

A STUDY ON ISSUES IN THE CAMBODIAN CONSTRUCTION INDUSTRY

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Abstract : The construction industry is one of the important industries in Cambodia's economy. The Cambodian construction industry has not been able to deliver infrastructure development project efficiently. It is necessary to analyze the issues in the construction industry in order to investigate the factors which are inhibiting the capacity and efficiency of the industry. Interrelations among national economy, construction output, quality of human resources including civil engineering education and regulatory frameworks are discussed. Opportunities in the Japanese ODA in order to address the issues in Cambodian construction industry are recommended.

Key words : GDP, Cambodian construction industry, construction output, human resources

1. INTRODUCTION:

Cambodia one of the developing countries in the Asia is still striving for basic infrastructure development. The existing infrastructures are old and insufficient, and many of them are in need of urgent rehabilitation. The national and provincial roads in Cambodia are 4,165 km and 3,554 km respectively. The rural roads are about 31,000 km. The condition of major transport infrastructure- road and bridges is poor. The road condition survey 2002 has revealed that only 25 percent of the road networks in Cambodia are in good or fair condition (MPWT 2005). In addition it is estimated that approximately 50 percent of the total numbers of bridges are in need of immediate rehabilitation. Many parts of the country remain isolated during rainy season due to lack of bridges across the rivers and poor condition of roads. Similarly, only 17% and 41% of the population have the access to the sustainable improved sanitation and water sources respectively (HDR 2006). More than 75 percent of the cultivated land is still dependent on rain water. In such environment, the Cambodian construction industry has more responsibility than any other industry to develop and rehabilitate the infrastructures in order to provide the basic facilities to the citizen and to boost the economy as well. According to the ministry of Land Management, Urban Development and Construction, Cambodia, 500 national level construction firms and 22 consulting/design firms have been registered in between 2000 to 2006 and granted the construction license for nationwide construction business and consulting/design business respectively (MLMUDC 2006). Although there are many national level construction and consulting firms, the industry has been suffering from many issues which are inhibiting the industry's performance and capacity building in Cambodia. This paper discusses

some of the issues of the Cambodian construction industry and recommends how Japanese official development assistance (ODA) can be utilized to address those issues.

The national economy- GDP, construction output, total and construction employment, educational attainment of labor force, compensation in the construction industry data have been used to analyze the issues in the construction industry.

2. THE GDP AND CONSTRUCTION OUTPUT

The Cambodian economy has continued to grow strongly, recording 7.7 percent real growth for the 2004 year compared to the real growth of 7 percent in 2003 and 5.2 percent in 2002. The contribution from the construction industry has also been increasing continuously and the construction output accounted for 6.4 percent of the total GDP in 2004. The contribution from the construction industry to the national economy in terms of the percentage of the total GDP is shown in Figure 1.

