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Economic Sustainability in the Construction Industry of Pakistan

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Abstract
The construction industry is one of the most important components in the economic development of a developing country, considered as the backbone of prosperous economies providing social development and employment. In the developing economy of Pakistan the construction industry is encountered by different economic and technical problems. Macroeconomic problems in unemployment and inflation add to the existing economic situation in the construction industry. Other major contributors are the lack of appropriate infrastructure, weak and inefficient legal, administrative and financial institutions. This research uses a comprehensive literature review to conduct a survey into the existing local development barriers and indicates that the main factors affecting the economy and efficiency of the construction process in Pakistan are administrative problems and bureaucracy, inadequate finance system, inflation and fluctuation of prices, lack of management and planning, excessive wastages and corruption. In the developing country the construction industry appears aligned to the need and it is expected that the findings of this research will be of great interest to the professionals involved in the construction economy

Keywords
Sustainability, Sustainable development, Economic development, Construction economies

1. Introduction

There is a need to introduce sustainable construction development in the developing countries. The Pakistani construction industry is facing severe difficulties in coping with the swift growth in the modern

method of development. The construction industry of developing countries may show some growth, but it does not appear to be progressing in economic sustainability and maturity (Ehlers, 2000). Research is therefore needed to establish such data so that the recommendations can be made as to how the industry might become economically stable.

This research is basically planned in the response to growing concerns regarding the lack of an economically sustainable construction industry within Pakistan and other developing countries. The main aim of this research is to assess and analyze the construction industry of Pakistan and to define the performance and nature of the industry and the industries contribution to the overall economy. The objective of the study is to identify some hurdles and development barriers that are predominant in the construction industry of Pakistan by identifying fundamental and most common problems that affect the economy and efficiency of construction process.

1.1 Sustainable Construction

One tenth of the total economy is devoted to operating, construction and equipping offices and homes. The construction activity accounts for approximately 40% of the materials flow entering the world economy with much of the rest destined for bridges, roads and vehicles to connect the buildings (Ding, 2008).

Sustainable construction (Abdulsalam, Imbamali, & Zubairu, 2010) is the set of processes by which a profitable and competitive industry delivers built assets (infrastructure, building structures), which

- Improves the quality of life and offer satisfaction to the customer;
- Maximize the efficient use of resources while minimizing wastage.

According to (Shelbourn et al., 2006) a change to sustainability will only take place if it is not excessively expensive and disadvantageous.

1.2 Characteristics of the Construction Industry in Pakistan

The construction industry in Pakistan faces many problems, challenges and risks. Sources of such risks in Pakistan are:

- Instability
- Unskilled labor
- Excessive cost overruns and wastages
- Poor infrastructure
- Government influence
- Fraudulent practices

Unskilled Labor Force

In Pakistan, construction industry is mostly dependent on unskilled labor. Some developing countries like Pakistan also promote labor intensive construction to promote economic and social benefits for the population although this may affect the worth of the construction project. Although labor is plentiful in Pakistan, but there is a scarcity of skilled labor.

Cost Overruns and Wastages

It has been found that in the developing countries like Pakistan, by the time the project is complete the

actual cost exceeds the original cost by 30%. Almost all the projects experience constant delays and modifications in Pakistan.

9 Poor Infrastructure

According to World Bank road deterioration and continuous delays have an effect on the delivery of the workers and materials to the construction site. According to a report of World Bank in 1997, almost 15% of the production is lost because of poor roads and non-availability of storage facilities.

9. Government Influence

In the developing countries like Pakistan, the government generally set the rules for contractual relationships which have a bearing on the public construction sector. Private sector also suffers through legislation and policies, regarding minimum wages, taxes, rules and regulations on importation of materials, building codes, license and permits etc.

6. Fraudulent Practices and Inability to Adopt Best Practices

According to World Bank the fluctuation of prices, fraudulent practices and cost of materials are the most important causes of high construction cost in the developing countries like Pakistan. Therefore, in the countries like Pakistan the contractors may need to raise their budget to cater for these "hidden costs".

