the amount of works to be done by construction companies (supply). These six measures are crucial in examining the future paths open to local construction companies and the construction industry.
- RICE will continue to examine the responses to the questionnaire survey and plans to report the findings in the next issue (No.56) of the Construction Economy Report.

Figure 1 Types of construction work experiencing a lack of players if the number of local construction companies decreases

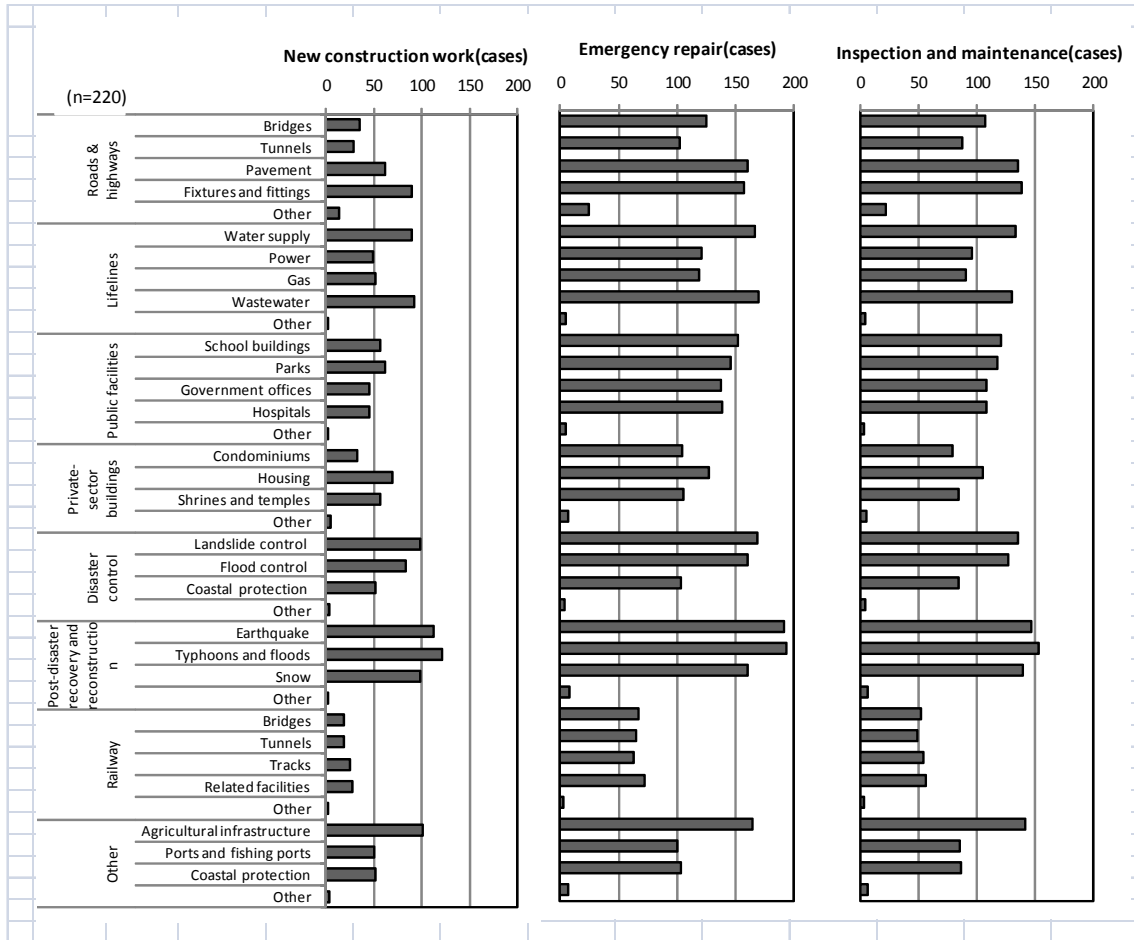
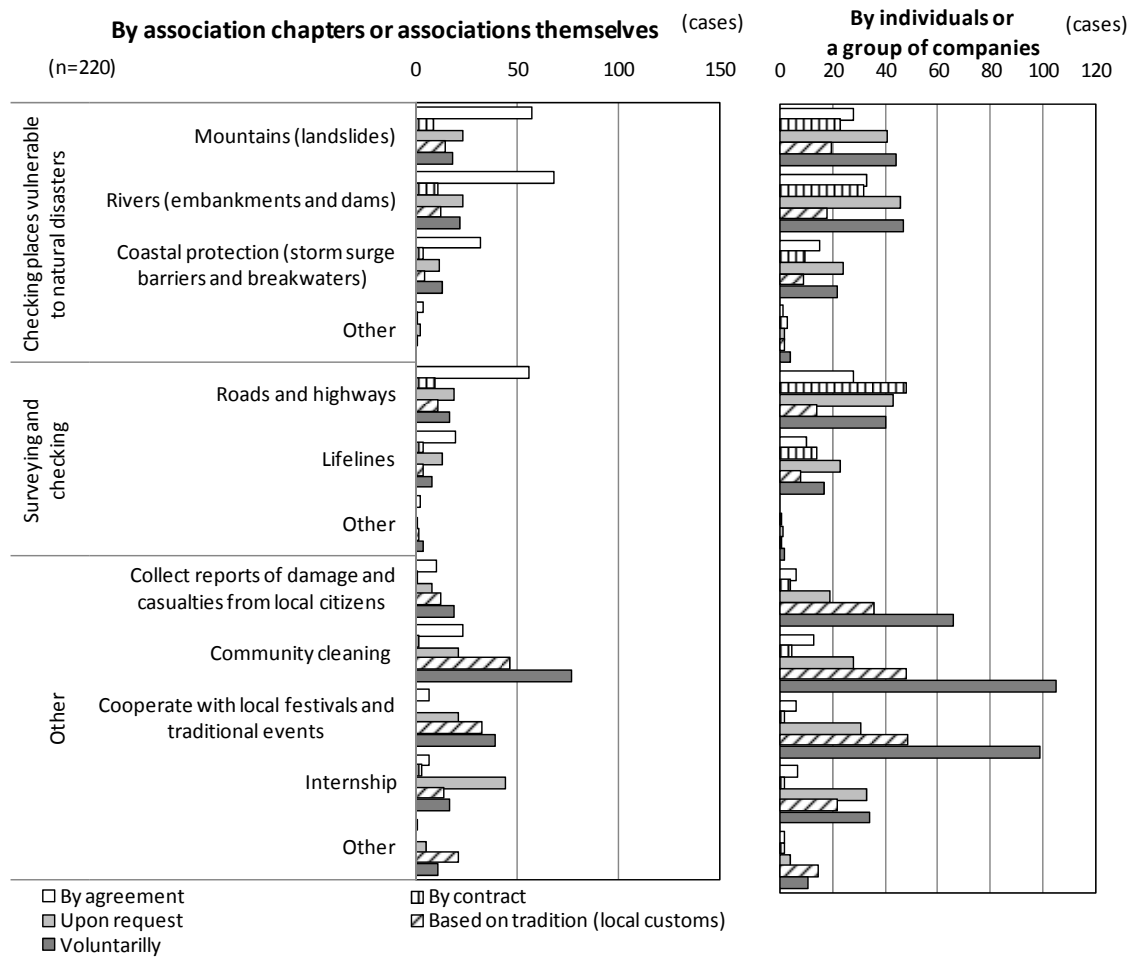


