

A Study on Production Problems of Precast Product Producer with Special Reference to Chidambaram

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Abstract

Precast is a construction product produced by casting in a reusable mold. The precast products are controlled by environment, have increasing efficiency and quality and are economical. Precast concrete producers eliminate many of the environmental and logistical problems associated with cast-in-place. The advantage of a PCS is in the speed, ease and lesser cost of building any structure. However, curing process consumes a lot of energy. Precast producers have been challenged to maintain their profitability while facing issues such as increasing utility rates, more expansive and scarce skilled labour, and rising material and equipment cost. In this paper, researcher provide a perspective on the issues, outline of the key challenges with the help of primary information, and describe some findings and suggestion for betterment of precast unit.

Meaning and Concept

Precast is a construction product produced by casting in a reusable mold or forms which is then cured in a controlled environment, transported to the construction site and lifted into place. The precast products are controlled by environment, have increasing efficiency and quality and are economical. The mold used in a precast plant may be reused repeatedly more than thousands of time, before they have to be replaced which allows the cost of per unit to be lower than the site cost production. IrLichard Summers defines precast, “The manufacture of off-site, moulded or formed product using hydraulic cementitious materials as a binder to construct a useful product or shape”

Precast products enjoy a well-earned reputation as the strongest and most durable material used for production of various types of pipes, manholes, catch basins and precast structure products. Precast production process involves many activities like ordering raw material, setting up the moulds, managing the stocks and marketing of product. The product is stronger, long lasting and the most durable.

Importance of Precast Products

The present globalised world environment is polluted due to industrialisation and mass construction of building. Therefore precast products and producers are considered more pertinent today because they have role to play in protecting the environment.

Precast concrete producers eliminate many of the environmental and logistical problems associated with cast-in-place, while taking advantages of the efficiency of units like ensuring quality control in order to produce superior finished products and the most important characteristics of precast products that enable the use is to be economically feasible and ability, when under the right condition, to gain strength extremely rapidly.

The precast construction includes those buildings where the majority of structural components are standardized and produced in plants in a location away from the building, and then transported to the site for assembly. The main features of this construction process are the division and specialization of the human workforce. The use of tools, machinery, and other equipment are usually automated, in well set production standards with interchangeable parts and products. Compared to site-cast concrete, erection of precast concrete components is faster and less affected by adverse weather conditions. Plant casting

allows increased efficiency, high quality control and greater control on finished products. 'The precast construction requires restructuring the entire conventional construction process to enable interaction between the design phase and production planning in order to improve and speed up the construction'.

Precast in India

“Precast Concrete Sector (PCS) is very popular in India, due to growth in infrastructure development and since demand for low cost housing is huge in India. The advantage of a PCS is in the speed, ease and lesser cost of building any structure. In India PCS is growing at an annual rate of 10 per cent for last 5 years on the backing of construction industry, which is growing at 20per cent for the similar period”.

Precast and prefabricated structures are well suited for the mass infrastructure development activity in India, due to its time saving process. There are several supporting structures and repetitive process in residential, commercial and infrastructure development and standardisation of these structures can eliminate the use of mould work and scaffolding and hence reducing the overall construction costs. To fulfill the substantial demand for low cost housing, and precast and prefab processes enable parallel construction activities of the components such as windows, walls, doors, boundary walls, roof and foundation and hence reducing the significant construction time. As India harbouring countrywide road development program, precast concrete blocks are the solution for connection rural India.

India population spread in the hilly and mountainous area, where conventional construction methods are not suitable. Mobile precast and prefabrication facilities enables setting up operations near the construction site which helps optimise resources, reduce transportation costs and expedite the construction faster.

Currently precast concrete industry is at a building stage in India; however there are many leading companies including Hindustan Prefab Limited, Precast Buildcon, Enercon India. KK India has long standing presence in the industry.

Advantages of Precast Products

The use of precast products in construction is widely regarded as an economic, durable, structurally sound and architecturally versatile form of construction. Compared with traditional construction methods it is continuously making efforts to keep with the demands of modern society viz, economy efficiency, and technical performance, safety of labor and environmental friendliness and number of positive features of industrialized way of construction. However, the following are the advantages are precast products.