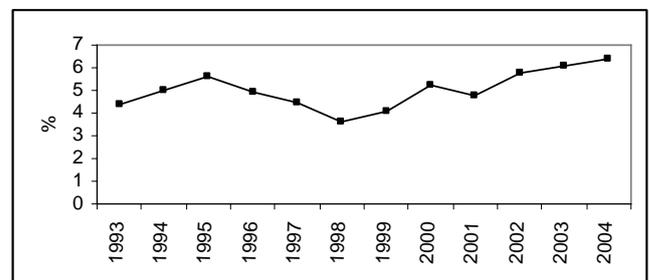


Fig. 1 Construction value added as % of total GDP

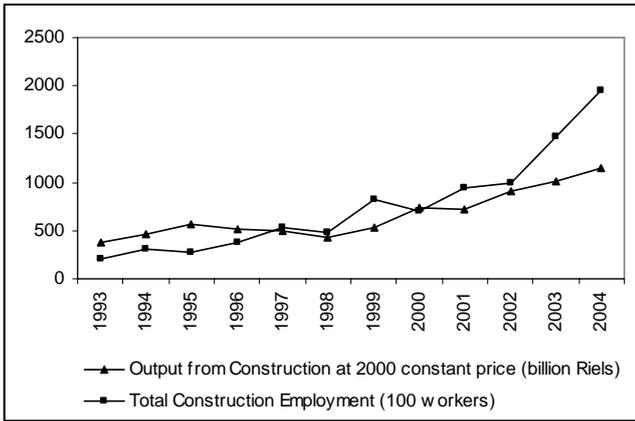


Fig. 2 Construction Output and Employment

2.1. Construction Output and Employment

Like in other developing countries, the construction industry is also a major workforce absorber in Cambodia. It is second to the manufacturing in industry sectors and is fourth in the whole economy. The construction employment in the year 2004 was about 2.6 percent of the total employment whereas the agriculture absorbed about 60 percent, the trade absorbed 14 percent and manufacturing industry absorbed 9.5 percent of the total employment in the same year. However, the rate of increase of construction employment was higher than the rate of increase of output from the construction industry. The construction output and employment are shown in Figure 2.

2.2. GDP and Construction Output per Capita

The Figure 3 shows the GDP per capita of the total employment and the construction output per capita of the total construction employment at 2000 constant price. The curves suggest that the construction industry has been losing the productivity level though the productivity level

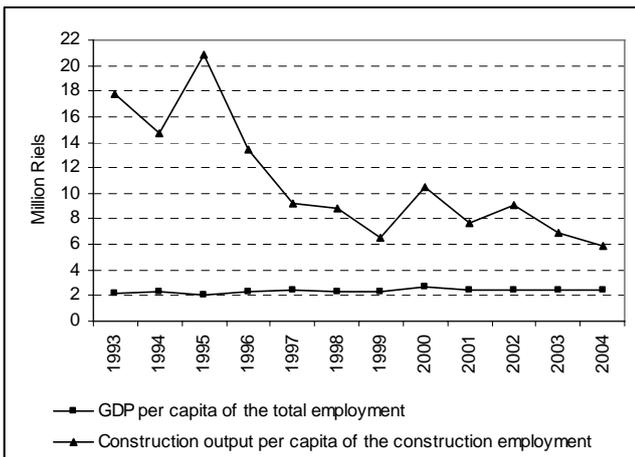


Fig. 3 GDP and Construction Output per Capita (at 2000 constant price)

of the whole economy is in gradual increase. This indicates that although the absolute productivity level of the construction worker is higher than average of the whole workers of the economy the construction workers have been producing lesser and lesser value. The decreasing trend of construction output per capita of the construction workers can be explained as: i) the rate of increase in the construction employment is higher than the increase rate in the construction output which can be seen from Figure 2; ii) although the rate of increase of the construction output is higher (nearly double) than the rate of increase of the whole GDP the rate of increase of the construction employment is about 4 times higher than that of the total employment in the whole economy; iii) the capitalization in the construction industry is slower than other industry as a whole and the industry is still labor-intensive deploying more unskilled labors who produce the less valued products; iv) the compensation per construction employee is in decreasing trend which can be seen from Figure 4. It is possible that one or more of these factors combined together are responsible for the decreasing trend of the construction output in Cambodia.

3. HUMAN RESOURCE DEVELOPMENT SYSTEM

Like in many other developing countries the quality of human resources in the construction industry is the major issue in Cambodia. Neither the industry nor the government has established any institution/training center and invested evident sum to train the industry practitioners. In addition, some donor agencies like Asian Development Bank (ADB), Japan International Cooperation Agency (JICA) have been providing training for a few government employees in a discrete manner. There are no any options except learning by doing for industry practitioners in order to enhance their skills and capacity. The distribution of the labor forces according to the highest level of educational attainment are shown in Table 1. The total may not add up to 100 because of rounding.