Figure 2 Activities conducted on a regular basis

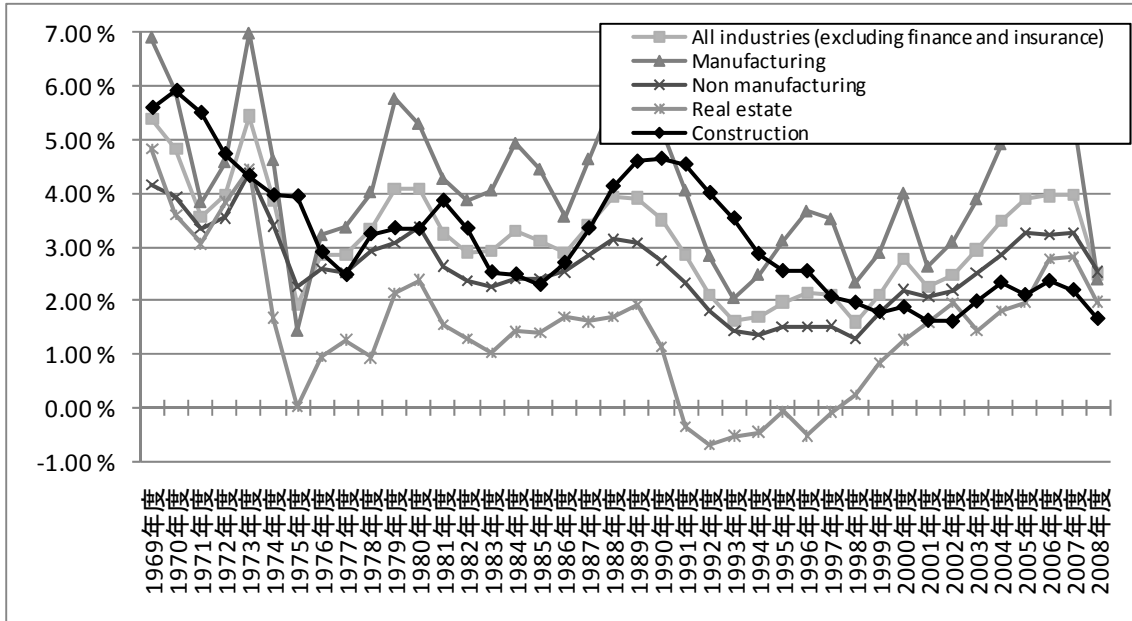


3.1 Analysis of the management and financial state of construction businesses

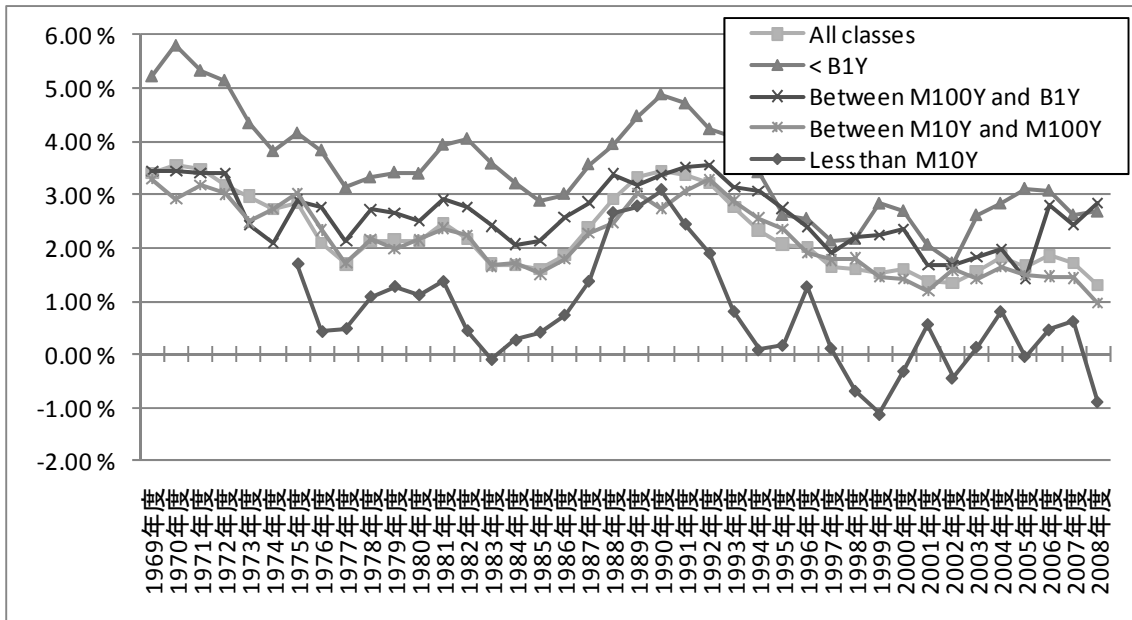
- To gain an understanding of the way that construction businesses are being managed and their financial condition, we used the Financial Statements Statistics of Corporations and compared; a) the construction industry with other industries and, b) construction companies by their size (stratified according to capitalization).
- The ROE (return on equity) of businesses in all industrial sectors fell markedly in the 1970s, 1990s and most recently in FY2006. Looking at the construction sector alone, this ratio remained comparatively high until the 1990s but has remained at a low level particularly from FY2000 onwards. The main factors responsible have been the reduction in construction investment from the 1990s onwards plus the fact that the construction sector essentially is built around the reliance on contracts from other industry sectors, which means that the construction sector is influenced by the cost-cutting measures of these other industries.
- We then broke ROE down into three components: a) sales to current profit ratio, b) total asset turnover, and c) financial leverage, to analyze the causes of the slowdown in construction business. The results indicate in general that many of the factors responsible for changes in ROE are due to changes in sales to current profit ratio. Continued low profit margins make companies less able to borrow money. As the borrowed capital ratio decreases, the capital adequacy ratio falls (meaning lowered financial leverage), which lowers ROE as a result. Furthermore, the continuation of these low profit levels means that profits do not build up within companies, and as a result, ROE remains low.
- Fundamentally, the continuation of low profit levels over a long period of time in the construction sector has had an enormous effect on each financial indicator. When construction companies are separated out by the size of their capitalization, the fluctuations of these indices are the most severe among companies in the smallest size category.
- The capital adequacy ratio is an indicator of financial stability. It gently increased but flattened out from FY2004 onwards. At present, as demand declines, reduced dependence on borrowing may be desirable; however, it is not possible to promote investment as a growth strategy. Looking at construction companies classified by the size of their capitalization, we can see that among companies in the low capitalization category, their capital adequacy ratios are low and their reliance on debt is high. Moreover, this dependency on debt has been rising recently, indicating that these small companies are facing difficult times.

