This chapter presents the leading findings along with Strength, Weaknesses, Opportunities and Threats of Brick works (SWOT), a few suggestions for the betterment of the brick works in the years to come and some crucial conclusions.

7.1. Findings of the Study

The following points are the leading findings of the study:

7.1.1. Pearl Points

1. The Overall performance of brick works in Tirunelveli and Thoothukudi districts has been improving systematically.

2. The present trend of brick industry in Tirunelveli and Thoothukudi districts has been found to be encouraging.

3. Bricks continue to be a predominant building material both in urban and rural areas of both Tirunelveli and Thoothukudi districts.

4. Since the need for houses is on the constant increase, the demand for the bricks is inevitable in both Tirunelveli and Thoothukudi districts.

5. The Bull’s Trench kiln brick works in Thoothukudi district are performing better than those in Tirunelveli district comparatively. But the clamp kiln brick works, hollow block units and fly-ash brick units of Tirunelveli district are performing better than those in Thoothukudi district.

6. Though the brick works in Tirunelveli and Thoothukudi districts have to face some threats and weaknesses, they have their own enormous strengths and opportunities also.
7.1.2. Production

7.1.2.1. Cost of Production

7. In both Tirunelveli and Thoothukudi districts, the major portion of total cost of production of clamp kiln bricks is constituted by variable cost which comprises of sand cost, labour cost, fuel cost and other variable expenses. Of these, fuel cost occupies the highest portion of total cost.

8. In both Tirunelveli and Thoothukudi districts, the major portion of total cost of production of Bull’s Trench kiln bricks is constituted by variable cost which comprises of sand cost, labour cost, fuel cost and other variable expenses. Of these, sand cost occupies the highest portion of total cost.

9. In both Tirunelveli and Thoothukudi districts, the major portion of total cost of production of hollow blocks is constituted by variable cost which comprises of cement cost, metal cost (baby jalli cost), sand cost, labour cost, and other variable expenses. Of these, cement cost occupies the highest portion of total cost in both districts.

10. In both Tirunelveli and Thoothukudi districts, the major portion of total cost of production of fly-ash bricks is constituted by variable cost which comprises of fly-ash cost, gypsum cost, lime cost, sand cost, labour cost and other variable expenses. Out of these, gypsum cost occupies the highest portion of total cost.

11. In Tirunelveli district, the cost of production of one unit* of clamp kiln bricks is Rs. 1,400 and in Thoothukudi district, the cost of production of one unit of clamp kiln bricks is Rs.1,350.
12. In Tirunelveli district, the cost of production of one unit of Bull’s Trench kiln bricks is Rs. 2,400 and in Thoothukudi district, the cost of production of one unit of Bull’s Trench kiln bricks is Rs.2,420.

13. In Tirunelveli district, the cost of production of one unit of hollow block is Rs. 6,030 and in Thoothukudi district, the cost of production of one unit of hollow block is Rs.6,140.

14. In Tirunelveli district, the cost of production of one unit of fly-ash brick is Rs. 1890 and in Thoothukudi district, the cost of production of one unit of fly-ash brick is Rs.1,865.

15. There is significant difference in the total cost of production in the manufacture of Clamp kiln bricks, Bull’s Trench kiln bricks and hollow blocks between Tirunelveli and Thoothukudi districts.

16. There is no significant difference in the total cost of production in the manufacture of fly-ash bricks between Tirunelveli and Thoothukudi districts.

7.1.2.2. Determinants of bricks production

17. The production of clamp kiln bricks and Bull’s Trench kiln bricks in Tirunelveli district is significantly influenced by the sand cost, fuel cost and labour cost. But in Thoothukudi district, the production of clamp kiln bricks and Bull’s Trench kiln bricks is significantly influenced by sand cost and labour cost but not by fuel cost.

* One unit stands for 1000 bricks unless stated otherwise
18. The production of hollow blocks in both Tirunelveli and Thoothukudi districts is significantly influenced by the cement cost, metal (baby jelly) cost, labour cost and other variable expenses but not influenced by sand cost.

19. The production of fly-ash bricks in Tirunelveli district is significantly influenced by fly-ash cost, gypsum cost, labour cost and other expenses but not influenced by sand cost and lime cost. But in Thoothukudi district, the production of fly-ash bricks is significantly influenced by fly-ash cost, labour cost and other expenses but not influenced by sand cost, lime cost and gypsum cost.

