CHAPTER VII
PROBLEMS AND CONSTRAINTS OF THE TILE INDUSTRY IN KERALA

INTRODUCTION

Kerala is enjoying the monopoly of tiles production in the country ever since this industry started to appear in the map of Kerala State. The age-old traditional industry of Kerala is now in the doldrums. This industry has been finding it difficult to survive in the present times due to various problems. Problems arose with the establishment of new tile factories in other States like Tamil Nadu, Karnataka, Andhra Pradesh, Gujarat, Rajasthan and Orissa. Problems of the existing tile units in Kerala intensified with the uncontrolled establishment of a large number of uneconomic small units. Changes in building technology and design of houses, shortage of critical inputs, limited financial resources and so on added fire. As a result of these causes, most of the tile units in Kerala are on the brink of closure. An attempt has been made in Section A of this chapter to identify the chief problems and challenges that the tile industry in Kerala faces today. Section B of this chapter contains certain solutions.

SECTION A

7.1 Chief Problems

7.1.1 Scarcity of Inputs

The major inputs of this industry are clay and firewood. The prime problem is the ever shrinking source of the chief raw-material - clay. This is followed by the scarcity and the soaring rate of cost of the second important
raw-material - firewood. The problem of finding sufficient man power for heavy manual work fills the cup of woe for the industry.

(i) Clay - Clay is the most important raw-material involved in the manufacture of tiles. Therefore, the availability and extraction possibilities play a major role in successful running of this industry. The availability of clay has been diminishing day-by-day for a long time now and the industry, at least in some parts of the country, is finding it difficult to procure the right clay. There are various reasons for this situation. The clay is mined mainly from paddy fields and sometimes from the banks of backwater lakes. This source is being practically exhausted for various reasons. Digging to lower strata may not be feasible due to differences in quality and higher cost of clay. As a result the tile industry has to turn to inferior clay from sources other than paddy fields. Uncontrolled mining is another reason for non-availability of the right clay to the industry. Clay has to be brought from long distances, incurring huge transportation costs. Hence, this raw-material has become not only expensive but scarce also.

Due to these reasons the manufacturers have to collect the clay through the contractors, who will collect the clay from far off places and supply it at very high rates. The average cost of clay per box has gone up from Rs. 100/- in 1996-97 to Rs. 175/- in 2005-06 which reflects a 75 per cent increase in its price over a decade.

The various problems faced by the sample units in respect of clay include high price, scarcity, poor quality, delay in delivery, absence of quality test, shortage of finance and delay from contractors. The relative importance of each problem is analysed by using weighted ranking method and is presented in Table 7.1. In order to find out the intensity of the factors, the entrepreneurs were asked to indicate the order of intensity to them. The maximum number of reasons given by a single entrepreneur does not exceed 243.
seven. Accordingly, weighted scores were calculated for each of the seven problems by giving a weight of 7 points to the most prominent one, and six, five .......... and one points respectively to the succeeding ones in that order. The weighted scores calculated for each of the seven problems were added up for all the respondents and the factors were ranked on the basis of the total weighted scores for each problem.

### Table 7.1

**RANKING OF PROBLEMS IN THE PROCUREMENT OF CLAY**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Weighted Score</th>
<th>Weighted Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Problems</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High price</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>Poor quality</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Scarcity</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>Delay in delivery</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>No quality test</td>
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<td>-</td>
</tr>
<tr>
<td>Shortage of finance</td>
<td>8</td>
<td>-</td>
</tr>
<tr>
<td>Delay from contractors</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>42</td>
</tr>
</tbody>
</table>

Source: Survey Data.

The weighted ranking shows that high price is the most important problem of clay procurement. Scarcity being the second important factor has the second rank. Poor quality is the third important factor having the third rank. Delay in delivery, shortage of finance, lack of quality test and delay from contractors obtained the fourth, fifth, sixth and seventh rank respectively.