- The ROA (return on asset) ratio is generally stagnant and at a low level. Looking at the trend in total asset turnover, we see that there has been little comparative change and that there is a high degree of correlation between sales and total assets. This means that a company's sales is in line with their total capital, but this also signifies that there is no change in the operational efficiency of the capital. Looking at construction companies classified by the size of their capitalization, we see that the smaller the capitalization class, the greater the influence of total asset turnover, the greater the impact on a change in sales, and the more difficult it is for the company to accumulate profits.
- The "current profit to sales ratio," which is the basic indicator of a company's profitability, peaked in FY1990 and has declined following the bursting of the economic bubble, to a low level. We can see that for construction companies with a large capitalization, the current profit to sales ratio is comparatively high and appears to have recovered from the start of the 2000s. This ratio however, declined among companies in the low capitalization class. This indicates one of the structural characteristics of the construction industry.
- Loan interest rates among all categories of construction companies declined following the bursting of the economic bubble and have remained flat since 2000 onwards. Low-capitalized construction companies are facing a difficult business environment considering their degree of reliance on debt, the interest rate they pay on their loans and their rate of return, and the relationship between this borrowing and future cash flows.
- The efficiency of construction companies is falling, in terms of both labor productivity and capital productivity. Under the circumstances of declining added value, boosting both labor productivity and capital productivity – which are the keys to growth – is a pressing issue.
- While domestic construction investment continues to decrease, construction companies need to break away from their "low-margin" approach to business. For them, how to enhance profitability and particularly how the industry as a whole can rise above the low profit levels (that are a particular problem among companies with low levels of capitalization) are crucial issues for the construction industry.

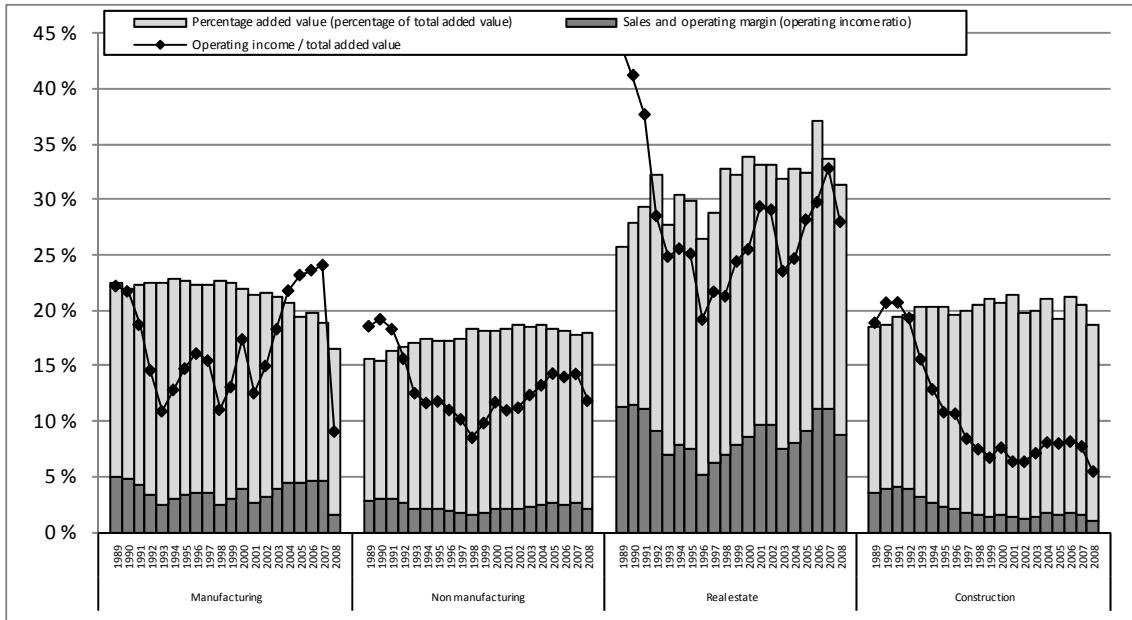
- Trends in the ordinary profit to sales ratio (by industry sector)



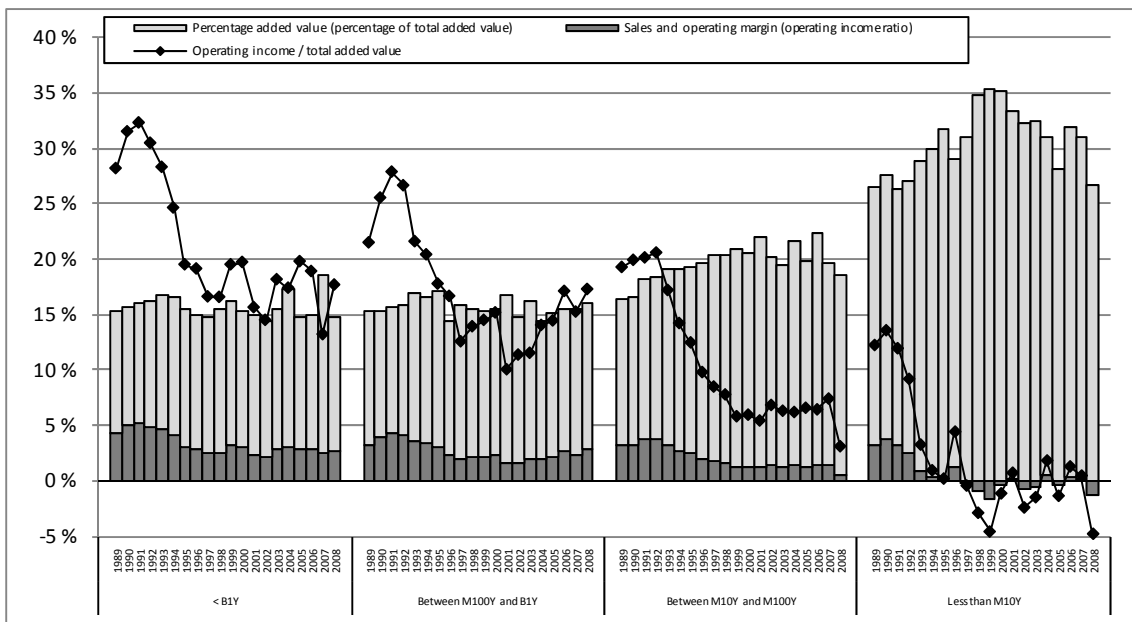
- Trends in the ordinary profit to sales ratio (for the construction industry, companies classified according to capitalization)