20. As far as clamp kiln bricks production is concerned, there is increasing returns to scale in both Tirunelveli and Thoothukudi districts.

21. As far as Bull’s Trench kiln bricks production is concerned, there is increasing returns to scale in both Tirunelveli district and diminishing returns to scale Thoothukudi district.

22. As far as hollow blocks and fly-ash bricks production is concerned, there is diminishing returns to scale in both Tirunelveli and Thoothukudi districts.

7.1.2.3. Production Problems

23. While ranking the production problems faced by brick manufacturers in Tirunelveli district, the major problem ‘labour turnover’ ranks the first, followed by government pressure, labour absenteeism, scarcity of raw material, unfavorable climatic conditions and increase in input cost being
assigned the second to sixth ranks respectively. Since the brick industry is unorganized, the problem of labour turnover is common.

24. While ranking the production problems faced by brick manufacturers in Thoothukudi district, the major problem labour absenteeism ranks first, followed by unfavorable climatic conditions, increase in input cost, labour turnover, government pressure and scarcity of raw material being assigned the second to sixth ranks respectively. Since in brick industry is highly an unorganized sector, the labour absenteeism is also common.

7.1.3. Marketing

7.1.3.1. Price Trend of Bricks

25. The price trend of clamp kiln bricks in Tirunelveli district and Thoothukudi district experienced a considerable variation of 42.38 per cent and 44.07 per cent per annum respectively in its average annual price.

26. The price trend of Bull’s Trench kiln bricks in Tirunelveli district and Thoothukudi district experienced a considerable variation of 40.40 per cent and 40.38 per cent per annum respectively in its average annual price.

27. The indices of cyclical variation in the prices of clamp kiln bricks and Bull’s Trench kiln bricks in both Tirunelveli and Thoothukudi districts reached the maximum in the year 1990-1991.

28. The indices of irregular variation for clamp kiln bricks in Tirunelveli district ranged from 0.95 paise to Rs.1.03 and in Thoothukudi district, it ranged from 0.94 paise to Rs.1.01.
29. The indices of irregular variation for Bull’s Trench kiln bricks in Tirunelveli district ranged from 0.96 paise to Rs.1.03 and in Thoothukudi district, it ranged from 0.96 paise to Rs.1.03. This irregular variation may be attributed to the fluctuations in the level of demand, influence of the climatic conditions and the level of competition.

30. Much variation exists in the price of clamp kiln bricks and Bull’s Trench kiln bricks in both Tirunelveli and Thoothukudi districts in different months of a year. Lower price prevailed from January to July and higher prices prevailed from August to December.

31. Much variation exists in the price of hollow blocks in both Tirunelveli and Thoothukudi districts in different months of a year. Lower price prevailed from March to August and higher prices prevailed from September to February.

32. Much variation exists in the price of fly-ash bricks in both Tirunelveli and Thoothukudi districts in different months of a year. Lower price prevailed from February to May and higher prices prevailed from June to January.

   These price fluctuations are due to mass production in non-rainy season, post-production glut, off-season shrinkage of arrivals and pre-production scarcity in rainy season.

7.1.3.2. Marketing cost

33. In Tirunelveli district, the total marketing cost of clamp kiln bricks, Bull’s Trench kiln bricks, hollow blocks and fly-ash bricks are Rs.30,000, Rs. 2,00,000, Rs.25,000 and Rs. 2,45,000 respectively. In
Thoothukudi district, the total marketing cost of clamp kiln bricks, Bull’s Trench kiln bricks, hollow blocks and fly-ash bricks are Rs.25,000, Rs.2,10,000, Rs.25,000 and Rs. 1,90,000 respectively. In both districts, the major portion of the marketing cost is occupied by cost of transportation owing to the fact that there has been a manifold increase in the price of petrol and diesel in recent years.

7.1.3.3. Buyer Behaviour

34. In both Tirunelveli and Thoothukudi districts, the factors influencing the buyer’s behaviour are quality of bricks, suitability of bricks, availability of bricks, load bearing capacity of bricks, prompt delivery by suppliers, economy in purchase, seller’s permission towards bargaining, cordial relationship of sellers and the insistence by end users. About 93.4 per cent variation in the buying decision behaviour of buyers of bricks is explained by all these nine independent variables.

