

EVALUATION ON SOCIO-ECONOMIC FACTORS OF CONSTRUCTION INDUSTRY IN DEVELOPING COUNTRIES

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ABSTRACT

This report evaluates all the factors of construction industry, known as socio-economic factors in developing countries. The drastic influences of such factors are grouped together, and structured a questionnaire. This questionnaire survey was conducted with 70 various respondents like Project Manager, Project Coordinates, Contractors and Architects, in which, 51 questionnaires have been retrieved analyzed by The Relative Importance Index (RII) method. The aim of this paper is to evaluate the socio-economic factors and their influences in construction industry of developing countries.

KEYWORDS: Economic Development, Construction Industry Development, Developing Nation

INTRODUCTION

Developing countries were hit hard by the financial and economic crisis, although the impact was somewhat delayed. Every country had different challenges to master. The closer the developing countries are interconnected with the world economy, the crasser the effects. And the incipient recovery that is becoming noticeable is, for the time being, restricted to only a few countries and regions.

Assessing the nature of the construction industries from the perspective of developing countries will help to identify its inherent strengths and problems it poses, and the foundations on which its development can be based. Use the characteristics of construction to analyze aspects of the industry. The need to build constructed items in the locations where they are required poses managerial issues relating to logistics, the influence of local legal, regulatory and cultural issues, and technical considerations concerning the need to design for, and operate in unfamiliar physical environments. These are usually considered to be problems inherent in the construction industry of developing countries.

LITERATURES

- **Socio-economic stress (Fred Moavenzadeh and Janet Ann Koch Rossow)** According to their study it is always said that, the construction industry plays a major role in any developed or developing country. There is such Stress induced for the development of the construction industry in developing country. Such kinds of stress are i. Economic development of developing country, ii. Physical, Social & Economic needs and iii. Local economical condition.

- **Resource Shortage (Sri Nuwan Randunupura and Chandanie Hadiwattege)** Construction is the ultimate objective of a design, and the transformation of a design by construction into a useful structure which is accomplished through proper management of i. Men, ii. Material, iii. Money and iv. Machinery. The Project Managers must insure that these inputs are effectively coordinated to achieve an efficient construction process.
- **Institutional weakness (Bonga Ntuli and Dr. Dhiren Allopi)** The major challenges education or institutional failed to teach us are Business cash flow, Corruption in the industry, Policies for contractors, Lack of CIDB'S role understanding and Partnership approach. Their conclusion appears that current educational strategies are not designed to accommodate such people. New strategies need to be applied and different learning styles to be properly managed by educators and researchers with tangible knowledge of the deficiencies and the needs of the industry.
- **General Inability (Ofori Ametepey, Clinton Aigbavboa and Kwame Ansah)** The factors identified as general inability are grouped under six components as Financial barriers, Political barriers, Management/ Leadership barriers, Technical barriers, Social-cultural barriers and Knowledge/ Awareness barriers.
- **Plan, Design and Construction (Dr.Pa.Kaja Mohideen)** Construction is a feat of human multitasking. Normally, the job is managed by a project manager and supervised by a construction project manager, design engineer, construction engineer or project architect. For the successful execution of a project effective factor involved is i. Plan, ii. Design and iii. Construction,
- **Construction Industry Development (George Ofori)** The focus is on the development of national construction industries to enable them to meet the huge demands to improve the capacity and effectiveness of the construction industry to meet the Infrastructure Facilities, National Economic and social Development, Money Value to Industry, Domestic Competitiveness, Role of Participants and Stakeholders, Technological and Human Resource Development.
- **Globalisation (Afaf Abbasi and David Baidry)** The world has been recently exposed to phenomenal global changes in different fields including Economy, Technology and Communications. The term 'Globalisation' has been used in connection with these changes and their consequences. The study of this author is to understand the term 'globalization' and to study its implication for the world economy in general and the construction industry in developing countries.
- **Culture (Syed Nihas, Kristen C. Barlish, Jacob Kashiwagi and Dean T. Kashiwagi).** The authors propose to identify the unique cultural issues, identify using the Construction Industry Structure (CIS) model the impact of the cultural issues in the construction industry and identification of a potential solution to the problems. To propose a solution to overcome the culture and improve the industry efficiency and performance. Caste hierarchy, societal control, Management practice, Direction and control and corruption.
- **Environment (Adnan Enshassi, Bernd Kochendoerfer and Ehsan Rizq)** The environmental impacts are categorized into three safeguard subjects: ecosystem, natural resources and public impacts. The results of this study revealed that dust generation, noise pollution, operations with vegetation removal, and air pollution are the most significant environmental impacts of construction projects.