- A comparison of percentage added value and operating income ratio, and the trends of these over time (by industry sector)



- A comparison of percentage added value and operating income ratio, and the trends of these over time (for the construction industry, companies classified according to capitalization)



3.2 A survey on the business relationship between prime contractors and subcontractors

- The considerable reduction in construction investment has intensified the level of competition among construction companies to win contracts. This has led to a deterioration of corporate performance in general within the construction market. There are concerns that Japan's multilayered subcontracting structure, which is a characteristic of its construction industry, will result in the poor business results of the major construction companies (who are the prime contractors) passing down the chain to the small- and medium-sized construction companies who are the subcontractors.
- There are various patterns in the prime contractor-subcontractor relationships in the construction industry. The traditional relationship of several construction companies continually working together on projects over time is a comparatively common one. Unfortunately, in the current situation of oversupply in the construction industry, it is likely that contractors are revising their business relationships with their subcontractors due to a decline in order volume, to ensure profitability. To gain a clearer understanding of prime contractor-subcontractor relationships, RICE conducted a questionnaire survey of construction companies.
- The most widespread strategy among construction companies was "even if the profitability is low at the job-costing stage, we accept orders for jobs where there is room for us to cut costs (increase profits)" (from about 60% of respondents). This indicates that companies place profitability first when they choose projects (Figure 1).
- Prime contractors answered that they choose subcontractors according to cost, regardless of whether the subcontractor had worked for them previously or was completely new. This suggests that the traditional prime contractor-subcontractor relationship in Japan is changing (Figure 2).
- We believe that as strategy for winning a contract shifts to one that places a priority on making profit rather than maintaining long-term business relationship, the prime contractor will take various steps to reduce costs. While it is hoped that competition stemming from the prime contractors' cost-priority policies will lead to the selection of more efficient subcontractors, there is a downside to this trend: the prime contractor may end up absorbing the subcontractors' profits, which will impose undue stress on the subcontractors.
- When asked about their relationship with the prime contractor, 40% of subcontractors reply that they have a high degree of dependence on two or three specific companies, and a further 40% respond that they do not have a specific prime contractor or upstream contractor that they are highly dependent upon. In response to the profit-oriented strategy of the prime contractors, subcontractors are deciding not to choose long-term partners and are widening the number of companies they will work for in order to secure the work volume they need (Figure 3.)
- Subcontractors commonly receive payment in the form of a combination of cash and promissory notes. Only 4% reply that they use factoring. Some 12.4% of subcontractors responded that they had accepted promissory notes with a payment term of 120 days or longer.

- In contrast to the current policy of giving a priority to costs, only a small proportion of prime contractors (13.3%) replied that they will continue selecting their subcontractors “placing importance on value and promoting competition” (Figure 4). Selecting subcontractors by placing a priority on costs in an attempt to improve profitability by reducing outsourcing costs is a rational approach; however, companies seem to feel that the way of thinking of individual companies that “if only we can make money we don’t have to care about others” will distort the market and will exhaust the construction industry as a whole. Looking ahead to the future of the construction industry overall, prime contractors and their subcontractor partners should consider rebuilding their relationship.