7.1.3.4. Problems in marketing of bricks

35. While ranking the marketing problems faced by brick manufacturers in Tirunelveli district, the major problem price fluctuation ranks first, next comes competition, third rank goes to unpredictable buyer behaviour, inadequate market information ranks fourth and finally absence of grading. The problem of price fluctuation is uncontrollable by manufacturers. Hence it ranks first among all other problems in Tirunelveli district.

36. While ranking the marketing problems faced by brick manufacturers in Thoothukudi district, the major problem competition ranks first, next comes
unpredictable buyer behaviour, third rank goes to price fluctuation, inadequate market information ranks fourth and finally absence of grading. Any marketing strategy adopted by a brick manufacturer would be hindered by another brick manufacturer. Hence, competition in brick industry ranks first among all other problems in Thoothukudi district.

7.1.4. Finance and Profitability

37. In Tirunelveli district, majority of the respondents of clamp kiln units invest Rs. 5 lakh to Rs. 10 lakh as fixed capital and Rs 5 lakh to Rs.7 lakh as working capital and in Thoothukudi district, majority of the respondents of clamp kiln units invest Rs.10 lakh to Rs.15 lakh as fixed capital and above Rs.7 lakh as working capital.

38. In both Tirunelveli and Thoothukudi districts, majority of the respondents of Bull’s Trench kiln units invest above Rs. 50 lakh as fixed capital and above Rs.20 lakh as working capital.

39. In both Tirunelveli and Thoothukudi districts, majority of the respondents of hollow block units invest Rs.10 lakh to Rs.15 lakh as fixed capital and above Rs.15 lakh as working capital.

40. In both Tirunelveli and Thoothukudi districts, majority of the respondents of fly-ash brick manufacturing units invest Rs.25 lakh to Rs.35 lakh as fixed capital and Rs.10 lakh to Rs.15 lakh as working capital.

41. In both Tirunelveli and Thoothukudi districts, majority of the respondents of Clamp kiln units have Rs. 5 lakh to Rs. 10 lakh worth of fixed assets. In Tirunelveli district majority of the respondents have Rs. 4 lakh to Rs. 6 lakh
worth of current assets and in Thoothukudi district majority of the respondents have above Rs. 6 lakh worth of current assets.

42. In both Tirunelveli and Thoothukudi districts, majority of the respondents of Bull Trench kiln units have more than Rs. 40 lakh worth of fixed assets and more than Rs. 15 lakh worth of current assets.

43. In both Tirunelveli and Thoothukudi districts, majority of the respondents of hollow blocks units have more than Rs. 17 lakh worth of fixed assets and Rs. 10 lakh worth of current assets.

44. In Tirunelveli district, majority of the respondents of fly-ash brick units have Rs.20 lakh to Rs.30 lakh worth of fixed assets and more than Rs. 10 lakh worth of current assets and in Thoothukudi district, majority of the respondents of fly-ash brick units have Rs.20 lakh to Rs.30 lakh worth of fixed assets and Rs. 5 lakh to Rs. 7 lakh worth of current assets.

45. The net profit ratio of clamp kiln bricks production in Tirunelveli district is 30.98 per cent and in Thoothukudi district, it is 29.94 per cent. This is due to the selling price of clamp kiln bricks in Tirunelveli district being slightly lower than that of in Thoothukudi district and also the quality of clamp kiln bricks in Tirunelveli district being slightly better than that of in Thoothukudi district.

46. The net profit ratio of Bull’s Trench kiln bricks production in Tirunelveli district is 15.07 per cent and in Thoothukudi district, it is 15.80 per cent. This is due to the quality of Bull’s Trench kiln bricks in Thoothukudi district being slightly better than that of in Tirunelveli district and the Bull’s
Trench kiln bricks being abundantly available in Thoothukudi district than in Tirunelveli district.

47. The net profit ratio of hollow blocks production in Tirunelveli district is 5.72 per cent and in Thoothukudi district, it is 3.10 per cent. This is due to the promotional activities being undertaken by Tirunelveli district manufacturers are slightly better than those undertaken in Thoothukudi district.