RESEARCH METHODOLOGY

The research work is limited to construction companies in and around, to evaluate the socio-economic factors of construction industry in developing countries. The sample frame for this study has been addressed as 70. In this study, the 61 primary data was framed as structured questionnaires to the practitioners in the construction industry, who has knowledge on socio-economic factors of construction industry in developing countries. The reliability and validity of the questionnaire is based on the use of measurement scale from 1 to 5 which represents 1. Very strong, 2. Strong, 3. Moderate, 4. Weak and 5. Very weak to assess. The total of 51 questionnaires were retrieved and found useful. Personal interviews were conducted with respondents to complement the structured questionnaires. The interview was conducted among construction personnel namely, Project Managers, Project Coordinators, Contractors And Architects.

The collected data were analyzed with the use of descriptive and inferential statistical method. The relative importance index (RII) method was used to show the level of the socio-economic factors contributing to construction industry in developing countries. The RII for each factor was computed from the analysis of the rating indicated by the respondents with the use of 5 point measurement. The RII is the ratio of

$$RII = \frac{\sum W}{A} * N$$

Where

W = weighting given by respondents and ranges from (1to5)

A = higher response rating (5)

N = total no of respondents.

RESULT AND DISCUSSION

Socio-Economic Stress

A major problem facing the world during the recent century is the narrowing of the economic gap between the developed and the developing nations. Unfortunately, the developed countries, already far ahead in per capita income, are drawing still further away from the less developed nations, thus worsening an already explosive situation. We emphasize that irrespective of the position one takes regarding the relationship of the construction industry to economic growth the stresses are induced due to economic growth in the construction industry. The analyzed result of socio-economic stress is given in below Table 1 and is ranked according to the respondents.

Table 1: Relative Importance Index for Socio-Economic Stress

Factors	RII	RANK
Stress due to Economic Development	0.6980392	13
Physical Needs		
Size of the Industry	0.7411765	10
Nature of its Operation	0.7294118	11
Lack of Developmental Activity	0.7803922	8
Lack of Development of Technology	0.8470588	6
Social Needs		
Needs of Infrastructure Development	0.6941176	14
Lack of Requirements for Housing	0.6352941	15
Lack of Disaster Resistant Construction	0.8039216	7
Lack of Water Management	0.8980392	1

Table 1: Contd.,		
Lack of Mass Transportation Management	0.8509804	5
Economic Needs		
Lack of Sustainable Development	0.7058824	12
Effects of Gross Domestic Product (GDP), Gross National Income (GNI), Gross National Product (GNP).	0.6313725	17
Lack of Foreign Direct Investment(FDI)	0.6117647	19
Efficiency of Income Generation	0.7764706	9
Efficiency of Employee Generation	0.8588235	4
Local Economic Condition		
Effect of Population	0.6352941	16
Effect of Population Growth Rate	0.6156863	18
Value of Construction Industry	0.8509804	5
Total Value Spending for Construction	0.8705882	3
Market Value of Construction Equipment and Material	0.8941176	2

Resource Shortage

Construction is the ultimate objective of a design, and the transformation of a design by construction into a useful structure, which is accomplished through proper management of resources. One of the keys to success is, insuring these resources and effectively coordinating to achieve efficient management in the field. The construction industry continues to recover from its lack of available salaried professionals as it is among their most significant challenges. It is a very serious issue, when they come to project cost in both developed and emerging countries. The total cost of materials may be up to 60% or more of the total cost incurred in construction project depending upon the type of project. The selection of the appropriate type and size of construction equipment often affects the required amount of time and effort and thus, the job-site productivity of a project.