(ii) **Firewood** - Tile industry, in general, uses coal as the main fuel for kilns. In some parts of the country, wood is still used. Firewood is the most
commonly used fuel in tile factories in Kerala for burning tiles. A major problem facing this industry currently is the rising cost of firewood and its scarcity. More than 50 per cent of the cost of production of tile is the cost of firewood in small units having intermittent kilns, while this is about 25 per cent in medium and large size units having long continuous kilns (Ambigapathy, 1988). Hence, it is evident that any attempt in reducing fuel consumption in kilns will help the tile industry in reducing cost of production. Only about 20 per cent of the total tile factories in Kerala use other fuels like cashew shell and saw-dust.

Mostly rubber wood is being used as fuel by this industry. The availability and transportation cost of rubber woods have posed a serious threat to this industry. The cost of firewood has now touched the height of Rs. 1200/-per M.T. The average price of firewood in Kerala as a whole was Rs. 1160/tonne in 1996-97 which rose to Rs.1500/tonne in 2005-06, recording a decennial growth rate of 30 per cent.

Firewood price is increasing rapidly due to various reasons, of which, a few are mentioned below.

(i.) Reduction in the forest area and utilisation of land for cultivation.
(ii.) Increasing demand for wood for other industries. (iii.) Increasing demand for wood as fuel in the domestic sector. (iv.) Increase in cost of all other sources of fuel.

Firewood is a renewable source of energy. Therefore, attempts should be made for producing more firewood by cultivating fast growing trees and maintaining forests. At the same time fuel cost should be reduced by choosing the following measures. (i.) Operation of kilns at optimum condition. (ii.) Use of alternate fuels like coal, cashew shell and saw-dust and (iii.) Using kilns having high thermal efficiency.
The feasibility of coal as a substitute for firewood has been studied by experts and it is found economical (Anantha Subramanian, 1986).²

The other important input required is lubricating oil. Kerosene is the most common one. The price of kerosene has also increased considerably over the years. The producers get kerosene oil according to certain quota on the basis of production capacity. As per ISI prescriptions, 1000 tiles require 5 litres of kerosene (Labour and Industrial Bureau, 1969)³ but at present the sanctioned quantity is only 1.5 litres. Some other inferior type of commercial oils were tried but were not found successful (Anantha Subramanian, 1986).⁴

**Table 7.2**

<table>
<thead>
<tr>
<th>Problems</th>
<th>Weight</th>
<th>8</th>
<th>7</th>
<th>6</th>
<th>5</th>
<th>4</th>
<th>3</th>
<th>2</th>
<th>1</th>
<th>0</th>
<th>Weighted Score</th>
<th>Weighted Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank</td>
<td>1</td>
<td>2</td>
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<td>7</td>
<td>8</td>
<td>9</td>
<td></td>
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<tr>
<td>High cost</td>
<td>35</td>
<td>5</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>35</td>
<td>42</td>
<td></td>
<td>VII</td>
</tr>
<tr>
<td>Shortage</td>
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<td>10</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td></td>
<td>290</td>
<td>II</td>
</tr>
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<td>4</td>
<td>5</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>25</td>
<td>98</td>
<td></td>
<td>IV</td>
</tr>
<tr>
<td>Lack of finance</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>29</td>
<td></td>
<td>69</td>
<td>V</td>
</tr>
<tr>
<td>High demand from other industries</td>
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<td>12</td>
<td>11</td>
<td>6</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td></td>
<td>264</td>
<td>III</td>
</tr>
<tr>
<td>Faulty Govt. policy</td>
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<td>2</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>2</td>
<td>32</td>
<td>47</td>
<td></td>
<td>VI</td>
</tr>
<tr>
<td>Others</td>
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<td>-</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>25</td>
<td>37</td>
<td></td>
<td>VIII</td>
</tr>
<tr>
<td>Total</td>
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<td>37</td>
<td>30</td>
<td>20</td>
<td>10</td>
<td>4</td>
<td>7</td>
<td>9</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Survey Data.