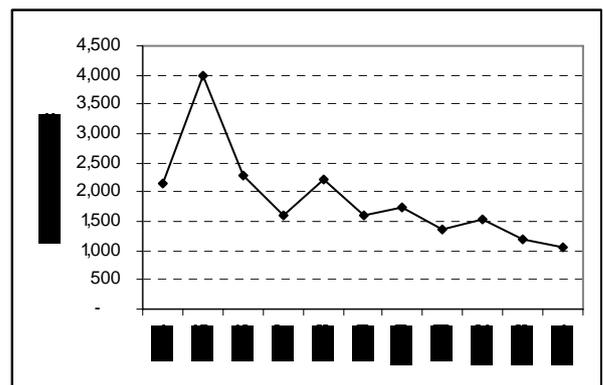


Fig. 4 Average annual compensation per construction employee

Table 1 Percentage of the Labor Force (age: 10 years and over) with Highest Educational Attainment

Educational level/Year	1997	1998	2000	2001
Not attended/No class complete	13.7	10.8	23.5	18.6
Primary (1-6 grade)	35.2	37.7	54.7	56.4
Junior high school (7-9 grade)	29.7	28.6	17.3	18.4
Senior high school (10-12 grade)	17.6	15.9	3.1	4.6
Vocational	1.7	3.6	0.4	0.6
Undergraduate	0.3	0.4	0.2	0.4
Graduate/degree holder	1.4	2.4	0	0.1
Post graduate	0.3	0.2	0.1	0.3
Not Reported	0.1	0.3	0.4	0.3

The establishment of the private universities has provided many peoples to go for higher education and as a result there is increase in the number of technicians and engineers. It is estimated that about 300 civil engineers are being produced every year in Cambodia. However, the capacity of universities in terms of faculties and facilities are very poor. Many of the faculties are the one-degree graduate only and lacked industry experience. As a result, theoretical text book knowledge imparting has become the dominant characteristics of the higher education. The universities do not hold the human resources and facilities for research. A typical human resource index of the whole labor force in Cambodia calculated on the basis of years of formal education was decreased from 1.168 in 1997 to 0.934 in 2001. Thus the quality of human resource has not been able to cope with the needs of the industry and as a consequence foreign construction industry has been taking the major infrastructural development works.

4. DISCUSSION

Cambodia is still striving for the basic infrastructure development however the construction industry lacks appropriate human resources and technology. The lower quality of human resources and lack of appropriate technology are due to the lack of appropriate human resource development system and researches in university and industry. It is seen from Figure 5 that the major portion (about 80%) of the construction value added has been expended under the gross operating surplus. Higher gross operating surplus indicates that high cost of capitals including high interest rate, taxes, depreciation, amortization and hidden cost. Because of the high operating surplus the industry has not been able to invest in training and researches. In contrast to the Cambodian environment more than 65 % of the construction value added has been used for