1.3 Summary of Literature

Sustainable development basically means fulfillment of human requirements through advanced techniques, processes and protection of the earth's natural systems. The progress of economic sustainability depends upon continued economic and technological progress.

For this study sustainable economic development is taken as an investment in people and machinery for a stable economy, creating opportunities for jobs, vibrant local economy, services are available which lessen the use of transport and opportunities for sales growth, cost reduction through improved technology and reduced energy.

To investigate the readiness, ability and process requirements to achieve sustainable economic development within the construction industry, background or state-of-the-art knowledge of the construction industries of developing countries is required.

2. Research Methodology

A survey was conducted on the local construction industry of Pakistan, which identifies the main hurdles and problems in the construction industry and to answer research question.

"What are the real hurdles and constraints hindering the development of construction industry of Pakistan?"

Mixed or multiple research methods are used in this research study. Main research instrument adopted was the questionnaire survey. Final analysis is carried out of the 100 questionnaires: 22 clients, 38 consultants and 40 contractors responded to this survey. Figure 1 shows the schematic layout of the research methodology. Cronbach's Coefficient Alpha method and Shapiro-Wilk Normality Test are performed to check the reliability and Normality of data respectively (Kennedy, 2005).

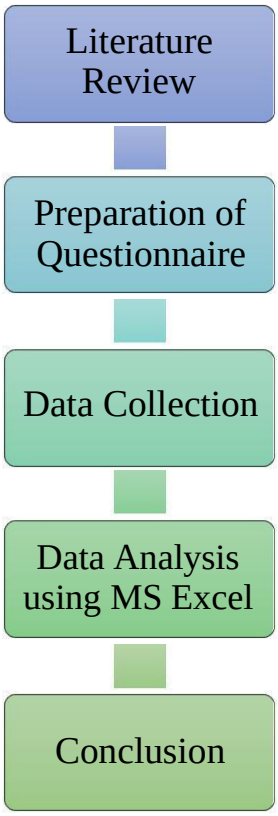

Figure 1: Research Methodology

In construction management researches, Relative Importance Index ranking technique(RII) is widely used for analyzing structured questionnaire (Idrus, Sodangi, & Husin, 2011). The priority of the criteria is set using the importance index. At the topmost is ranked the criteria with highest importance index (%) and at the bottom is ranked the criterion which has the lowest importance index. The three-point likert scale is used to judge the importance index of criteria.

3. Data Analysis and Results

Respondents were asked to indicate their judgment on the factors for each interrogation. A frequency distribution of the responses was used to assess the prevalence of these factors. Factors were identified as "important factor", "medium importance factor", or "low importance factor"(Brockett & Golany, 1996). For each factor, an importance index was determined by calculating the total percentage of respondents.

Table 1: Importance Index for Construction Development Barriers

Factors which are Barriers to Construction Development	High Factor	Medi umFa ctorL owFa ctor		Importan ceIndex	Ranking
The availability of materials	3	69	28	**58**	**9**
The availability of skilled labor	40	50	10	**77**	**5**

Availability of specifications	23	69	8	**72**	**6**

Inadequate infrastructure	39	28	33	**68**	**7**
Administrative problems and bureaucracy	79	18	3	**92**	**1**
Lack of focused research and experimental projects	38	59	3	**79**	**4**
Inappropriate law and legislation	69	21	10	**86**	**2**
Improper and poor utilization of local building materials	33	33	33	**67**	**8**
Poor utilization of local building technologies	8	54	38	**56**	**10**
Inadequate finance system	59	38	3	**85**	**3**

Administrative problems and bureaucracy which also includes corruption was ranked the most important barrier to construction development in Pakistan as per survey shown in Table 1 and Figure 2. The ineffective penalty on damage or delay and the frustration in the process of dispute resolution, ranked second with a high importance index of 86. Ranked third was inadequate finance system. Contractors, clients and investors are often experienced with a lack of financial support from institutions, also there are very difficult conditions associated with getting a loan, so the contractors are required to carry out the investment on the project using their own funds

Lack of research and experimental projects was ranked fourth, where there may be new building techniques and materials that might minimize waste and cost and optimize resources; instead, any research conducted is often unrealistic for the local needs and capabilities. Scarcity of the skilled labor was ranked fifth. Most of the skilled labor in Pakistan cannot find continuous work due to unstable political conditions and economic instability prevailing in the country.

