

Policies and Plans for Sustaining the Economy in Construction Industry of Developing Countries

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Abstract: The construction industry is one of the most important components in the economic development of a developing country. Thus, being a major contributor to the national economy of many such countries. In the developing economy of a country, the construction industry is encountered by different economic and technical problems which affect the construction industry. The recent global shift to sustainable development also requires that the construction industry in developing countries initiate important strategic developmental policies to meet the future demand for economical and sustainable development. This research uses a comprehensive literature review to conduct a survey into the existing local development barriers and then obtains a census of expert opinion using the DELPHI methodology to rank a set of sustainable developmental policies and strategies. The results indicate that the main factors affecting the economy and efficiency of the construction process in developing countries are administrative problems and bureaucracy, inadequate finance system, inflation and fluctuation of prices, lack of management and planning, excessive wastages and corruption. Strategies and policies for the solution of these problems were then identified and ranked in order of their importance using the Delphi methodology.

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1. Introduction

The modern economic science has put forward a new theory of the quality of economic growth, according to which economic growth can be indicated not only by rapid production increase, but also by other criteria like, for example, reduction of production costs, improvement of products' competitiveness due to resource-saving technologies, as well as by expansion to new markets due to implementation of successful marketing strategies (Pekuri, 2011, Kasimovskaya, 2013).

There is a demand for serious strategies and policies to initiate any sustainable economic development

(Fitzsimmons & Fitzsimmons, 2013) S. Thomas Ng and Ziwei Tang (2010). The selection of policies to reduce the effect of unemployment and consumption of foreign exchange should be put into operation through suitable and more thoughtful labor employment and local materials protection or import policies (Sultan & Kajewski, 2006). Construction rules and regulations have an impact on the selection and quality of the materials and will allow the designers to be more positive and self-assured in executing optimum designs (Lessard & Lessard, 2007). Financial and economic policies should be planned to boost economic activities, control inflation

and increase informal activities (Ball & Sheridan, 2004).

2. Policies and Plans for Sustaining the Economy in Developing Countries

This research lists and discusses the policies and strategies that could possibly be implemented for stimulating and sustaining the economic development of the construction sector in a developing country. These policies are mainly derived from the previous literature reviews and international agenda such as Agenda 21 for Sustainable Development (Du Plessis, 2002); and also obtained from international reports such as the UNCHS, UNDP, UNIDP, the World Bank and the IMF. Moreover, these policies are proposed in response to the data gathered and the survey on the local industry.

The main purpose of these policies is to attain development aligned with sustainable development process. This set of policies and strategies is to be ranked in the final phase of the proposed Delphi methodology using consensus amongst a panel of construction industry experts in Developing countries.

To improve the construction industry, attention should be given to other sectors of the economy, and some of them should be addressed earlier than construction, whilst others must occur later. According to (Stephens & Ruth, 2005) appropriate policies and strategies should be introduced.

The findings from literature, trend exploration based on historical data on Developing countries and developing countries, experience and moreover, the surveys regarding the local industry of Developing countries that were conducted in the first and second phases of the methodology have established the selection of the most appropriate policies to be ranked by experts. The ranking process was to establish the policy importance and possible implementation.

The appropriate policies and strategies selected for this paper are enlisted as follows:

- Labor-intensive construction policies.
- Energy-efficient policies in design and construction.
- Funding policies on selected projects.
- Policy for the protection of materials.
- Macro-Economic Factors
- Management Factors
- Eliminate corruption and reduce all forms of bureaucratic procedure.

For the construction industry to achieve a level of economic sustainability there are a wide variety of policies and strategies to be considered (Behrens, Giljum, Kovanda, & Niza, 2007). This set of policies was selected to be in line with local conditions and have been adapted predominantly from international agendas and such as:

- Agenda 21 for Sustainable Development, UNCED (1992)
- Agenda 21 on Sustainable Construction, CIB (1999)
- Agenda 21 for sustainable construction in developing countries
- CIB/UNEP-IETC (2002)

In basic terms, policies, which have suitable criteria that in the short to medium term can stimulate economic activities or remove obstacles to move forward to a more sustained economy based on sustainable development and in compliance with the situation in Developing countries and were carefully chosen and discussed according to international and developing countries experience.

3. Ranking of the Policies Using Delphi Methodology

The Delphi method is an organized communication method which relies on a panel of specialists and experts (Ferri et al., 2006). The questionnaires are answered by the experts in two or more rounds in the standard version. After the round is finished, an anonymous summary is provided by the facilitator of the expert's judgment from the previous round as well as the logic they provided for their judgments. In the light of the replies of other members of their panel the professionals and the experts are encouraged to revise their earlier answers. The group converges towards the correct answer during this process. After the stability of results, the process is finally stopped and the mean or median scores determine the results.