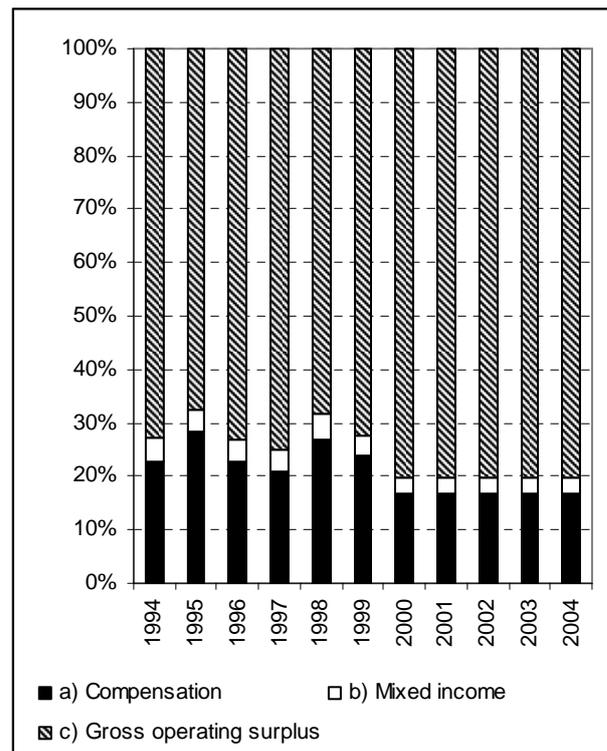


Fig. 5 Breakdown of Income Component of the Construction Value added

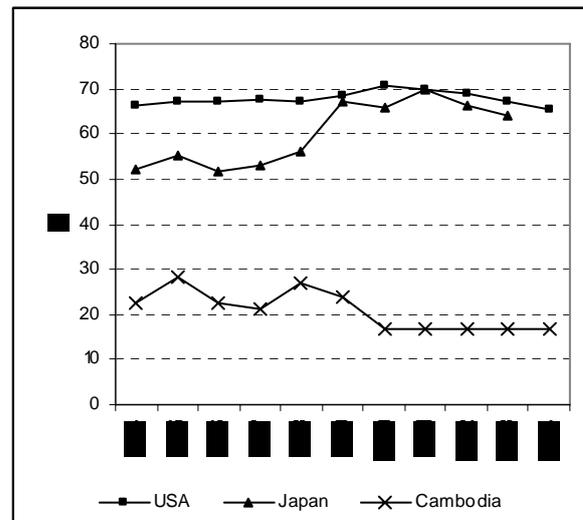


Fig. 6 Compensation to the construction employee as a percentage of the Construction value added in the USA, Japan and Cambodia

compensation of the employees in the USA and Japan as seen in Figure 6. Higher the compensation to the employee better is the motivation to improve their skills. Lack of appropriate regulatory framework and standards of practices are the major reasons for high operating surplus in the Cambodian construction industry. Since infrastructure

development in Cambodia is dependent on foreign assistances, the donors should allocate sufficient resources to improve quality of higher education including human resources development system in the industry, to support research and development activities and to help establish appropriate regulatory framework in Cambodia. The unnecessary high operating surplus needs to be lowered in order to increase the compensation for the employees in the industry.

5. OPPORTUNITIES IN JAPANESE ODA

Japan is the largest donor to Cambodia. Japanese official development assistance (ODA) is classified in to three types namely i) bilateral grant, ii) bilateral loan, and iii) financial subscriptions and contributions to international organizations. Bilateral grant includes grant aid and technical cooperation. Further, bilateral grant has been mainly utilized for hard infrastructure development, for sending experts to developing countries and accepting trainees from developing countries. However, there is no

evident investment on improving the quality of higher education and establishing appropriate training system in the industry. Bilateral grant can be utilized for the human resource development including researches; for technology transfer and to establish appropriate regulatory framework in Cambodia. Human resource development component of Japanese grant aid should emphasize on strengthening the capacity of local universities in producing qualified technical manpower and developing appropriate technology in recipient countries instead of providing training to some employees in discrete manner. A new model of ODA system proposed by the authors is shown in figure 7 and details for the same can be referred from the authors' paper (Niraula, R. and Kusayanagi, S. 2006).

6. CONCLUSIONS

Some of the issues of the Cambodian construction industry have been discussed. Quality of human resources and regulatory framework dominates the other issues. Since Cambodia has not been able to establish high quality higher