The various problems affecting firewood are scarcity, increasing price, delay in delivery, legal formalities, high demand from other industries, faulty
government policy and so on. The relative importance of each problem is presented in Table 7.2 using weighted ranking method.

Since high cost gets the first rank, it is considered as the most important problem in firewood procurement. Shortage is the second important factor influencing its procurement. High demand from other industries, legal formalities, lack of finance, faulty government policy, delay in delivery and other problems come in the third, fourth, fifth, sixth, seventh and eighth position respectively.

7.1.2 Labour

Another basic problem is the non-availability of sufficient workers to do labour intensive operations such as carrying the clay, carrying the raw-tiles for drying, setting the tiles in the kiln, taking the fired tiles out of the kiln and so forth.

Wage rate throughout Kerala is increasing at an alarming rate impacting tile manufacturing also. The Minimum Wage Committees were constituted for the employees of tile manufacturing in 1958, 1961, 1968, 1977 and 1989. As per the recommendations of the Committee report, the wage rates were revised in 1965, 1971 and 1981. It can be noticed from these reports that the minimum wage rate in Kerala was much higher than that in the neighbouring States of Karnataka, Tamil Nadu and Andhra Pradesh.

It is argued that the labour cost is the highest in Kerala when compared to that of the neighbouring States. Assuming the same technology in all the four States, the difference in labour cost for producing 1000 tiles between Andhra Pradesh and Kerala will work out to be Rs.61.68, while that between Tamilnadu and Kerala will be Rs.54.34 and that between Karnataka and Kerala will be Rs.44.26. However, the comparative analysis of wage-behaviour at macro level of the manufacturing sector across the three southern
states in terms of various indicators does not provide conclusive evidence supporting the popular perception of Kerala as a high wage location for industrial investment and growth (Subrahmanian, 2003).

In addition to payment of increased wages, the other labour problems faced by the industry include labour absenteeism, trade unionism, excess workers, strike, lack of skilled workers, lack of training and labour turn over.

The relative importance of each problem is examined with the help of a weighted ranking method and the result is presented in Table 7.3.

**Table 7.3**

<table>
<thead>
<tr>
<th>Weight</th>
<th>Rank</th>
<th>Weighted Score</th>
<th>Weighted Rank</th>
</tr>
</thead>
<tbody>
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<td>159</td>
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</tr>
<tr>
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<td>16</td>
<td>VIII</td>
</tr>
<tr>
<td>1</td>
<td>5</td>
<td>55</td>
<td>V</td>
</tr>
<tr>
<td>0</td>
<td>6</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Survey Data.

Absenteeism is the most important labour problem. Labour turn over is the second important problem followed by trade unionism, strikes, lack of skilled workers, other problems, lack of training and excess workers respectively. As per the ranking of the various problems affecting the labour supply in the sample units, it is found that labour militancy does not pose a serious problem to the tile industry.
7.1.3 Technological Problems

The tile industry in Kerala has followed the traditional processing route of starting from a wet clay mass, extruded into slabs and shaped into tiles, drying and firing in a wood fired kiln into roofing tiles. More than 90 per cent of the job in handling of clay and shaped products is manual. Only 20 per cent or less of the industry has introduced minimal modernisation in terms of handling of clays.

Quality control is not adopted in any scientific manner in any of the methods in the manufacturing process, namely processing of clay, drying and burning tiles. Quality control is essential to ensure the availability of quality products. The quality of products depends on the availability of good quality clay. The quality or suitability of clay is now judged in the crude form of "feel by hand" and therefore involves a lot of variations. The most important factor responsible for low yield of good quality tiles is lack of awareness and absence of scientific data on the quality of raw-materials used at present. Quality control can be ensured only if the proper testing is made. But the clay testing and product testing facilities are available only in a handful of units.