Criteria to choose the experts for this study considered the following:

- Knowledge, experience and expertise within the local industry construction;
- Information about the local capabilities;
- Expertise and information about sustainable development; and
- Experience of the local industry and economic activities.

Initially survey was carried out aimed at a group of 25 experts, who were selected to represent different viewpoints between the experts and authorities

responsible for policy-making in Developing countries. The group of experts composed professional engineers, economists, and academics. The specific question posed to this panel:

“How does the construction industry in Developing countries achieve economic sustainability?”

Two round Delphi questionnaire was prepared. The respondents were asked in the first round to consider eight policies and strategies to attain economic sustainability for the local industry. The respondents were then asked to rank these policies in terms of their importance based on their experience and importance of implication in the process towards sustainable economic development.

“What is the most appropriate policy for achieving sustainable economic development in the construction sector?”

Based on the numerical order from 1 to 8, the experts were then asked to rank the policies. The most important being ranked 1 and least important being ranked 8.

The first-round results of the Delphi survey were analyzed using a distribution ranking table to interpret the average ranking, median ranking and the importance order of each policy as shown in Table 1. Professionals and Experts were denoted by alphabetical letters.

The ranking of the responses was averaged and the importance order was calculated. The final ranking for the most needed policies for the economic sustainability in Developing countries are represented in Table 2.

4. Discussion of the Rankings

This section presents a general discussion and evaluation of the selected policies.

4.1 Labor-Intensive Construction Policies

The ranking of the Labor-Intensive Construction policies by the experts by mandating minimum crew size both in public and private construction projects, affordable infrastructures, and human settlements were to some extent mixed and ranked very low 20 and it had a median ranking of 5.5. One government member ranked it 2nd. Another government member (E) indicated that this was always influenced by the procurement policies of the lending organizations.

The members of academics and the private sector gave a low ranking for this policy. This is due to the fact that the private sector has the issues of productivity in the project, excessive costs and delays associated with this policy. There is, however, some negative aspects to this policy raised by the participants:

- Generating arbitrary conditions on a construction project input will undoubtedly raise the cost of doing the project;
- Requiring higher labor content acts as a discouragement to local firms to invest in productivity-enhancing capital, which ultimately allows it to compete with foreign firms; and
- The implementation of labor intensive policy requires a higher level of management and good supervision which is difficult in Developing countries due to scarce skilled foremen and site engineers; difficulties also arise on site, in the contractor’s office and in administration at the funding organization.

In many developing countries including Developing countries, there is a shortage of skilled labor, foremen and supervisors therefore it is more convenient to use equipment and plant instead of labor. Despite the low ranking this policy gained, the substitution of abundant labor for the scarce capital can be a more feasible solution, and might generate more employment and output than would otherwise be possible. An alternative suggestion is labor-based technologies.

Although the labor Intensive Construction Policy is supported by the Agenda 21 and the Poverty Reduction Strategy Paper (Craig & Porter, 2003), but the private sectors and the organizations such as the World Bank will always refrain from this policy due to the problems such as excessive cost overruns and delays, management problems and loss in productivity which are associated with the Labor Intensive methods.

4.2 Energy-Efficient Policies in Design and Construction

This policy was ranked low. The experts were of the view that the people are not willing or can’t afford the hazard to change, in view of the fact that the market is also not ready to adopt new practices and technologies. Also, there is a lack of research on the construction models and traditional design.

Also, in the construction industry of Developing countries, the sector is dominated by the local contractors who are not willing to adopt new

technology changes which involve risks and extra costs. Also, the local construction firms and companies do not have the technical experience and knowledge to implement such kind of policies.

4.3 Credit and Funding Policies on Selected Projects

The policy was ranked low by most of the experts. Most of the experts opposed this policy due to the lack of financial management and corruption and the use of funds in an inappropriate way. Most of the experts were of the view that due to the existing laws and regulations in the Developing countries construction industry and the existence of bureaucracy and corruption, the funds will be wasted. Likewise, the current banking system also suffers due to the non-payment of loans from the borrowers.

4.4 Local Materials Protection Policy

This policy has received low rankings from most members except one member from academic background.

This policy has generated divergence of opinion from supporters and opponents. Most of the experts were of the view that it would be very difficult for the local construction industry of Developing countries to shift from the current situation as the industry has overdependence on imports. The experts were also of the view that the small investments and research in the building materials and material alternatives makes it hard to initiate and implement any change.

