ECONOMICS OF BRICK INDUSTRY : A CASE STUDY BASED UPON THE UNITS LOCATED IN UTTARPARA INDUSTRIAL BELT

ADDENDUM

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ADDENDA TO THE THESIS ENTITLED 'ECONOMICS OF BRICK INDUSTRY, A CASE STUDY BASED UPON THE UNITS LOCATED IN UTTARPARA INDUSTRIAL BELT' IN THE LIGHT OF THE SUGGESTIONS MADE BY THE FOREIGN EXAMINER

CHAPTER:I, ITEM NO:1 : FOREIGN EXAMINER'S COMMENT ON OUT-DATED DATA

The data used in the dissertation is outdated, there is no doubt about it. When the paper was submitted to the University for adjudication they were not as old as they are now. With our intimate knowledge about this traditional industry (of Uttarpara-Makhla-Bhadrakali and Kotrung area), we can assure that not much change in the structure has occured. There is no gainsaying that in the country as a whole much socio-politico-economic changes are observed but, till now, not to speak of waves, even ripples of those changes have not reached the industry of the area in question. Technology used is still old, labour and enterpreneurs of the industry are tradition-oriented and have no forward looking attitude. This has been elaborately discussed in the main body of the paper.

CHAPTER:I, ITEM NO:2 : FOREIGN EXAMINER'S COMMENT ON LITERATURE REVIEW

Brick manufacturing is one of the oldest industries of the world. The industry has a distinctive feature of developing in and around the vicinity of urban and semi-urban areas. The development of cities and towns has been the subject matter of studies of many scholars and there are plethora of literatures on the subject. But studies concerning bricks which are found to be the most essential construction material of palaces, monuments, buildings, roads, highways, etc. and decoratives for cities and towns all over the world are mostly conspicuous by their absence. Only a few books are available on the subject. Most of the books available deal inter alia with the technical process of brick making and the use of bricks in construction work. But the growth and development of this industry, its regional distribution, its peculiarity of being strictly localised in a small area of operation, its importance to the national economy have escaped the attention of scholars. As a result excepting a few books, mainly concerning with the technical aspect of the industry and some Annual Reports/ Numbers of different organizations connected with the industry no valuable document in prints are available.

In India the subject is yet to assume the importance of special study by research scholars. Only a handfull of engineer-scholars, by virtue of their employment-bound association with the industry, have studied the industry in a general way and that too from the technical point of view. Besides the works of those engineer-scholars what are available in India are some Reports of Annual Conferences and Seminars organised by the Brick Field Owners' Asso-

ciation, the Central Building Research Institute, Roorkee, and National Building Organization, New Delhi. Strangely enough the conference volumes regretably lack in material information regarding impact of production changes on cost structure, marketing problems, Government tax burdens, etc.

In the context of these constraints the present researcher has had the priviledge of consulting the following books and journals on the subject :

1. Bandyopadhyay - Sri Abani Mohan - Uttarpara Bibaran, Uttarpara, 1920, (in Bengali language)
2. Choudhury, N - Building Materials for Indiam Students of Engineering, Indian Society of Engineers, Calcutta
3. Dayaratnam, P - Brick and Reinforced Brick Structures, Oxford and I.B.H Publishing Co. Pvt. Ltd, New Delhi, 1987
4. Mathur, G.C. - Manual of Brick-Making, National Building Organization, New Delhi, 1961
5. Mathur, G.C. - Brick and Brickwork, National Building Organization, New-Delhi, 1962
6. Majumdar, N.C. and Hiralal, B.S.-Semi Mechanised process of Brickmaking, Indian Builder, 1965

7. Majumdar, N.C - Suggestions for Improving the Performance of the Bull's Trench Kiln, Bulletin of the Centrel Building Research Institute, Roorkee

8. Rai, Mohan - Problems of Brickmaking, Khadi-gramodyog, Bombay, 1967

9. Rao, Dr. A.V - Production and Utilization of Bricks, Roofing Tiles and Other Masonry Blocks, Bricks and Tiles News, 1981