48. The net profit ratio of fly-ash bricks production in Tirunelveli district is 8.56 per cent and in Thoothukudi district, it is 7.47 per cent. This is due to the selling price of fly-ash bricks in Tirunelveli district is slightly lower than that of in Thoothukudi district. Since fly-ash bricks are innovative in nature, Tirunelveli district manufacturers reduce price to capture market.

49. Clamp kiln brick units, hollow blocks units and fly-ash brick units have higher net profit ratio in Tirunelveli district. Bull’s Trench kiln bricks have higher net profit ratio in Thoothukudi district.

50. The sample Clamp kiln brick works in Tirunelveli and Thoothukudi districts could attain their Break even when they are able to produce and sell 125 units and 100 units respectively.

51. The sample Bull’s Trench kiln brick units in Tirunelveli and Thoothukudi districts could attain their break-even when they are able to produce and sell 500 units and 900 units of bricks per annum respectively.
52. The sample hollow block units in Tirunelveli and Thoothukudi districts could attain their break-even when they are able to produce and sell 120 units and 115 units of hollow blocks per annum respectively.

53. The sample fly-ash brick units in Tirunelveli and Thoothukudi districts could attain their break-even when they are able to produce and sell 1350 units and 770 units of fly-ash bricks per annum respectively.

7.2. Strengths, Weaknesses, Opportunities and Threats of Brick Works

On the basis of the findings of the Study, the overall Strengths, Weaknesses, Opportunities and Threats of the brick works have been identified and presented. They are the following:

7.2.1. Strengths of Brick Works

1. Though brick is produced during a particular season, it has a place of pride in the brick industry that the demand for bricks is regular, even and constant.

2. There is no easy alternate way for the builders to substitute bricks. Even if they find one to replace bricks, the costs would exceed twice or thrice than that of the cost of bricks.

3. Unlike metals or organic materials, bricks withstand the passage of time, never giving in completely to the onslaught of natural forces working against it.

4. Brick is an extremely thermal insulating material. This near- eternity and excellent thermal insulating property of the bricks have earned it an indispensable and enviable position among today’s building materials.
5. Even today with the advent of new materials and techniques of construction, bricks continue to be a predominant building material both in urban and rural areas.

6. Brick industry is a labour intensive industry. India, being a densely populated country, both skilled and unskilled large labour force is available to the brick manufacturers. The brick industries have the potential for generating employment opportunities to the millions of the rural people.

7.2.2. Weaknesses of Brick Works

1. The brick industry is highly nature dependent and any industry which is nature dependent always runs the risk in terms of loss and damage. The brick industry also is not an exception to this.

2. The cost of raw materials of bricks is increasing day by day. This leads to increase in the cost of production of bricks. The availability of raw materials for any type of brick is also scarce. This factor strongly influences and casts an adverse impact on the volume of brick business.

3. Though the point ‘labour intensive’ is considered as strength of brick industry, it is a weakness as well. This is due to the problems caused by brick labourers such as demanding more wages, labour turn over, absconding from the place of work, excessive labour absenteeism and negligence on the part of the labourers.

4. Owing to lack of new technology, pollution and absence of professional management (including quality control), brick works do not enjoy much
respect in the eyes of people and consequently, a common man does not think brick as an industrial product.

5. The brick manufacturers could not assess the behaviour of brick buyers. This creates one serious problem - supply exceeds demand or demand exceeds supply.

6. Since brick industry is a seasonal one, the fluctuations in prices of bricks are common. This causes an unexpected result to the brick works. that is huge profit or tremendous loss.

7. The achievement of environmental objectives has generally been lacking in the brick industry.

7.2.3. Opportunities for Brick Works

1. Brick industry is the key area of infrastructure development of the study area.

2. The brick industry has potentials and bright prospects for the future provided sophisticated technology and modern methods of production are adopted.

3. Bricks are also used in regions that lacked stone and other materials suitable for building.

4. The World Bank will help Indian companies who revolutionise brick making through an innovative technology that would be energy efficient.
5. Wastes such as fly-ash, red mud, tannery sludge, phosphor gypsum, iron ore rejects are good raw materials for brick works. Hence, it could find a solution to the problem of raw material shortage.

6. Vertical Shaft Brick Kiln (VSBK) technology, an innovative technology for making bricks enables the brick manufacturer to produce high quality bricks without bothering about rain.