The age-old technique of drying the tiles by keeping them in pallets by sun-drying and burning of wood in drying sheds is followed throughout the State. Drying of tiles in this method requires more time, space and capital investment. Firing is done in less efficient kilns and therefore considerable fuel is lost. Introduction of new technologies and designs and product diversification are very seldom conducted in this sector of industry.

Practically all factories in the north and central Kerala and a few factories in the south use revolving press for pressing tiles. It is necessary to replace hand screw press by revolving press. It is desirable to use automatic edge trimmer for finishing the edges of tiles. Of the sample units surveyed,
70 per cent in Trichur region, 60 per cent in Calicut region and 17 per cent in Alwaye region have effected the replacement of screw press by revolving press.

7.1.4 Marketing Problems

The clay tiles manufactured in Kerala have both internal and external markets. The external market includes market outside Kerala but within the country and foreign market (export market). More than 50 per cent of the tiles manufactured are sold in other States like Tamilnadu, Karnataka, Maharashtra, Andhra Pradesh, Madhya Pradesh and Gujarat.

The share of Kerala tiles in other States is getting reduced day by day. It is because the entrepreneurs in these States have started tile factories. The manufacturers in Mangalore area are able to produce and sell good quality tiles. Kerala possesses good quality clay, but due to the increased cost of labour and hike in transportation cost, the sales price of tiles in Kerala is very high. The problem is further intensified when some tile factories have come up in other States like Tamil Nadu, Andhra Pradesh, Maharashtra and Gujarat where Kerala tiles had found potential market in earlier years. Lower cost of labour in other States prompted some manufacturers in Kerala to start factories in other States.

India, and particularly Kerala, dominated the tiles market in the world in early 20th century. Along with the Independence of India, most of the British colonies became independent. These countries started to develop their own tile factories to meet their demand, thereby reducing the demand for Indian tiles. It is evident from the study that, of the total production nearly 20 per cent was exported in 1960 which came down to a very negligible share since 1985.
Internal demand for tiles declined as a result of shifting preference for RCC and other types of houses, increase in maintenance cost of tiled houses and exorbitant increase in the price of wood which is a complementary material for tiled roofs.

The tile industry has no marketing strategy, since there was a ready demand. Over the last one decade, the user pattern of tiles has changed. With the availability of modern materials of better quality and strength, tiles have not been considered as a total roof but always as a relatively cheaper roofing material, basically because, tiles have never been projected widely as a total roof. Another reason for this is that no diversification over the conventional tiles has been made. The industry has to work out a new marketing strategy.

7.1.5 Quality Control and Research and Development (R&D)

The concept of quality control and R & D is rather unknown to this industry. The industry has seldom shown willingness to adopt the modernisation and diversification proposals of the research institutes working in the area of clays and building ceramics primarily because they never felt the need for it. Less than 1 per cent of the industry has quality control and testing facilities. As a result, the industry has remained in a stagnant state.

7.1.6 Financial Aspects

The tile industry has been traditional in nature. The plant and machinery have not been much modernised. Tile industry can be activated by the adoption of modern technology which is cost effective and which can also enable the industry to diversify into areas manufacturing products which suit modern building technology. But the main hindering factor of modernisation and diversification is the shortage of funds. In the changed circumstances,
additional funds may be necessary and the industry will require financial support.

7.1.7 Policy constraints

There exists certain policy constraints in the areas of electrical power, incentives for product diversification, raw-material conservation, energy, auditing, and enforcing quality control as far as this industry is concerned.

SECTION B

7.2 Solutions

Following are the general solutions to the problems listed in the preceding section.

1. A systematic evaluation of raw-materials before collection and after blending should be done in the industry so as to select the optimum processing step for material and energy conservation. For this, a small in-plant laboratory should be set up by the industry.

2. Since the clay resources are getting depleted, it is also important to see the possibility of using alternative raw-materials such as solid industrial waste.