Table 2: Relative Importance Index for Resource Shortage

Factors	RII	RANK
Shortage of Men	0.82745098	3
Shortage of Material	0.847058824	2
Shortage of Money	0.88627451	1
Shortage of Machinery	0.823529412	4

Institutional Weakness

Providing formal engineering education and training to undergraduate students interested in careers in the construction industry has become necessary to address and overcome the numerous challenges faced by the construction industry in developing countries today. Construction knowledge and experience in conceptual planning, engineering, procurement, and field operations phases are needed to achieve the overall project objectives. Therefore, implementation of size and complexity of projects and also considering the knowledge and experiences of experts is a vital point in the construction industry. Lack of opportunities for training and skill formation contributes to the unattractiveness of a career in construction.

Table 3: Relative Importance Index for Institutional weakness

Factors	RII	RANK
Insufficient Knowledge of Business Cash Flow	0.780392157	2
Lack of Exposure on Corruption in the Industry	0.82745098	1
Lack of Knowledge of Contract Policies	0.769230769	3
Lack of Construction Industry Development Board's role understands (CIDB)	0.639215686	5
Lack of Knowledge on Partnership Approach	0.666666667	4

General Inability

The construction industry involves all those who plan, develop, produce, design, modify or maintain the built environment and includes manufacturers and suppliers of construction materials, clients, contractors, consultants and end users of facilities. Therefore, sustainable construction could be best described as a subset of sustainable development, in order to overcome the general inability of construction industry in developing countries. Transfer of technology in construction is a source of creativity that makes the company designs and constructs with new technologies. The process of technology transfer is based on the value and protection of products. It also includes several specific physical processes, systematic methods and managerial arrangements for the functioning of the transformation. However, there are several obstacles to transfer of technology.

Table 4: Relative Importance Index for General Inability

Factors	RII	RANK
Inability due to Financial Barriers	0.91372549	2
Inability due to Political Barriers	0.921568627	1
Inability due to Management / Leadership Barriers	0.839215686	4
Inability due to Technical Barriers	0.858823529	5
Inability due to Social, Cultural Barriers	0.670588235	6
Inability due to Knowledge/Awareness Barriers	0.698039216	5

Plan, Design and Construction

There are two levels of planning associated with the construction industry; one is concerned with national development plans, the other with planning at the project level. This planning should review the supply of and demand for certain construction capabilities in the form of available designers, contractors, capital, labor, materials, and equipment. Although standard planning analyses are generally performed in developed countries, it happens to some extent in developing countries too. The design phase of the construction process, like the planning phase, requires fairly small manpower and capital resources, but again the needed manpower comes from a well-educated and experienced cadre of professionals. The design team should include cost specialists, who continue to develop a cost plan and program in tandem with the design proposals. The vague interface between planning and execution is the cause for two of them. First, the role of planning is not realistically defined, and short term planning (that is, critical from the point of view of execution) is customarily poorly carried out or simply neglected. Secondly, there is no systematic way of managing execution. Thirdly, control is too narrowly seen as measuring and taking corrective action, rather than as a process of learning.

Table 5: Relative Importance Index for Plan, Design and Construction

Factors	RII	RANK
Plan		
Lack of practicing Critical Path Method Planning(CPM)	0.721568627	1
Lack of Sustainable Construction Planning System(SCPS)	0.694117647	2
Lack of Strategic Planning(SP)	0.721568627	1
Design		
Lack of Schematic Design	0.725490196	2
Lack of Design Development	0.717647059	3
Lack of Construction Document Design	0.729411765	1
Construction		
Lack of Cost and Contract Management	0.705882353	4
Lack of Schedule Management	0.82745098	2
Lack of Financial Management	0.909803922	1
Lack of Lean Construction	0.71372549	3
Lack of Reporting and Analysis	0.694117647	5

Construction Industry Development

The construction industry is an important sector of the economy, and plays a key role in national social and economic development. The construction industry has peculiar features that need to be understood if it is to be able to perform effectively. Need for improving the capacity, capability and performance of the construction industries are recognized in developing countries, which equip and enable them to play their due role in the long-term progress of the countries. A major objective of construction industry development is economic growth. During the early developmental process, economic growth seems to be generally high, along with manufacturing, tend to play an increasingly important role in the economy. A common condition of underdevelopment is unemployment. Construction industry development significantly increases employment opportunities.

