EDUCATION SYSTEM FOR JAPANESE CONSTRUCTION SITE ENGINEERS IN QUALITY MANAGEMENT

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ABSTRACT: In Japan, over the last 50 years, quality management of construction projects has come to involve many important issues. Moreover, it is now emphasized in all area of manufacturing. However, it may prove difficult or impossible to assure satisfactory quality, relying only upon laws and regulations concerned with quality measurement. In practical terms, construction projects involve a complex interplay of material and human resources in order to complete projects. The wide variety of construction site engineers have expert knowledge and experience as concerns their work. Thus, it is necessary to teach the fundamentals of site work and techniques as well as safety rules, in order to achieve high quality by performing their work accurately. But the education system for site engineers in Japan has been changed several times over past decades taking in to account social and economic movements, and technical evolutions. This paper introduces the historical variation of the education system for site engineers in Japan as compared with issues and responses, such as historical construction accidents, revised regulations, and the changing education system for site engineers from the 1960s to the present.

***Keywords**: Education System, Site Engineer, Quality Management, OJT, Off-JT, Japan*

1. INTRODUCTION

In Japan, construction site engineers play the most important role as to the performance and completion of activities/projects as well as quality management [1]. They have usually carried out their site works based on systematically planned schedules and programs. However, in practical terms, their site works are unformatted and changeable according to site conditions by each project. Moreover, not only social and economic movements but technical movements have increased their work system efficiency. Therefore, each general contractor (GC) has developed their characteristic education system consisting of several phases in order to raise capable site engineers [2]. The education system for site engineers has a long history of OJT (On the job training) in relates to a Japan cultural emphasis on quality. OJT is a method to teach skills or techniques and allow shared information between site engineers. However, it has been improved several times using over the past decades. Beside, Off-JT (Off the job training) is emphasized to teach site engineers.

Fig.1 shows Japan GDP's trend from 1960 to last year.

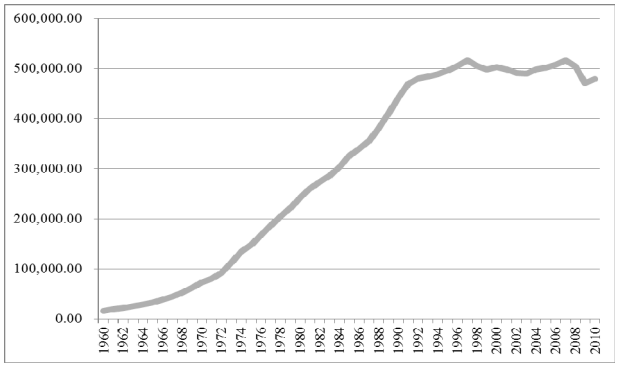

Fig.1 Japan's GDP trend from 1960 to 2010
(Data from the Minstry of Economy, Trade and Industry)

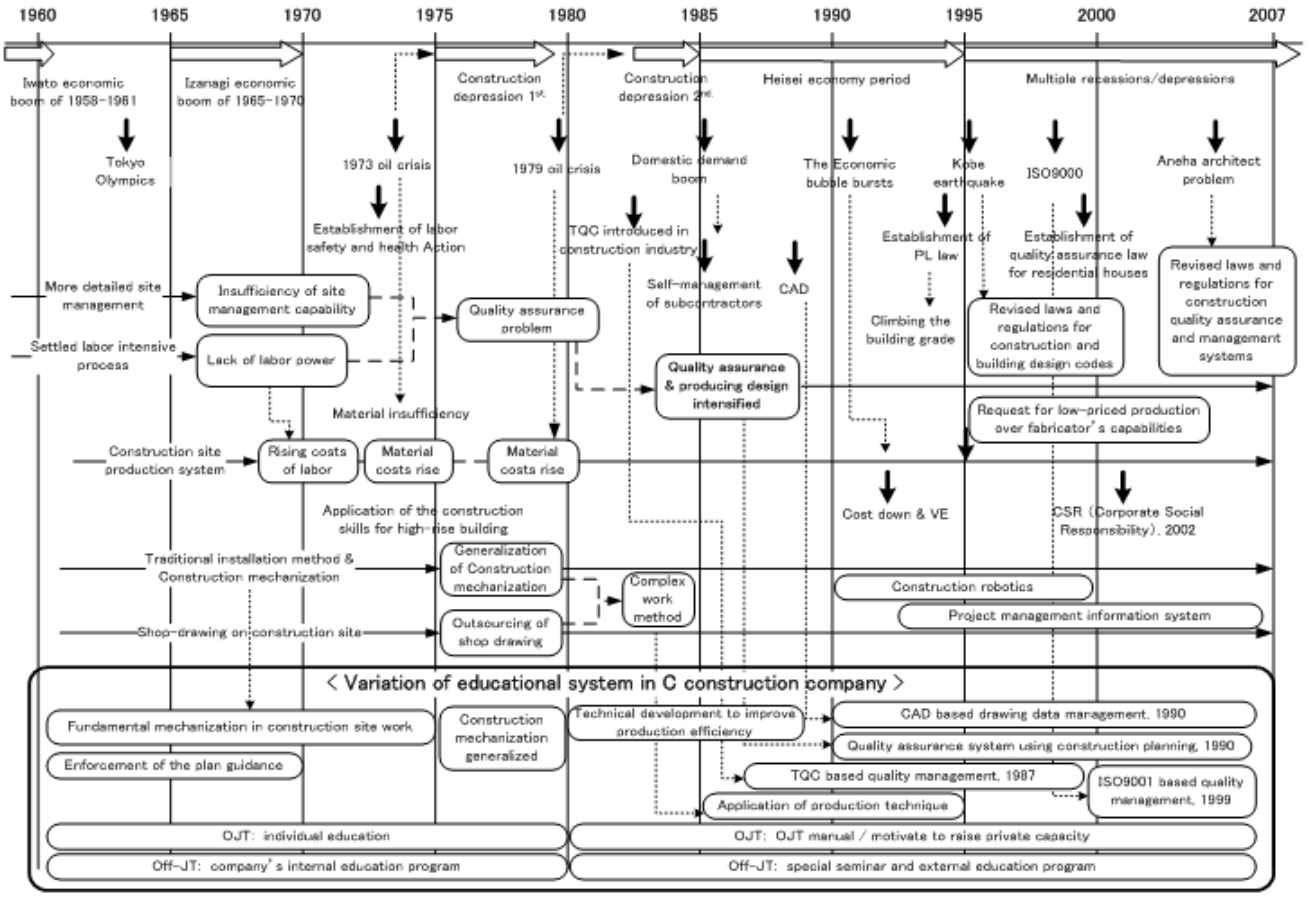

Fig. 2 History of Japanese construction industry and C construction company's education system

2. HISTORY OF JAPANESE CONSTRUCTION INDUSTRY AND EDUCATION SYSTEM

There are many social and economic variations which have occurred in modern Japan. All of which have had an impact on construction industry and companies. In addition, high technologies are continuously developed. The relationship between those cause and effect was expressed using the case of construction company C, as shown Fig.2.

3. CONCLUSION

Over the past decades, GCs in Japan have tried to self-improve their quality assurance system. However, much social and economic variation has occurred, and adaptions have been made via companies incorporating new technologies and changing their inner education system.

In this paper, we introduced the variation of education system for site engineers in Japan, using the case of middle scale GC, company. Moreover, analysis of relation between the variation of education system and the society and economy in Japan is clearly linked to the relation for variation of education system for site engineers in Japan.

We will carry out a more detailed analysis to measure the effect of each variation and those relationships.

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