1. Shorter construction time less than half of conventional cost in situ construction.
2. Opportunities for good architecture as almost many building can be adapted to the requirement of the builder or the architect.
3. Flexibility and adaptability by using solutions which facilitate transformations without major interventions to in the load bearing structure.
4. Smoother surface and plastering is not necessary.
5. Concrete members can be cast continuing construction under all weather conditions.
6. Improves handling ability of product
7. Economy in work by repetitive use if a small number of superior, accurately made molds which may be constructed of various permanent materials depending on the number of uses planned
8. Partial elimination of wet trades
9. Dimensional accuracy.

Review of Literature

The study is based on primary and secondary data. The secondary data were collected from books, journal, online research articles, research project, and published and unpublished research reports. Primary data were collected from precast product producer of

Chidambaram through pre-determined questionnaire and all put together so researcher tried her best to fill all such research gaps in between the existing literature available and the present one under creation.

Statement of the Problems

This section talks about production/ technical problems than marketing.

Products used in the precast units are both catalogued and bespoke products. The catalogued products have been well designed and produced, like ordinary manufactured products, in a make-to-stock fashion while the bespoke products are designed and produced to meet requirements of a particular product. The bespoke products therefore are make-to-order production style. They are unique and require longer lead-time and more sophisticated production management for precasters to coordinate with the design and production team of a precast unit. Increased intensity of competition has led many Indian businesses to seek profitable ways of differentiating themselves from their competitors. One strategy that has contributed to the success of businesses seeking to differentiate themselves is the delivery of high quality services.

A properly produced precast system lacks many of the problems inherent in other similarly used products, such as differential deflection, infiltration, and exhalation. "Precast production problem stems from the fact that a typical unit is unable to meet the higher production demand due to the lack of a streamlined assembly process" (Abu Hammand 2009). "Much of precast production process is affected by the design of the concrete mix irrespective of the precasting method used or the product being made". "Any delay in delivering precast components to construction sites can cause a disturbance in the overall construction supply chain (Pheng and chuan 2000)". "Curing process consumes a lot of energy. Precast producers have been challenged to maintain their profitability while facing issues such as increasing utility rates, more expansive and scarce skilled labour, and rising material and equipment cost". The important problems encountered by precast units during production and marketing of precast products are high labour cost, insufficient workers, difficult in fixing price, storage, delivery problem, transport and handling.

Objectives of the Study

The researcher framed the following objectives to solve the above problems.

1. To study the infrastructure problems of precast units.
2. To analyse the Wages problems of precast products producer.

Methodology

The researcher used primary and secondary data for the purpose of collecting data. Primary data were collected through well designed questionnaire from the sample respondents of precast units in Chidambaram Taluk. Secondary data were collected from various books, journals, articles and various websites.

Sample Frame

There are 193 panchayat in Chidambaram taluk, of which 21 panchayat are familiar with precast units. Among the 21 panchayat 74 precast units are existing and producing precast along with name board. All the precast units have adopted same method of production and marketing. Hence, the researcher has chosen all the producers as sample respondent by adopting census method.

Period of the Study

The period of the study is confined from 2014 to 2015 as that period of study is enough to comprise all the changes in the precast units.

Problems in Production Process

Production process is the main function of all industries in post and pre industrial revolution. At there were production problems of lack of qualified labour, inadequate and low quality of raw materials, insufficient place and lack of capital.

The improper production process may lead to low production, low quality and automatically increase the cost of production. Therefore the researcher wanted to identify the problems faced by precasters during the production process. From this purpose the researcher formed separate questions and collected opinions from the respondents. The opinions of respondents are given below.