Figure 1 Order-taking policy

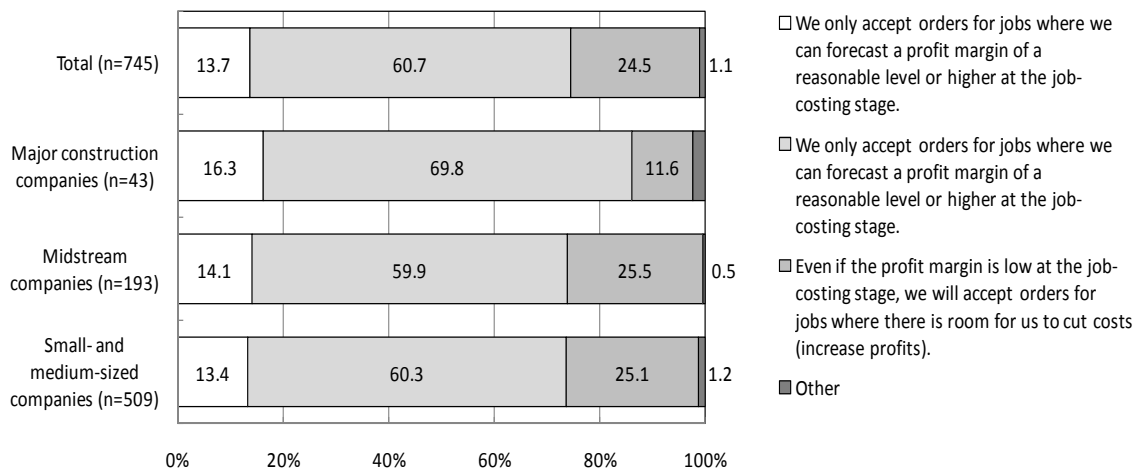
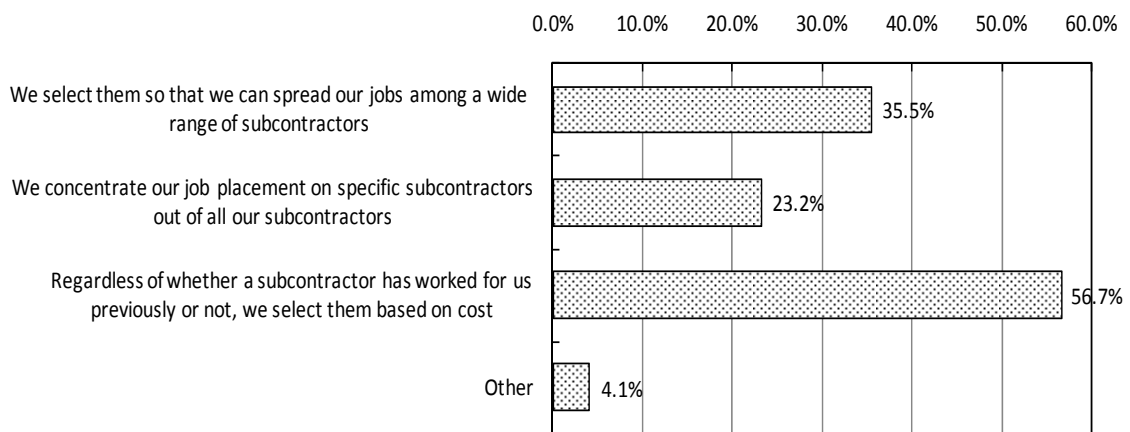
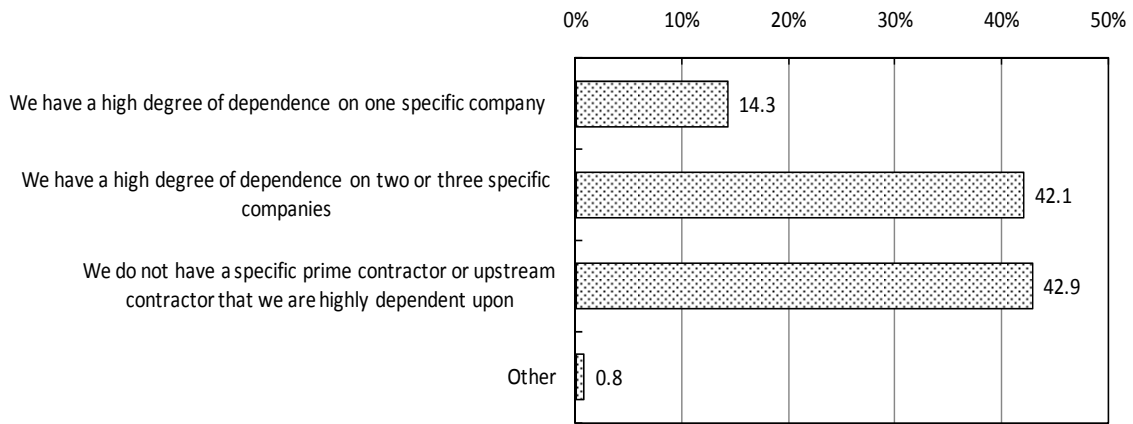


Figure 2 Prime contractor policies for choosing subcontractors



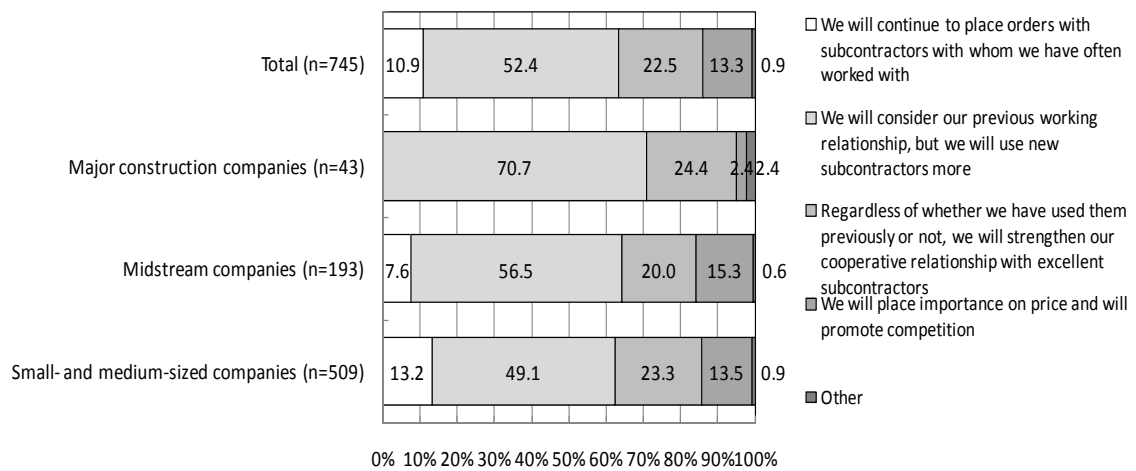
(n=610: Prime contractor ratio of 50% or greater)

Figure 3 The relationship between prime contractor and subcontractors



(n=129: Prime contractor ratio of less than 50%)

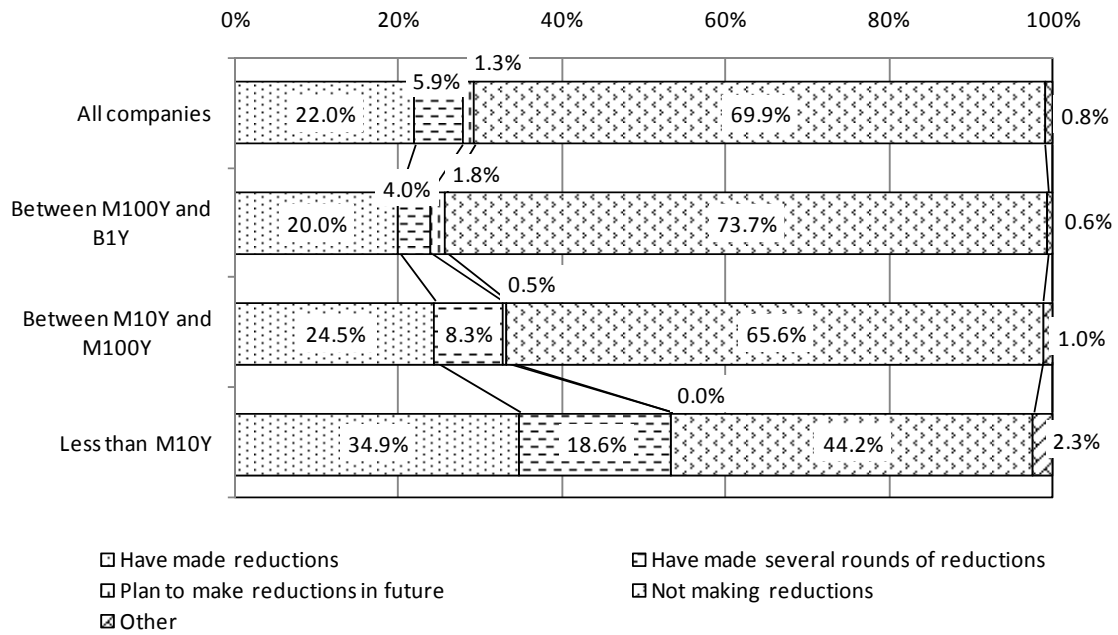
Figure 4 Subcontractor selection in the future