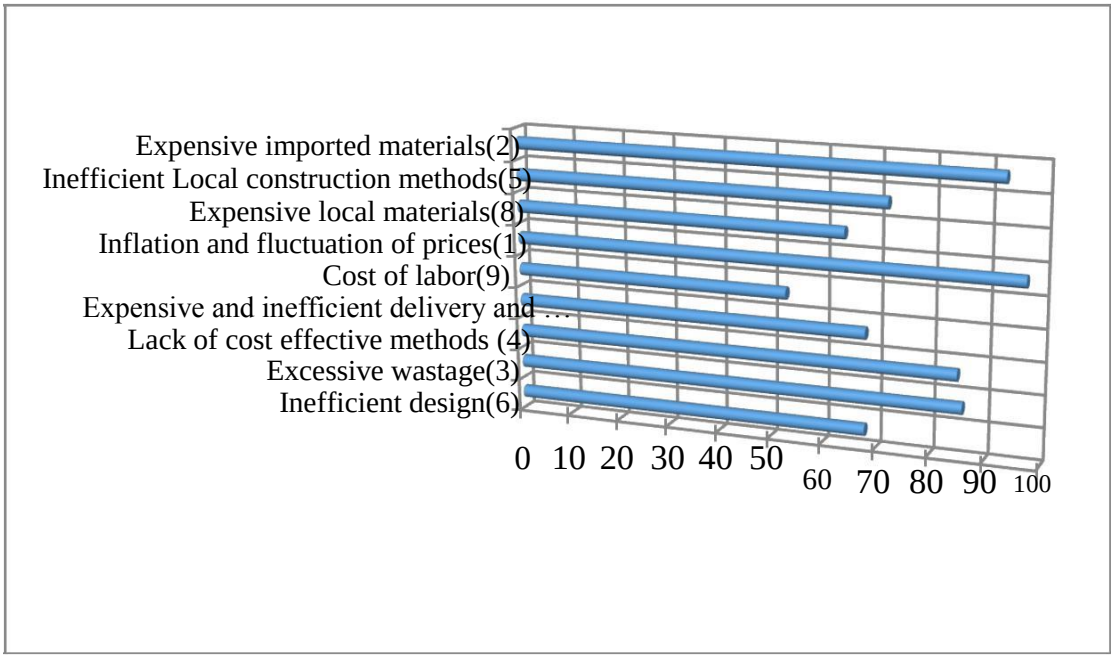

Figure 2: Causes of High Construction Costs

Figure 2 shows that inflation and fluctuation of prices was identified as most important factor by the participants with an importance index of 97 and ranked second was expensive imported construction materials with a score of 93 in the importance index. Ranked third was the excessive waste due to the lack of skilled labor and efficient project execution, lack of management, supervision and planning of the project. The fourth factor was the lack of cost effective methods, which were based on the bill of quantities, direct cost estimation of the executed quantities, ignoring waste and hidden costs in the project

No significant difference was seen between the top five factors as illustrated by Figure 3, the lack of planning and poor management was ranked first by the respondents, and this was primarily because of the lack of information on the part of contractors. Lack of control and supervision was ranked second. Some participants were of the view that this can be due to the reason that qualified engineers, foremen and technicians conducting supervision work often get low payment and salary in Pakistan or they limit their duties and supervision according to their payment.

Ranked third was the Resource misuse; the participants also indicated that this was due to inefficiently managed labor use onsite, misuse of the construction materials and inappropriate storage of the materials.