Thus, for the short and medium periods, the construction industry in Developing countries will stay in the situation of overdependence on the imports; the important thing here is the control of imports and use of efficient design and changed practices.

4.5 Reduce all Forms of Bureaucratic Procedures

This policy was favored by most members of the panel except the local consulting firm. According to experts, bureaucracy is one of the main issues leading to unsustainable development path in Developing countries. According to experts, bureaucracy is the main cause of project delays in the Developing countries construction industry and is characterized by too many permits and abundance of laws, rules and regulations which lead to cost overruns and delays.

4.6 Control Fluctuation in the Prices of Raw Materials

The increase in the prices of the construction materials is evident when these elements are short in supply, therefore the government should take steps to

stabilize the cost of these materials. This can be done by breaking the monopoly of few suppliers in the market by increasing the supply of the construction materials.

4.7 Better planning and Management

According to experts, better management and planning should be done through vigilant planning, depreciation and inflation factors should be kept in view which would lead to better execution of the project and achievement of desired cost control. Management related factors are the in-house factors related to cost overruns and these can be prevented and controlled most easily.

5. Conclusions

The main purpose of this research was to highlight some problems faced by the construction industry in Developing countries. The survey on the local industry identified the main problems faced by the industry and identified the policies and remedies for the solution of these problems. The policies required for the stable economy in the construction industry in developing countries, specifically in the case of Developing countries have also been justified. The policies were ranked using the Delphi methodology with the help of experts. The outcome of the policy ranking showed how these policies could be implemented in terms of priorities as the experts advocated. According to this research, the main problem in the construction industry of Developing countries is corruption followed by the lack of infrastructures. The design policy was ranked low by the participants but it was encouraged because the implementation of this policy is approachable and manageable. Due to the ability of the local industry to meet the market demands, the construction industry of Developing countries is heavily dependent on the import of materials. The Labour-Intensive policy was also not favoured by the participants due to the management problems which is associated with this policy.

The interpretation and discussion of the Delphi results according to the Developing countries experts ranking revealed how proactive policies and measures can lead to sustainable economy in the construction industry of Developing countries, if appropriately implemented. The expert's opinion indicated that policies targeting administrative and institutional development, along with appropriate laws and regulations to control construction activities in a particularly sustainable manner as most critical key needed for initiating the process.

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Table 1 Delphi First Round

Policies and strategies	Rankings by the Participants										Average Ranking	Median Ranking	Importance Order
	A	B	C	D	E	F	G	H	I	J			
Reduce corruption and bureaucracy.	3	2	1	3	2	1	5	6	1	1	2.5	2.0	1
Management Factors	1	7	2	5	1	2	6	1	5	5	3.5	3.5	3
Macro-Economic Factors	2	1	3	2	5	8	3	2	4	3	3.3	3.0	2
Local materials protection policy	8	3	4	1	8	4	4	7	6	8	5.3	5.0	5
Credit and funding policies on selected projects	7	8	7	4	4	7	8	4	8	7	6.4	7.0	8
Energy-efficient policies in design and construction.	4	5	5	7	7	3	7	3	3	2	4.6	4.5	4
Labor -intensive construction policies.	5	6	6	6	3	5	2	5	6	7	5.1	5.5	6
Pricing policies	6	4	8	8	6	6	1	8	2	4	5.3	6.0	7

Table 2 Delphi Second Round

Policies and strategies	Rankings by the Participants										Average Ranking	Median Ranking	Importance Order
	A	B	C	D	E	F	G	H	I	J			
Reduce corruption and bureaucracy.	2	1	2	3	2	2	1	6	1	4	2.4	2	1
Management Factors	3	5	2	4	3	5	2	3	2	3	3.2	3	3
Macro-Economic Factors	1	4	1	4	1	1	3	1	3	7	2.6	2	2
Local materials protection policy	7	5	6	1	8	4	7	7	4	1	5.0	5.5	5
Credit and funding policies on selected projects	8	7	5	5	4	7	8	4	8	8	6.4	7	8
Energy-efficient policies in design and construction.	4	3	4	7	7	6	5	3	7	5	5.1	5	4

Labor -intensive construction policies.	5	6	8	6	3	5	2	5	6	6	5.2	5.5	6
Pricing Policies	6	8	7	8	6	8	6	8	2	2	6.1	6.5	7