10. Searly, A.B - Modern Brickmaking, Ernst, Benn, 1956

11. The Brick Development Association - Bricks - Their Properties and use , The Construction Press Ltd., 1974

Besides these, the other books and journals consulted in this regard mostly deal with the technical aspects of brick-making, proper use of bricks and their importance in construction industries. As the brick industry has not developed anywhere in the world as organised industry like any other large industry of the world proper study of the industry has not been made so far. The brick industry may be viewed as an important constituent of the industrial economy of the Third World countries where Brick Industry with comparatively less investment handles the bulk of the rural unemployment problem. But there is hardly any work dealing with these vital socio-economic aspects of the industry.

In regard to the availability of information concerning annual production of bricks in any region in the State and the cost structure, etc., it may be pointed out that there is hardly any publication available nor do the Annual Reports of Brick Field Owners' Association, as stated earlier, contain any such information. Nationally, review of any literature on these aspects has remained very much limited to the study of a few books and journals available and the Reports of Conferences and Papers of Seminars organised by the Brick Field Owners' Associations etc. In the absence of published documents regarding the activities of the brick fields operating in the State and Uttarpara-Makhla-Bhadrakali-Kotrung region, in particular, the present researcher has to depend mainly on the information collected through field survey.

CHAPTER:I,ITEM NO:3 : FOREIGN EXAMINER'S COMMENTS ON HYPOTHESIS OF THE DISSERTATION

We are confused with this comment. The adjudicator in his considered report states, "The candidate has clearly identified the research problem, formulated the research objectives and prepared the research design". (Paragraph I of the Report, emphasis ours.) We have very meticulously stated the research problem, objectives and methods. However, we offer the explanation for not formulating a specific hypothesis.

It is a fact that in studying the brick industry of Uttarpara-Makhla-Bhadrakali and Kotrung area, no hypothesis had been formulated. We were apprehensive if hypothesis was formulated prior to the study of the issue at hand the entire exercise might be vitiated abinitio. In this matter we were guided strongly by Joan Woodward's Industrial Organization, Theory and Practice, 1956. Instead of formulating any hypothesis we pointed out some basic problems that Brick Industry was facing at the time of our investigation. Implicit in these problems, one can say, is the hypothesis. If pressed, we can clearly spell them out in the following manner:

(a) the nature of the organization of the firms and the seasonality syndrome that keeps them in small and prevents them from becoming mechanised;

(b) the management of different categories of firms are not equally efficient in running them to derive optimum results; and

(c) certain categories of firms are more efficient than others.

In regard to correlating "Problems mentioned for investigation" with the findings, it may be said that under the subtitle

'conclusion', Chapter-VIII problems have been correlated with the findings but not elaborately. The findings spread over different Chapters have been summarised in Chapter-VIII. As suggested by the Foreign Examiner, they are now put in one place which may form a part of the 'Conclusion'.

The majority of the firms, '76.8%', operating in the area are of sole proprietorship variety. Though intermitantly large corporate body entered the industry but failed to stay, particularly because the existing technology did not suit large scale production and finally withdrew /leaving the field to the smaller firms. The socio-economic conditions and technology were observed to have been best suited to the functioning of smaller firms of single ownership variety. There is hardly any appreciable change in this basic tenet of the industry. This, in turn, has perpetuated the socio-economic condition of the industry and the traditional technology, Attuned to this socio-economic situation and the tratitional technology, a kind of simple non-complex organization was designed. Despite attitudinal changes since independance in the country the industry of the area could insulate itself from them. The industry having remained cocooned in its traditional way of operation had created an environment in which the firms of the area could still continue. As a consequence they are averse to improved technology. The aversion has been objectively strengthened by the inability to amass large capital on the part of the majority of the operating firms owned by single entrepreneur. Attitude of the owners to new technology and their inability to collect large capital for the purpose prevented the industry to go for mechanisation and so it failed to get rid of its seasonal characteristics.