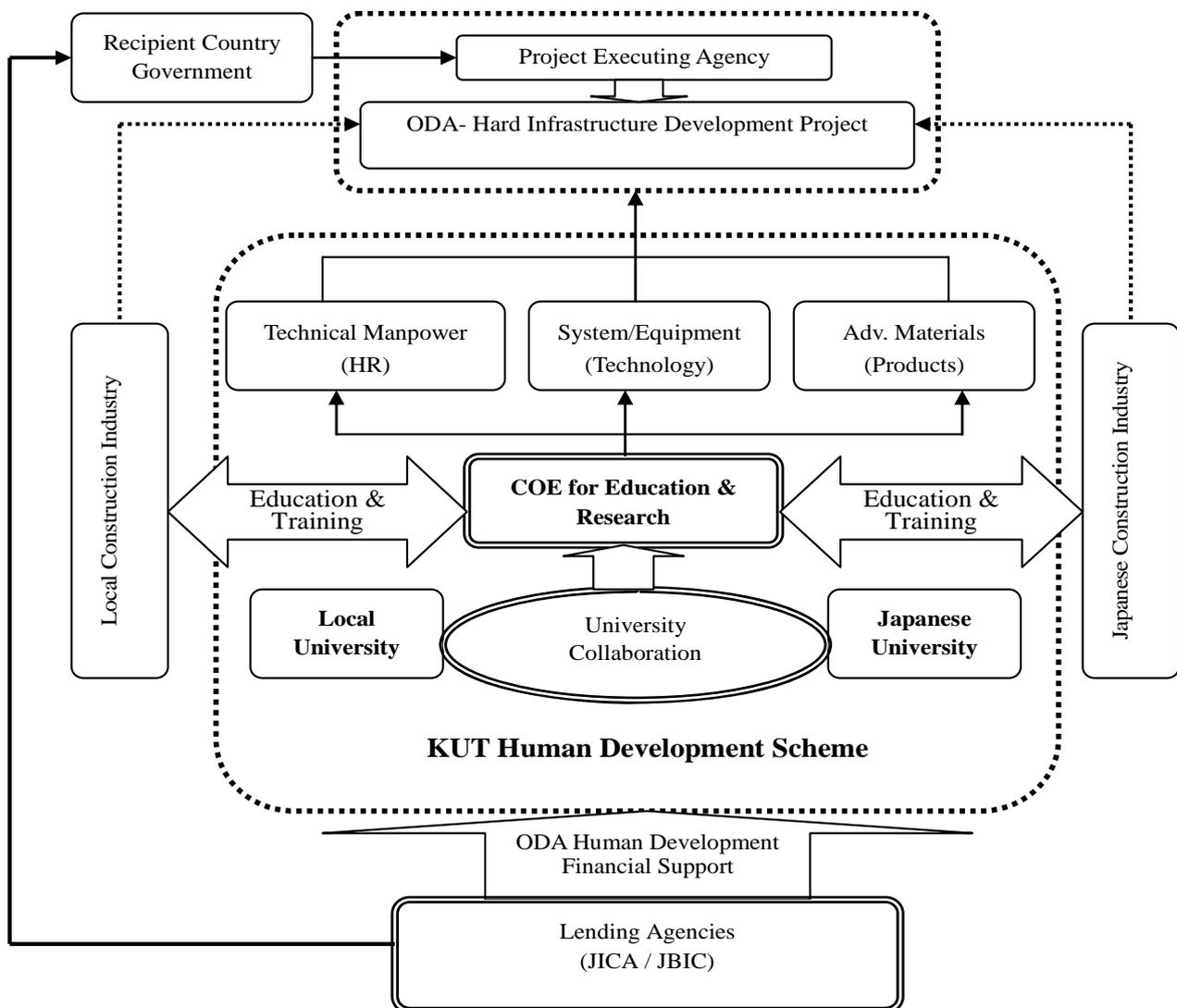


Fig. 7 Model for New ODA Scheme

education through its own resources, foreign assistance including official development assistances should be utilized to establish the appropriate systems for human resources & technology development and to formulate regulatory framework for the construction and related industries which would enhance the performance of the Cambodian construction industry. The new ODA model proposed by the authors would provide enough opportunities for developing countries including Cambodia to address the construction industry issues.

REFERENCES

- Human Development Report (HDR), 2006
Ministry of Land Management, Urban Development and Construction (MLMUDC), Cambodia, 2006: Data base
Ministry of Public Works and Transport (MPWT), Cambodia, 2005: Publication and presentations
Niraula, R. and Kusayanagi, S. 2006: Future direction of Japan's ODA, Journal of CM, JSCE, Vol. 13, pp 275-288.
Niraula, R., 2005: Doctoral dissertation submitted to Kochi University of technology, Japan
Statistical Year Book of Cambodia, 2005