

DEVELOPING APPROPRIATE CONSTRUCTION MANAGEMENT EDUCATION FOR INFRASTRUCTURE DEVELOPMENT AND MANAGEMENT

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Abstract: Japanese construction industry has long been utilizing advanced construction technology for rehabilitation and development of modern infrastructures. However the sustainability in the construction investment could not be seen after she turned to one of the developed countries. Further, Japanese contractors have not been able to expand their overseas business significantly beyond the volume in the early1980. The author investigated that lack of appropriate construction management education in Japan in the past has made the domestic construction industry vulnerable and inhibited Japanese construction industry in expanding overseas business significantly. The practical construction management education for infrastructure development and management is discussed.

Key words : construction management, civil engineer, project management, engineering education

1. INTRODUCTION

The Japanese construction industry was engaged in building massive as well as unique infrastructures in the period of time starting the post war rehabilitation until the burst of bubble economy that was happened in early 1990s.

The industry has already shown its ability by building world renowned and highly advanced structures such as long span bridges, tunnels under sea and in soft ground areas etc. Technological research and innovation in the universities and industries made possible to realize such unique structures. Similarly, the civil engineering in universities and institute of technologies were engaged in the elemental technology developments and consequently the human resources were trained in the specialized engineering fields, but did not incorporate the appropriate management education in the field of engineering.

As a result, the industry could not realize and incorporate the feasibility of structures and possible changes in social structure and needs while developing infrastructures in the past. Many local governments are now facing financial difficulties to maintain the previously built infrastructures. Such environments have further exacerbated the decline in the public trust with the construction industry.

In addition, Japanese construction industry has not been able to expand its overseas business significantly beyond the 1980s' value. Japanese consultants are also not being able to draw significant overseas business from other than Japan's official development assistance (ODA).

The industry lacks appropriate human resources in construction management area. The author based on his more than 30 years of involvement in Japanese and

overseas construction industry has been engaged in developing human resources in construction management.

This paper provides a concept for practical construction management education and recommends an appropriate curriculum which can be applied to various development stages of a country.

2. JAPANESE CONSTRUCTION INDUSTRY

2.1. Construction Investment

Some of the Japanese construction companies have more than 120 year's histories. Along with the Meiji restoration period in 1860 the construction industry grew steadily until the 2nd World Wars when it came to a standstill. Since then Japanese construction industry grew rapidly after the World War II.

The post war reconstruction and rehabilitation were supported with heavy investment by the government and private enterprise. The construction investments in Japan since 1960 are shown in Figure 1. The investment in the construction industry was sharply increased from the beginning of 1960 at an average annual rate of 15 percent and reached nearly 59 trillion yen in 1973. Thereafter, there was no significant growth in investment in the industry till 1979, the year of second oil crisis.

The largest investment in the construction was observed about 84 trillion yen (US\$1÷Yen 150) in 1992. The industry did not require exploring markets as the government and private enterprise continued to request more and more infrastructures and construction products. The industry was engaged in technological innovations to fulfill the clients' demand as early as possible without considering the economic feasibility of the projects and