Table 6: Relative Importance Index for Construction Industry Development

Factors	RII	RANK
Lack of Infrastructure Facilities	0.674509804	5
National Economic and Social Development	0.666666667	4
Money Value to Industry	0.88627451	1
Competitiveness of Domestic Construction Enterprises	0.717647059	2
Role of Participants and Stakeholders	0.694117647	3

Globalisation

Over the last decades, the world has witnessed major transformation in the global economy, in addition to revolution in information technology and communication; these come under the term 'Globalisation'. Globalization has been an analysis in general, with more focus on the economy in the developing countries. Special attention is given to the Construction Industry (CI). The interaction of globalization with the various life aspects cannot be overlooked. Globalisation has transformed the world and national economies and had a profound impact on the way we live. The construction industry has been part of this transformation, driven by a number of factors. The construction industry is unique in that design, construction and maintenance of the physical and naturally built environment on a global level. It requires not only technical information, but also requires knowledge of local, regional, international codes and business culture.

Table 7: Relative Importance Index of Globalisation

Factors	RII	RANK
Effect due to Economy	0.858823529	1
Effect due to Technology	0.843137255	2
Effect due to Communication	0.792156863	3

Culture

Culture has become an important area of study in construction. Due to the required interaction between multiple people and organizations, studies have found that culture plays a major role in the performance and efficiency of construction delivery, by observation and using deductive logic, population size, caste system and religious differences. The study of cultural impact on the construction industry is rather subjective, and there have been no proposed solutions which have been tested to identify the impact of culture on construction performance. In our region, the study of organizational culture has only intensified in the last decade. Organizational or corporate culture is a social property of an organization, to which employees need to adapt, because without it they cannot function within the organization.

Table 8: Relative Importance Index for Culture

Factors	RII	RANK
Effect of Caste Hierarchy	0.643137255	4
Effect of Societal Control	0.647058824	3
Effect of Management Practice, Direction and Control	0.835294118	2
Effect of Corruption	0.847058824	1

Environment

Environmental protection is an important issue in developed and developing countries. Construction is not an environmental friendly process by nature. The building and construction operations have a massive direct and indirect effect on the environment. Identifying the impacts of construction projects on the environment is a task, which needs to be accomplished to realize an effective environmental. Construction is a main source of environmental pollution compared with other industries. These pollutants are such as noise, air pollution, solid and liquid waste, water pollution, harmful gases, and dust. Unfortunately, developing countries are suffering from the limited scientific data about the impacts of building materials and technologies on the environment, and it is difficult to make informed choices aiming at reducing such impacts.

Table 9: Relative Importance Index for Environment

Factors	RII	RANK
Impact of Eco System	0.807843137	2
Impact of Public	0.733333333	3
Impact of Natural Resource	0.811764706	1

CONCLUSIONS

The study concludes that the socio-economic factors of construction industry in developing countries are analyzed through RII method. The RII value for each and individual factors has been given in Table 1 to 9, and it has been ranked with respect to RII value. Through which, the influences and effects of such socio-economic factors on construction industry has been studied. The other all influence and effects of the foremost 9 socio-economic factors of construction industry in developing countries are given below in Table 10.

Table 10: Overall Relative Importance Index for Socio-economic Factors

Factors	RII	RANK
Socio-Economic Stress	15.1295	1
Plan, Design and Construction	8.16078	2
General Inability	4.90196	3
Institutional Weakness	3.68296	4
Construction Industry Development	3.63922	5
Resource Shortage	3.38431	6
Culture	2.97255	7
Globalization	2.49412	8
Environment	2.35294	9

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