7. The Tripartite Committee appointed by the Central Government regarding brick industry has provided various useful and industry favourable recommendations to the Central Government. It is expected that in the near future, favourable laws to safeguard brick industry may be implemented.

7.2.4. Threats to Brick Works

1. The number of labourers willing to work in brick works is decreasing year by year. Hence, the demand for labourers as well as cost of labourers is increasing. This is a serious threat to brick industry which deserves careful attention.

2. Fluorine, a by product of the brick making process, is a highly reactive element that is dangerous to human health.

3. With the growth of innovative types of bricks, the traditional brick manufacturers have to face severe competition from them. Owing to lack of capital, and technical know how and resistance to change, the traditional brick manufacturers could not shift to the manufacturing of those innovative types of bricks such as fly-ash bricks and wire cut bricks.
4. The mechanization in brick works has not been encouraging and it has caused a kind of ‘fear psychoses’ in the minds of owners of brick works.

5. Brick industry is neglected by the Government while other small scale industries get due recognition. Various recommendations provided by the Tripartite Committee are all in paper and there are no favourable signs from the side of Government regarding its implementation.

6. Sales tax, Income tax and local body tax are imposed on brick industry without any concession. It seems that there is no motive from the Government regarding tax concession to the brick industry.

7. To obtain necessary and sufficient good brick earth, the manufacturers have to fulfill tedious legal formalities. The overall availability of brick earth throughout the country is also decreasing year by year.

8. Government has insisted the brick works to utilize fly-ash. But the availability of fly-ash is scarce and it could not be conveniently collected and transported from the thermal stations to the brick fields without causing pollution.
7.3. A few Suggestions

The followings suggestions are advanced:

7.3.1. To the Brick Manufacturers

1. The manufacturers can try to practice pollution free, eco-friendly, cost-effective and innovative technology to manufacture bricks.

2. As and when cost benefit technology enters into the brick works, the manufacturers may try to reduce the price of bricks.

3. The brick manufacturers could provide more attention to marketing activities in addition to production. They should always be ready to satisfy the buyers to the extent possible.

4. The brick manufacturers will have to maintain prudential books of accounts.

5. Nowadays, the Government is insisting on the usage of fly-ash in production of bricks. The clay brick manufacturers also can consider such a usage.

6. It is an important duty of the brick manufacturers to give due importance to their labourers with respect to prompt payment of fair wages, regular and reasonable working time, proper leave facilities and provision of several labour welfare facilities like school facilities to the labourers’ children, hospital facilities, tour plans, canteen facilities and housing facilities.

7. The Tirunelveli district Bull’s Trench kiln brick manufacturers may adopt a simple SWOT analysis of their units and try to neutralize some of the lagging features as compared with the better performing Thoothukudi
district. Similarly, the Thoothukudi district manufacturers of clamp kiln bricks, hollow blocks and fly-ash bricks may adopt a simple SWOT analysis of their units and try to neutralize some of the lagging features as compared with the better performing Tirunelveli district. Such an effort shall balance the operational standards of makers in the two districts.

8. The delivery system of bricks system could be effectively rationalized.

9. A corpus fund for the welfare of the brick workers may be created and the essential and emergency needs of the workers may be met from this fund.

10. Abolition of child labour has been a movement all over the world. The brick units may be directed to take care of the interest of the children of their labourers by giving them education. This helps in two ways. The children are put on the right track for their developments and it reduces the migration of labourers from one brick unit to another.

7.3.2. To the Buyers

1. The buyers should be aware of various new methods and trends and innovative types of bricks arriving in the market.

2. While making credit purchase, the buyers should make prompt payment of their dues.

3. The buyers should provide proper instruction to their suppliers regarding the number of bricks needed, time of delivery, place of delivery and mode of delivery. A more accurate approach can serve more profitably.
4. Buyers can plan their requirements also with greater care and share their views with the sellers comprehensively.

**7.3.3. To the Labourers**

1. The brick works’ labourers should try to update their skills.

2. They should avoid excessive absenteeism and frequent change of working units.

3. The brick workers should understand the problems involved in the industry and co-operate with the entrepreneurs.

**7.3.4. To the Government**

1. The Central Government may enact and implement special laws for governing the brick industry which would be helpful for all the people who are directly or indirectly associated with it.