3.3 “People” problems in the construction industry

- In today's rapidly shrinking construction market, many construction companies have downsized their workforce in an effort to restructure their business. The construction industry has many "people" problems, among them a massive number of baby boomers retiring, and a shortage of younger workers entering the industry. In view of this situation, RICE conducted a questionnaire survey to gain a better understanding of these "people" problems that the construction industry is facing.
- The results indicate that in terms of employment, in the last five years the proportion of workers classified as fulltime employees has declined in about 50% of the companies surveyed. Downsizing is more common among major construction companies (capitalized at 1 billion yen or greater). Approximately one company in four overall has undertaken workforce reductions; whereas among major construction companies the ratio is one out of two.
- One company in four replied that it has programs in place to train leaders and managers. The greater the capitalization of the company, the more likely they are to have these programs. Not all training programs to pass on skills are conducted in-house; a high proportion of the companies surveyed indicated that they use outside training organizations for this purpose.
- Approximately 60% of companies replied that they have staff review programs in place, and the greater the capitalization of the company, the more likely they are to have these. More than half the companies indicated that there are problems with the systems they are currently using to review their employees. A high proportion of respondents described these problems as being due to “inadequate review standards” or “inadequate levels of understanding on the part of the person performing the staff reviews.”
- As the construction market shrinks, the decline in the number of people working within it is unavoidable; however, the current trend is that while the workforce ages, the number of young people entering the industry is falling. Policies to improve this situation are urgently required. We believe that it is important for the construction industry as a whole to raise wages, put policies in place to reduce the high level of employee turnover, make a more positive effort to give responsibility and authority to young employees, and take a long-term view towards creating the human resources that will carry the industry forward into the future.

Downsizing efforts over the past 5 years

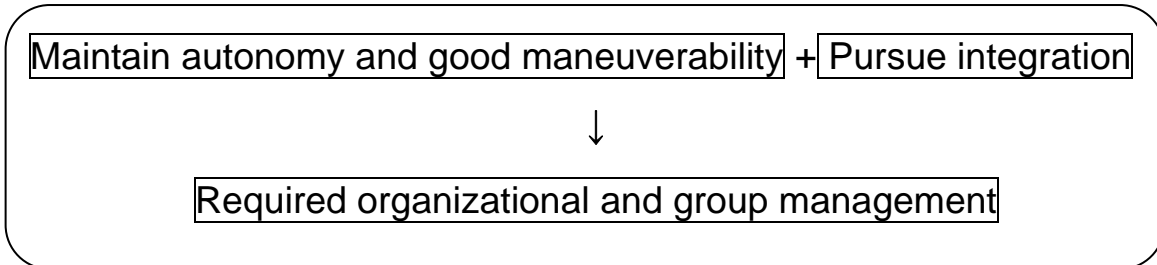


3.4 Designing organizational structure of construction companies to cope with today's changes

- In years past, during the expansion phase of the domestic construction market, many construction companies entered the market. As these companies have grown, the degree of specialization both within companies and between them has increased, and their organizational structure and functions have rapidly become more complex.
- While the trend of a shrinking construction market continues, people's expectations of the construction market and the construction industry are undergoing major changes. The needs of both the market and its customers are rapidly diversifying and becoming more advanced. In response to these changes, we believe that construction companies are finding it more difficult to maintain their traditional organizational structure and functions. We therefore studied possible approaches for the major construction companies ("general contractors") with regards to the future organizational management of their construction businesses.
- The issues facing general contractors are: (1) it cannot flexibly respond to changing business needs as management practices of the head office are applied to the entire company group; and (2) the emergence of sectionalism that is created by a pyramid-style organizational management structure that has the head office at its apex.
- We believe that the following issues exist among construction companies: (1) general contractors have become narrow-minded and have become interested in just completing the project and making money and merely subcontracting the works they themselves have lost the ability to do; (2) cooperation between businesses where there is little clear business strategy; and (3) each company tries to maximize profit but with a lack of identity that can unite the companies involved in the project, the overall performance is low and so are the returns each company can get.
- In order for general contractors to be able to swiftly and flexibly respond to the rapid changes in the current business environment and be ahead of the competitors, they should balance seemingly contradictory two factors. Firstly, Factor A: an organizational and group management that maintains autonomy and good maneuverability; and secondly, Factor B: a group integrity management approach that can go beyond the corporate group boundary and can involve partner companies.
- Achievement of Factor A poses two challenges to general contractors: (1) proactively strengthening the business base of both the partner businesses (outsiders) and group businesses (insiders) in terms of their personnel and other resources while drawing out their strengths; and (2) quickly responding to changes while delegating responsibility to the smallest group that is capable of making decisions, taking action and taking responsibility.

- Achievement of Factor B involves: (1) making the general contractor's "mission" and "vision," that will guide the organization along its set direction, better understood and accepted, and strengthen solidarity; (2) strengthening the core functions of the head office and separating strategy planning and implementation; and (3) using the management resources of "things, people and money" effectively in order to enhance the value of the overall base that extends beyond the business framework.
- In this issue of the Report, RICE has taken up the "pure holding-company system" and analyzed how it works. For the study we have referred to our previous interviews on construction companies that have introduced this system for their management.
- The pure holding-company system has the following purposes and goals: transforming head offices into strategic centers; delegation of power; ease of mergers and acquisitions; a flexible personnel system; and the reform of group management. These purposes and goals have many aspects in common with those of Factors A and B described above.
- General contractors will need to achieve a balance between these two contradictory management styles in the rapidly changing construction business environment. We think that they should take hints from the "pure holding-company system" and work to thoroughly overhaul their business approach and organizational structure.