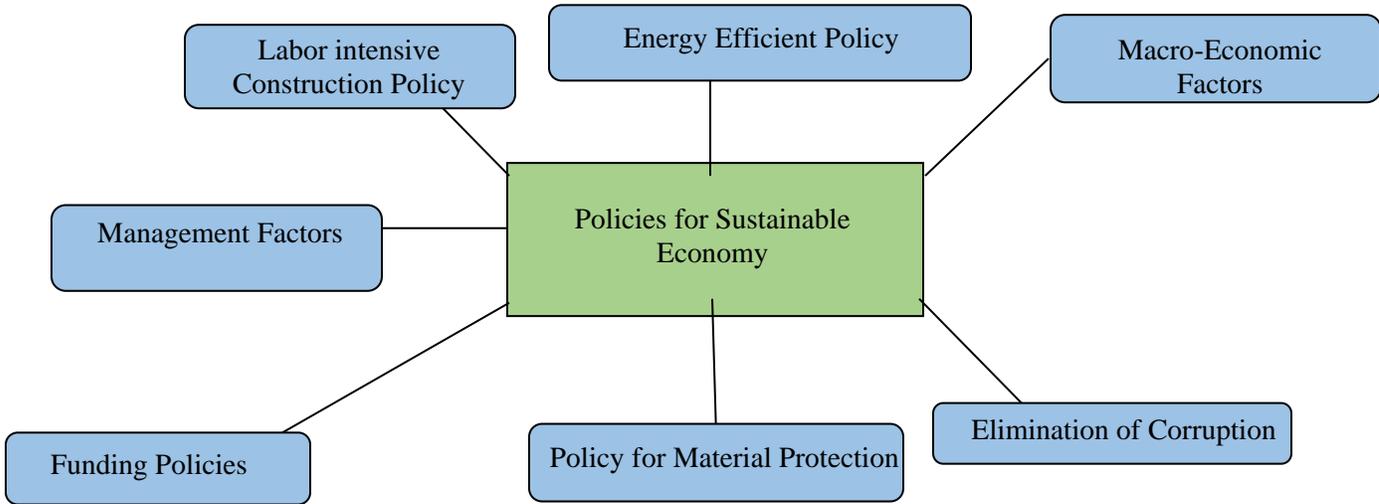


Fig 1 Effective Policies for Economical and Sustainable Construction in developing Country

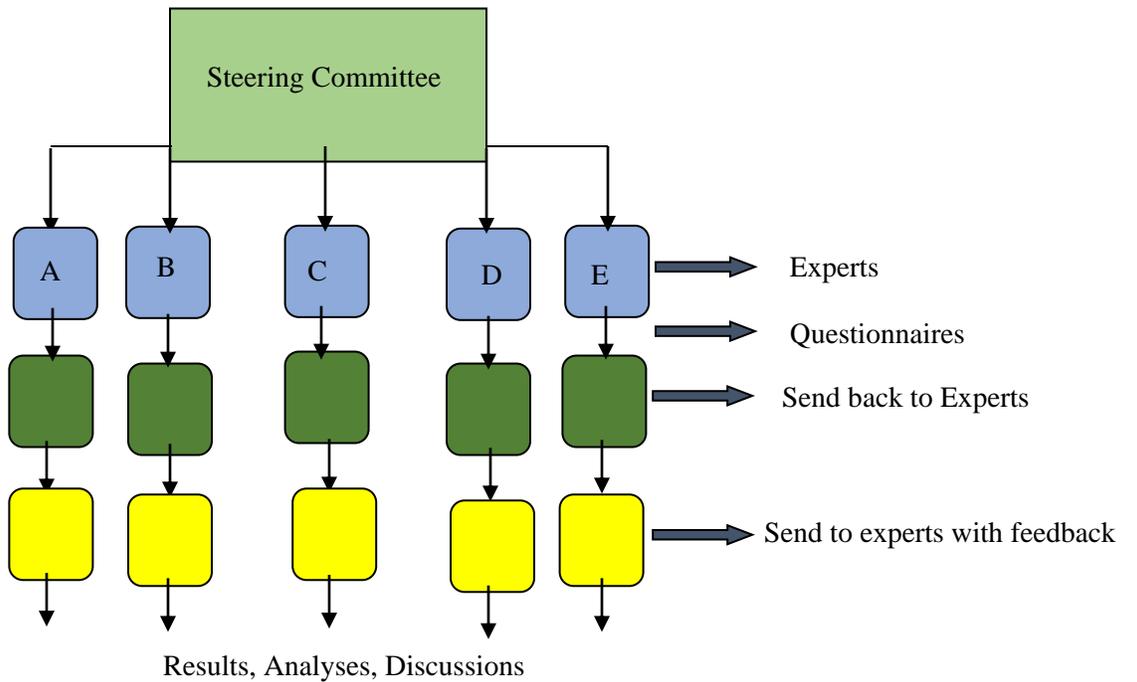


Fig 2 Flow Chart of DELPHI Method

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