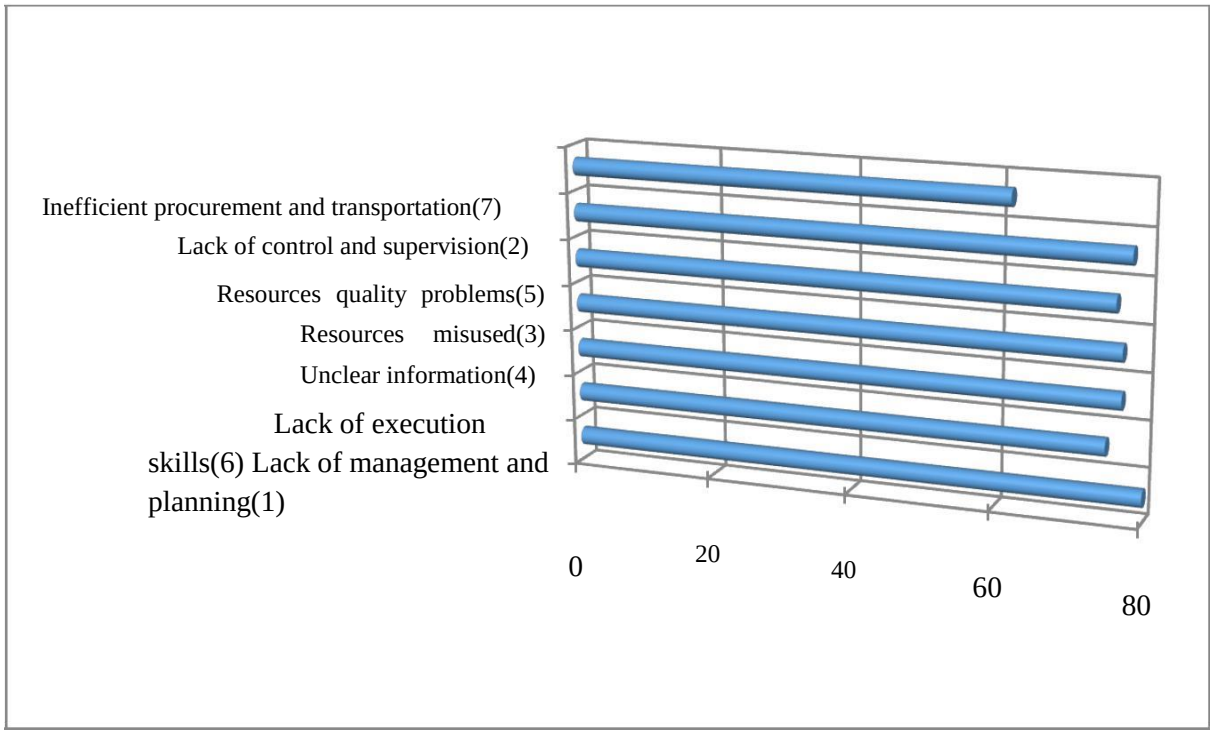

Figure 3: Causes of Construction Waste

As illustrated by Figure 4, administrative problems are having most effect on lacking building material industry. Ranked second was the lack of information. The World Bank has clearly pointed out that firms in developing countries are encountered with specific uncertainties due to the shortage of information. These involve the inability to identify markets; uncertainty and unenforceability of contracts; and the deficiency of business skills.

Inadequacy of the finance system was ranked third. Investors always experience a lack of financial support from institutions or there are very difficult conditions associated with getting a loan. Investors have very limited and unreliable credit facilities and cash flow problems which lead to difficulties in financing the project; and inability of the investor to sustain financing on the project.

Difficulties in acquiring skilled labor, technicians and absence of foremen are ranked fourth. According to (Ssegawa-Kaggwa et al., 2013) this problem actually exists in many developing countries. The factor ranked fifth was poor plant locations, access roads, basic infrastructure, illegal ownership and land problems.