Organizational and group management that can swiftly and flexibly respond to rapid changes in the business environment (proposal)



A comparison of the management of ordinary businesses and pure holding companies

	Ordinary businesses	Pure holding companies
Transforming head offices into strategic centers	<ul style="list-style-type: none"> - Self-centered way of thinking by those representing the interests of each department/division ("just my company/group is important"). - Management of affiliated companies is weak. 	<ul style="list-style-type: none"> - Adoption of objective strategies that do not seek the benefit of specific departments, in contrast to the approach in left column. - Strategic head office staff.
Delegation of power	<ul style="list-style-type: none"> - Miss business opportunities by being too cautious. - Competitive advantage depends on efficiency. 	<ul style="list-style-type: none"> - Fast decision-making allows the company to respond to the market. - Competitive advantage depends on creativity.
Ease of M&A	<ul style="list-style-type: none"> - "Merger" and "transfer of business." 	<ul style="list-style-type: none"> - Integration of businesses on a equal footing.
Flexible personnel system	<ul style="list-style-type: none"> - The same personnel system covers different businesses. 	<ul style="list-style-type: none"> - The personnel system matches the requirements of each type of business.
Reform of group management	<ul style="list-style-type: none"> - The layer-like structure with the parent company at the top that has become entrenched makes it difficult to respond properly to new markets. - Resource distribution and the value chain of each business become immobile, placing a limit on the improvement of corporate value. 	<ul style="list-style-type: none"> - Not entrenched in the existing business of the parent company, and can flexibly and properly respond to the market. - Flexible utilization of the management resources of the overall group, through group financing and group personnel resource allocation within the group.

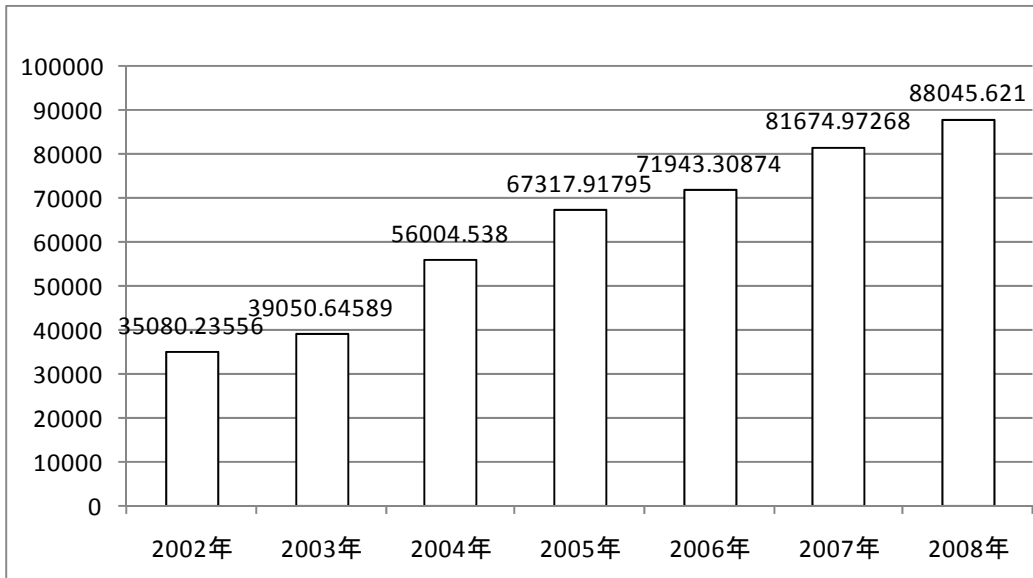
Note: Management risks associated with a pure holding company include: a decline in the ability of management to hold the business together, excessive growth of the indirect department, easy restructuring, and "excess of capitalism."

Chapter 4 Construction Industries Overseas

4.1 The Construction Markets of Asia (Indonesia and Vietnam)

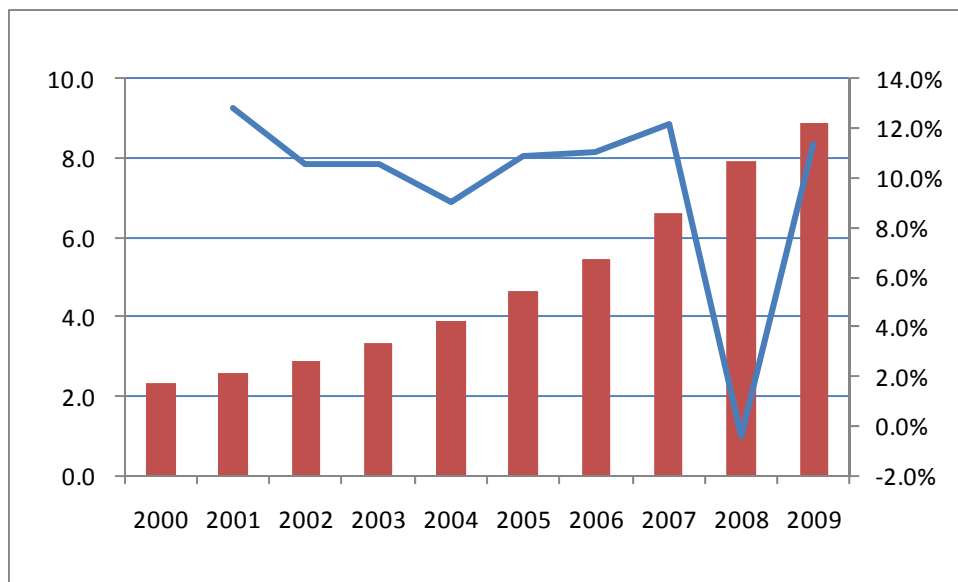
- While the stagnation of the domestic construction market continues, Japanese construction companies are giving a high priority to overseas construction markets, particularly the Asian region that has a long history behind it. Among these Asian markets, many Japanese construction companies are paying particular attention to; (1) Vietnam, which is included as a strategic target in the Japanese government's new growth strategy; and (2) Indonesia, whose construction market has grown at a remarkable rate in recent years.
- The Indonesian economy is expected to post a real GDP growth rate in the order of 5.5 to 6.0% in 2010, with gross fixed capital formation expanding at the rate of 8.8 to 9.3%. In 2014 the Indonesian economy is forecast to grow within the range of 6.5 to 7.4%. The Indonesian government is expected to provide strong support for investment in the construction of infrastructure in 2010 that will be some 8% greater than in the previous fiscal period.
- The development and improvement of infrastructure is believed to make a great contribution to economic growth in Indonesia. The national Indonesian medium-term development plan for the period from 2010 to 2014 includes infrastructure development. The main areas of emphasis at present are power generation infrastructure and transportation infrastructure. In recent years, power shortages have become a serious problem in Indonesia and most observers expect the Indonesia government to invest in the construction of power plants and other related infrastructure in future.
- The Vietnamese economy expanded at a real GDP growth rate of 6.6 to 6.8% in 2010, and current plans are based on the high growth scenario. Double-digit growth in construction investment from the previous year is expected to continue, due to the commencement of several large-scale infrastructure projects in 2009.
- Over the next decade, it is estimated that Vietnam will have to annually expend about 11% of its GDP on the construction of infrastructure; however, the Vietnamese government will be under financial pressure and so most observers expect that the need for private-sector funding, PPP and other resources are expected to increase. The Japanese government has numerous ODA projects underway in Vietnam, and it is hoped that Japanese construction companies can play an active role in future.
- Funding for projects may be from private investment, from an ODA, from a combination of public and private-sector investment. The feasibility of individual projects should be studied more carefully in the future.
- Asia will be the first strategic area for construction companies to expand their business in the global market. They should establish local offices in each country where they can make informative decisions, better cope with local risks, and be ahead of their competitors.