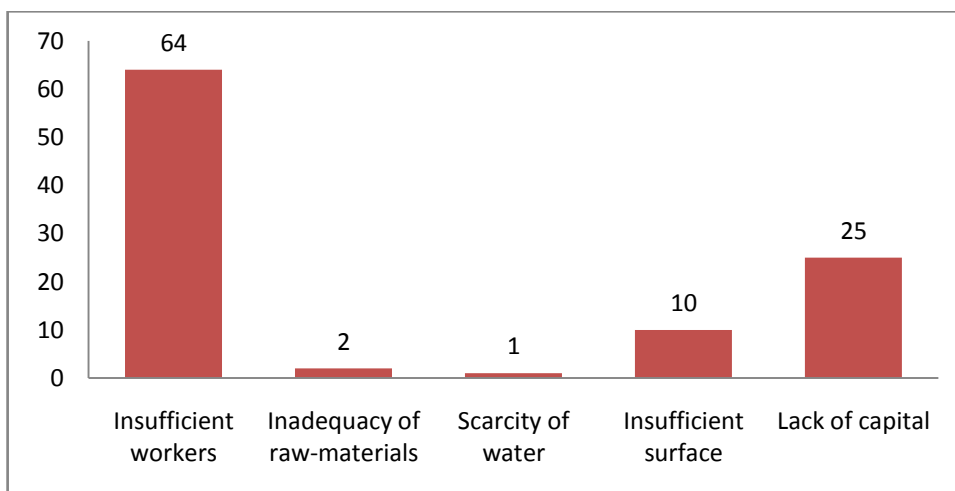
Table 1
Problems in Production Process

S. No	Particulars	Opinion
1.	Insufficient workers	64
2.	Inadequacy of raw-materials	2
3.	Scarcity of water	1
4.	Insufficient surface	10
5.	Lack of capital	25
6.	Total	102

Source: Primary data

(Note: More than one opinion is chosen by one respondent)

According to table 1, the sample respondent’s opinions are, out of the total respondents, the majority (64 respondents) said that the main problem in production process is insufficient workers it may be due to lack of skilled workers. Another important problem is lack of capital as told by 25 respondents. 10 sample respondents informed that their problem in production process is insufficient surface, because the unit needs large area of surface for production of precast products. Two respondents stated that their problem is inadequacy of raw materials that is inadequate and un-frequent fluctuation of raw material cost. The some sample respondents also said that another problem is lack of capital. This is the reason to purchase the raw material. It leads to inadequacy of raw material for production and the one sample respondent told that their problem is scarcity of water. The same respondents also stated another problem is insufficient workers.



It could be derived that the precasters solve many problems during the production process. There is no government interference in these precast units. No loan facilities are provided by any other organization.

Remuneration Structure

In general, without wage no workers offer the work. At the same time more salary satisfies the workers. So, many companies offer wage plus some other incentives. For example today large scale industry arranges the transportation facility to employees. Also some refreshment is given during the working time. Therefore, the researcher wanted to know the conditions of the precast units.

As already explained, this industry is facing insufficient labour force and they pay more to meet the competition of another unit. The below table 3 explains the remuneration details of workers.

Table 3
Remuneration Details of Workers

S. No	Particulars	No. of respondents	Percentage
1.	Salary	41	56
2.	Salary + food	26	36
3.	Salary + food+ bus fair	7	9
4.	Total	74	100

Source: Primary data

Out of the total respondents, 41 respondents mentioned that they give salary only to their workers. Another 26 respondents said that, they give salary and food, and the remaining 7 respondents informed that they give salary, food and transportation charges.



The observation of researcher from the above table is the precast producer may face more expenses for personnel due to more pay with additional expenses of food and transportation. It is concluded that this sector faces more competition to retain the existing employees.

Findings

It is observed that, all the producers do not produce and sold through year. It may be due to the reason of fluctuation demand and unfavourable climate. It is verified that majority of (64) respondents are faced insufficient workers as the problem of production process. The

precast producer may face more wages for personnel due to more pay with additional expenses of food and transportation.

Conclusion

In the past 50 years, precast unit in Chidambaram taluk did not have enough to meet the demand. On the other hand producer has faced more competition to retaining the existing consumer. Precast units in Chidambaram taluk wants to develop large scale unit for future development. So it is a time to the producers wants to introduce new technologies and new methods to strengthen the precast unit to face the competition along with sustainable development. The socio economic development is to increase the demand for affordable housing is needed fast. However, the high cost is difficult for fulfill the demand. So, it needs the government subsidies and grand's for further development. It is conformed "the Indian government is planning to provide subsidies for builders to meet the shortage of 25 million affordable apartment buildings."Hence, the precast is increasingly popular both for commercial projects and home consumption.

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