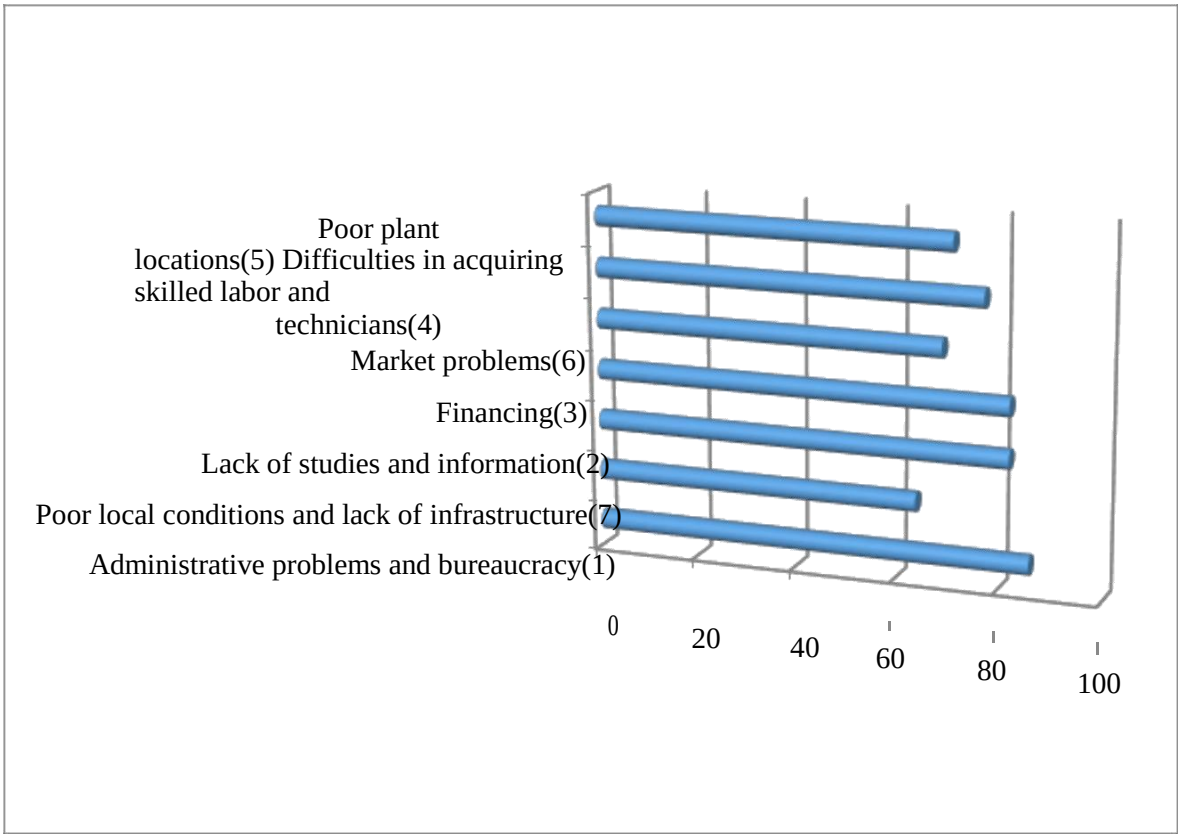

Figure 4: Responses on Lacking Building Material Industry

Conclusion

The main purpose of this research was to highlight problems faced by the construction industry in Pakistan. Bring awareness of the new era of sustainable development and the process requirements for achieving stable economy in the industry. Lack of administration, fraudulent practices followed by the infrastructure deficiency required for economic activities and human settlements and lastly the official and legal matters followed by issues were the main causes of the lack of the sustainable development in construction industry of Pakistan.

The most important factors causing high construction costs are construction waste, inflation and imported materials. Factors that appeared less important are the cost of labor and materials, availability of local materials and standardization. The respondents are of the view that technical problems are not a main concern. They also indicated that economic stability is important for any development because it creates less risk for investment.

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