Trends in construction investment in Indonesia
(Billion Indonesian rupees)



Trends in construction investment as a proportion of Vietnamese GDP

(Billion \$US)



<red> Construction investment as a proportion of nominal GDP

<blue> Year-on-year change in construction investment as a proportion of real GDP

Chapter 4 Construction Industries Overseas

4.2 Trends in overseas construction markets

- Compared with GDP levels in Japan in 2009 (= 100), the figures in overseas markets are as follows: 277 for the United States, 327 for Europe, 201 for the Asia-Pacific region (excluding Japan), and 34 for the MENA region (Middle East and North Africa). The construction investment-to-GDP ratio was higher in Asian countries than in other regions. By comparison with Japan (=100 in 2009), construction investment levels in each of these markets are as follows: 201 for the United States, 327 for Europe, 453 for the Asia-Pacific region, and 23 for MENA.
- Although the US economy improved from the third quarter of 2009 through to the second quarter of 2010, the underlying rate of unemployment is stuck over 9.5%. It is not believed that this will recover any time soon to the levels of 5 to 6% seen before the start of the financial crisis. Although public sector expenditure on construction investment has risen (a 2.2% increase), that by the private sector has slumped (a 21.9% decline) with the result that overall, the rate of decline that has continued since 2008 has increased (a 15.0% decline). The decline in construction investment continues in 2010.
- The European economic recession receded in 2009 in Western, Central and Eastern Europe. Although an economic recovery is forecast for almost all Western European nations in 2010, there are concerns that this recovery will slow in the latter half of the year. The contraction of the European construction market accelerated in 2009. The renovation market accounts for the largest share of the West European construction market, surpassing the 50% mark for the first time. In Middle and Eastern Europe, the renovation market continues to trend sideways at slightly below 30% of the construction market, with that of new civil engineering accounting for the largest share of the market.
- Although economies of the Asia-Pacific region went into recession in 2009, a recovery is forecast from 2010 onwards. The economies of China and India in particular have grown at a high rate in recent years. Construction investment is also increasing, and it is expected that the share of construction investment to GDP will be more than double those of the other regions.
- Although the level of economic growth in MENA in 2009 was low, it is expected to recover in 2010 against a background of abundant resources. Despite a low ratio of construction investment to GDP (6.1%) steady growth is expected, and the MENA construction market is believed to be promising in the medium to long term.

● Construction markets and construction investment in various nations and regions
(nominal values, converted to trillions of yen)

	Japan ¹ FY2009	United States 2009	Europe ² 2009	Asia-Pacific ³ 2009	MENA ⁴ 2009
GDP (Japan = 100)	509.1 (100)	1,411.9 (277)	1,664.6 (327)	1,022.1 (201)	172.2 (34)
Construction Market ⁵	56.0 (100)	— —	183.3 (327)	— —	— —
Proportion to GDP (%)	11.0	—	11.0	—	—
Construction Investment (Japan = 100)	45.1 (100)	90.8 (210)	— —	20.4 (453)	10.5 (23)
Proportion to GDP (%)	8.9	6.4	—	20.0	6.1

Note 1 : Data from Japan is on a fiscal year basis.

Note 2: Europe comprises the 19 nations of: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, U.K., Czech Republic, Hungary, Poland and Slovakia.

Note 3: The Asia-Pacific region comprises the 14 nations of: China, Hong Kong, Taiwan, India, Indonesia, South Korea, Malaysia, The Philippines, Singapore, Sri Lanka, Vietnam, Thailand, Australia and New Zealand.

Note 4: The MENA region comprises the 14 nations of: UAE, Algeria, Yemen, Iraq, Iran, Egypt, Oman, Qatar, Saudi Arabia, Tunisia, Bahrain, Morocco, Jordan and Libya.

Note 5: "Construction market = Construction investment + Investment in maintenance and repair". Japan's figure for "investment in maintenance and repair" is a tentative figure calculated by multiplying ; a) estimated ratio of investment in maintenance and repair to total construction investment in FY2008 with b) construction investment in FY2009.

Trends in construction investment in various nations and regions (unit: \$US 100 million)

	2006	2007	2008	2009
US	11,672	11,523	10,675	9,077
Western Europe	17,465	19,469	20,167	17,319
Middle & Eastern Europe	809	950	1,077	1,013
China	8,375	10,978	15,104	-
Hong Kong	116	119	128	130
Taiwan	330	347	372	-
India	711	923	1,034	-
Indonesia	79	89	91	-
South Korea	1,684	1,839	1,679	1,535
Malaysia	44	51	59	60
The Philippines	46	66	78	79
Singapore	129	190	262	300
Sri Lanka	21	24	30	-
Vietnam	10	13	15	16
Thailand	182	211	232	211
Australia	854	1,070	1,259	1,183
New Zealand	139	166	150	149
The United Arab Emirates	119	149	188	-
Algeria	93	124	158	-
Yemen	10	10	14	-
Iraq	29	30	-	-
Iran	109	14	-	-
Egypt	53	7	80	-
Oman	15	20	29	31
Qatar	33	40	50	71
Saudi Arabia	247	269	325	187
Tunisia	17	20	22	-
Bahrain	8	10	11	-
Morocco	40	45	50	-
Jordan	6	7	10	-
Libya	24	34	-	-

Note: Figures for construction investment (nominal) for Hong Kong include maintenance and repairs. Figures for India, Malaysia, Sri Lanka, the United Arab Emirates, Algeria, Yemen, Iraq, Iran, Egypt, Oman, Qatar, Saudi Arabia, Tunisia, Bahrain, Morocco, Jordan and Libya are the amount spent on construction out of nominal GDP. Figures for China, Taiwan, Singapore and Thailand are for the amount spent on construction out of nominal gross fixed capital formation.