2. The State Government may come forward to give a boost to the sick brick making units by way of providing some subsidies and tax concessions.

3. As brick works earn only a nominal rate of profit and spends more on social benefits by means of employment opportunities and qualitative product, some tax concessions could be given to brick works.

4. Since most of the manufacturers depend on borrowed capital, unsecured loans at concessional rates of interest with longer repayment period could be given.

5. The brick industry is a notable small scale industry. But the privileges enjoyed by other small scale industries are not provided to it. The
6. Though the Government is insisting the brick manufacturers to use fly-ash, it is not adequately available to them due to political reasons and the competition from cement industry to obtain fly-ash. This difficulty should be solved by the Government.

7. The Self Help Group (SHG) as a people’s movement has established itself throughout the country as a powerful means of eradication of poverty and empowerment of rural women. One of the important objectives of the Self Help Groups is income generating activities. They have well-knit linkages with the Government, the banks, the NGOs and various social institutions. They are ready to extend financial helps for any viable project. Therefore, the Self Help Groups may be encouraged to start brick units in their respective locale which will help to eradicate poverty, to empower the rural people and generate employment to millions of both skilled and unskilled labourers.

8. Sand is one of the basic ingredients of brick. But desilting of streams, river and fertile land for brick making is prohibited by the Government. The rules in this regard may prudently be regulated in the interest of the brick industry in order to help this industry which is a backbone of the housing sector.
7.4. Scope for further research

The researcher is able to find that the present study has a wide scope for further investigation and exploration of new knowledge in this area by future researchers.

Any research exercise relating to the matrix and methodology of manufacturing shall be appropriate and acceptable as far as the vision and also the associating mission are concerned. For instance, the simple SWOT analysis provided in this work is pregnant with lot of insights and excellence for an objective investigation in this direction.

A few case studies could be contemplated and carried out by the resourceful scholars.

Comparative studies like the present one are highly valuable and possess more brilliant inputs of exciting exercises in the years to come.

Much work has already taken place on similar subjects. Still, quantitative and qualitative contours await advanced academic attempts and achievements.

Labour constitutes an important share in the brick industry. Their duties, rights, performance, wage structure and welfare activities have ample avenues for further investigation. Such a study will have a focus on the practice of child labour too.

Some of the Self Help Groups undertake brick making activities for income generation with their pooled funds and the funds availed from the linkage
institutions like banks. This has a scope for study of impact of Self Help Groups on the socio-economic life of the members through such brick making activities.

Above all, the new trends of industrial transformation in Tirunelveli and Thoothukudi districts could further be studied in the light of the present study’s structure and style.

7.5. Conclusion

While giving the final touches to this report, the researcher felt happy at the nature and value of the problem, process of analysis and interpretation and some suggestions that she could propose. The present study is meaningfully appropriate and relevant as it is concerned with an interesting valuable sector of the economies of two developing districts. A local problem is always a real problem to a great extent. It has an appeal of high order and import.

A brick is a small input even in big constructions as E. M. Froster once titled his book “Small is Beautiful”. Again, John. Ruskin, a great thinker highlighted the inevitable nature of the constructions of small and big structures. It is clear that the nature of brick material often decides the total strength of any structures. The brick works as found during the study period in Tirunelveli and Thoothukudi districts are able to modernize themselves and meet even the global challenges. Comparatively, Thoothukudi district has been endowed with a centripetal and centrifugal forces and factors which enable the area to perform better.

Inter-district and Intra-district competitions enable the brick industries to work more efficiently to scale new heights of achievements. Even micro
economic and commercial segments have their own elements of multiple structuralisms. Industrialization is essentially a process of mechanization, modernization, integration and rationalization. Some of these vital aspects have become available for the brick works in the study area. Still, vast scope is there for the utilization of greater will and skill. As it is said, there is always something better than the best.

One can be reasonably optimistic that the brick works of Tirunelveli and Thoothukudi districts are well poised for spectacular growth. Certainly, a few problems are found as Peter Drucker says “every problem has its own solution”.

The findings of the study and a few constructive suggestions made therein will be of immense use to the champions of the cause of the brick industries including the workers and the consumers to flourish in this trade.