3. The quality of the product depends on the quality of clay. But clay testing facilities are not available in most of the tile units. Hence, clay testing facilities should be immediately provided. Scientific methods like testing of clay, pressing of tiles, temperature control in kiln, testing of burnt tiles and so on can be adopted by giving training to the supervisory staff in government laboratories.

4. Measures should be strengthened to make available the sanctioned quota of firewood to the tile factories.
5. There is an urgent need to pay attention towards problems like scarcity of red burning clay, firewood and traditional methods of manufacturing and initiate remedial measures for survival and growth of the industry.

6. The tile industry has very low levels of mechanisation and is labour intensive. The mechanisation should be introduced in modules, to start with clay mining and handling in the factory. Most important is the transportation of green tiles to the dryer. A controlled drying facility is very important, since the drying of tiles is key to quality control. The modification of the existing kilns with effective insulation, temperature measurement facilities and computerised control of the firing could be introduced first. Then one can think of installation of modern tunnel kilns fired by oil or gas.

7. The tile sector has to diversify into newer products such as coloured tiles, high density tiles, glazed tiles and eco-friendly ceramics to mention a few. The old concept of "tiles" should be removed and the new products should be projected as a new, high quality "roofing material". New product development as well as process problems can be jointly worked out in association with R and D institute as well as end users, architects and builders.

8. Regular training programmes in the area of ceramics processing and awareness building in the latest techniques as well as equipments and machinery are very important to catch up with international trends. Export-oriented product development is impossible without adequate exposure to the area. Reputed research centres in building ceramics should be identified for this purpose and suitably supported through funding.
9. The tile industry has shown great initiative recently for modernisation. There should be adequate financial assistance for those who want to modernise. Financial assistance should be planned on a long term basis.

10. Those industrial units which want to be closed should be provided with adequate support for winding up, while those going for modernisation and diversification should be promoted liberally with incentives, such as tax exemption and liberal loan refunding policy adopted for other sectors.

11. An effective marketing strategy should be introduced for marketing quality products manufactured in large quantities.

12. Managements must make research studies occasionally and try to get the feedback from the customers regarding the design, quality and services rendered.

13. New units should be exempted from all State taxes for the first five or seven years.

14. The manufacturer must try to use improved methods to reduce the quantity of firewood required through efficient burning. The use of alternate fuels like lignite, coal or other easily available fuel has to be tried.

15. Low cost housing technology such as "Baker Technology" is becoming popular in Kerala in recent times. Hence, the industry can diversify into the production of various materials required for low cost houses.

16. It is imperative to improve efficiency of energy utilisation through effective energy conservation measures. Even a slight reduction in energy consumption could enhance competitive strength. Therefore, an
incentive scheme for progressive energy reduction may be introduced to ensure continued interest, participation and support from all levels.

17. As needs of the customers are continuously changing, enhancement in the quality and range of products is essential for survival. This calls for continuing efforts to improve the performance, safety, reliability and cost standards of the tile industry.

18. The home market for tile industry products can be widened if the State government directs at least the government sponsored housing schemes to use only the tile industry products in the construction process.

19. Fuel efficiency can be increased by using the following measures: (i) Supply of secondary air above the grate through a sliding door arrangement; (ii) Maintenance of firing schedule; (iii) Use of either thermo-couples or seger cones for measuring the temperature during firing.

**Conclusion**

In the foregoing analysis, the major problems affecting the tile industry in Kerala have been examined. It is clear from the study that the most important problems faced by the industry, now a days, relate to shortage of raw-materials like clay and firewood, labour, technology and marketing, problems relating to finance, research and development and so forth. In order to find out the intensity of some of these problems weighted ranking method is applied. It is found from the weighted ranking that the most serious problem associated with clay is its non-availability and with firewood is its rising cost. The solutions to the problems of tile industry are also attempted at the end of this chapter.
Notes and References


