

TECHNOLOGY TRANSFER IN CONSTRUCTION INDUSTRY FROM DEVELOPED COUNTRIES TO DEVELOPING COUNTRIES, CASE STUDY JAPAN AND SOUTH SUDAN

Shibaura Institute of Technology Student Member ○Lazarus Lemi Chacha Costa
Shibaura Institute of Technology Regular Member Prof. Takeshi IYODA

1. INTRODUCTION

The construction industry plays a key role for governments in both developed and developing economies. The sector by far is among the biggest employer in many countries, it creates new jobs, drives economic growth, and provides solutions to address social, climate change challenges etc. The Japanese have one of the most advanced construction industries in the World. These enormous technical knowledge and skills will effectively contribute to the technological and managerial practices in developing country like South Sudan. Though some studies have looked on how technology transfer can be effective, nevertheless, these studies seldom discuss common and real problem from the developing countries side. Therefore, this study focused on the best mechanism to be used for effective and practical use in South Sudan a country with almost no infrastructure in place. These mechanisms can include lengthy and dynamic processes, these processes can be influenced by various factors such as, the existence of the local skilled laborers, the will for improvement of the skilled laborers and the best model of introducing new technology to the developing countries. Nevertheless, the choice of the model of transfer is further influenced by the recipient's knowledge and technical capabilities as well as the social, economic, cultural, institutional and geopolitical aspects. In real situations different situations determine different amounts of skills and knowledge to be transferred.

2. CONCRETE CONSTRUCTIONS IN JAPAN AND SOUTH SUDAN

Unlike Japan, South Sudan construction industry solely depends on neighboring countries on construction materials such as cement, steel, engineered woods etc. Furthermore, these imported materials are not usually tested by the department of standards or the technical practitioners as there is no advanced laboratory. This makes it difficult to control the quality of the materials. Example, in the production of concrete materials which is the most used material for social – economic infrastructure. South Sudan industry is still in many cases practicing the traditional concrete mixing plants. These practices leave most of the concrete structures to deteriorate almost immediately. Contrasting between these desperate situations in South Sudan and the high technological country like Japan, it clearly shows why the skills and knowledge transfer is vital for the safety of people, buildings and the infrastructure. The construction activities in figure 2 below show the construction of the concrete structure in South Sudan, with no safety measures and quality control of the materials, as the materials in most cases are not having design specifications especially the concrete. Lack of government law enforcement through the related ministries concerned for instance, Ministry of Land, Housing and Urban Development. On the other hand Japanese construction industry strictly complies with rules and regulations set by related ministry e.g. The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) and other technical institutions in Japanese construction industry, this can be clearly seen in figure 1 shown below.



Figure 1. Showing construction site in Japan



Figure 2. Showing construction site in South Sudan

3. ANALYSIS AND DISCUSSION

3.1 Mechanism for technology transfer

The rationale of tacit and explicit knowledge in the context of construction skills is very crucial. Plainly, construction laborers both skilled and unskilled laborers ought to know and be taught about safety as the first prerequisite. This can be done through the development of construction manuals that even though to be model from the developed countries yet it

should fit in the situation of that domestic country. Gradual reformation and improvement through educational channels such as the Universities, technical institutions and vocational training centers are extremely effective. Development of manuals with reference from the advance developed industries, based on the developing countries geographical and environmental conditions, and local materials are of essence. In case of Official Development Assistant (ODA) in terms of Infrastructure development or huge projects that can be constructed or develop by renown constructions companies due to the magnitude of the complexities of the project, should be of joint venture between the donors and the domestic companies. Involvement of locals in technical plannings, designs and implementations will be effective for the smooth completion of the project and knowledge transfer eventually. For effective knowledge and skills transfer there should be targets and timeframe specified, short, medium and long term with definite considerations.

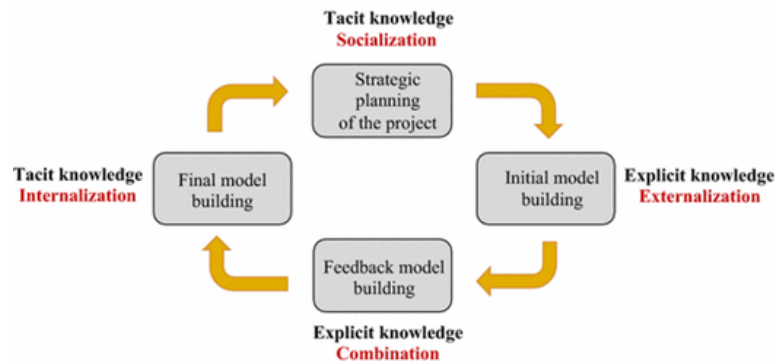


Figure 3. Showing the life cycle model

From the figure shown above, there are four main stages for life cycle model: The socialization, externalization, combination and internationalization, while, these model is one of the best model however, some important link in term of localization as the central factor is missing which encompasses the view and reality from the developing countries site. World history has witnessed Japan accomplish a high level of modernization within an exceptionally short period of time. Therefore, Japan success is an epitome to South Sudan.

3.2 Expectation from the developing countries to mitigate the challenges

Despite the fact that constructions industry been viewed to play a major role in development of both economic and social status. The state-of- the art Infrastructure demands geopolitical stability in the country and resources both human and natural resources. While the latter is in an abundant quantity and quality in many of the developing countries, the previous is the biggest challenge for the realization of the quest for sustainable infrastructure development in South Sudan and other developing countries. Good governance leads to sustainable social and economic development. Improvement and development in Institutions, vocational and technical schools to produce skill labors to meet the technology transfer and to face the many challenges awaiting in the development of infrastructure. Government in developing countries need to exert more on research and development. The ease of doing business initiative activities and a control business conducts to improve existing products and procedures or to lead to the development of new products and procedures.

4. CONCLUSION

For the developing countries to realize significant change happening in constructions industry which in turn will play a greater role in country's economic growth. The funding of local companies to extensively do research and development in constructions and other related sectors will contribute in the growth of indigenous construction industry in the emerging economies. Technological Two kinds of knowledge transfer mechanisms have been noticed in practice: Personalization and Codification. Personalized knowledge transfer results in better assimilation of knowledge by the recipient when knowledge tacitness is higher and/or when information content in a knowledge object is high. On the other hand, codification is driven by the need to transfer knowledge to large number of people and results in better knowledge reuse.

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