CHAPTER:III, ITEM NO:1 : FOREIGN EXAMINAR'S COMMENT ON THE TERM "UNITS"

Suggestion is appreciated and accordingly the thesis would be corrected when it will be published in printed form.

CHAPTER:III, ITEM NO:2 : FOREIGN EXAMINER'S QUERY ABOUT ABSENCE OF COMPANY, COOPERATIVE AND GOVERNMENT COMPANY FORMS OF BUSINESS IN BRICK INDUSTRY

The point raised here has been elaborately discussed in pages from 25 to 27. In deference to the adjudicator's comment it may further be pointed out that the working capital structure as shown in Table No.3.2 (Page 29) is between 1.5 lacs and 4.0 lacs. The working capital needed to run a brick field of moderate size with indegenous implements being within the limited means of a single owner in most cases the establishments have been started as a family business involving sons, brothers and close relatives of a joint family. Again in some other cases the single ownership businesses have been converted into a partnership firm after the death of the proprieter-father by his sons and brothers. A very few firms are found to have been running as Private Limited Companies because of the advantages of limited liability. Then again the industry with its number of establishments operating in any particular region being capable of catering to the needs of the region hardly offered any lucrative scope to either Cooperative Societies or Limited Companies. The small working capital need and the peculiar nature of management (requiring constant personal contact and supervision) hardly put up any scope for the Limited Companies to enter into the arena. Moreover, the portability factor of the product i.e. bricks, restricts the market and in its turn the capital requirement of the industry. Joint Stock Companies with large capital could not operate in this field in the past (Martin Burn Ltd. is a point in illustration). Thereafter no such organised

venture appeared to have been started by any Joint Stock Company. Co-operatives, though very highly acclaimed as a safeguard against exploitation, had very little to do in brickmaking as it cannot depend on a principle of "everybody's business is nobody's business". (as, in reality, it happens in most of the Co-operative business in India). Hence, brickmaking remained and even today remains principally the business of single ownership and partnership firms.

CHAPTER:IV, ITEM NO:1 : FOREIGN EXAMINER'S DEMAND FOR SPECIFIC REFERENCE

This employment figure has been taken from "History of brick industry in India and its role in national development and economy" by Sri Manohar Lal Jain, President, All India Brick and Tile Manufacturers' Federation as part of the proceedings of the Seminar held in Calcutta on 18.08.82 vide Page No.23. "(Bengal Brick Field Owners' Association, Souvenir, Seminer 1982 on Bricks)".

CHAPTER:IV, ITEM NO:2 : FOREIGN EXAMINER'S QUERY FOR REASONS FOR BRICKMAKING TECHNOLOGY REMAINING OUT DATED

As the majority of the brickmaking firms of the locality are of single ownership type their financial capacity to invest in introducing modern brickmaking technology is low. This is true for industry everywhere in India excepting a very few instances. The modern mechanised brickmaking technology is available in foreign countries. Because of the cost involved it is beyond the resources of the establishments operating in our country. In West Bengal there is one such unit run by the government of West Bengal at Palta, North 24 Parganas, wherefrom water is supplied to Calcutta. From the river Hooghly water is drawn and put in a number of large tanks. The mud contained in the water settles down in the tank. These tanks get filled up in course of a few years and they are excavated by turn. The mud available is enough to feed a number of factories. The settling tanks are the perennial sources of mud and the establishment is not required to spend for getting the mud to settle. It is shocking to note that inspite of there being heavy demand (although the price is almost Rs.110/150 more than the indegenous products) for mechanically produced alluvium bricks, the Government brick factory promises very little. The cost element is the main deterent factor besides productivity and managerial inefficiency.

CHAPTER:IV, ITEM NO:3 : TO THE FOREIGN EXAMINER'S ENQUIRY ABOUT REASONS FOR LABOUR BEING BROUGHT FROM BIHAR AND UTTARPRADESH THE FOLLOWING ARE OFFERED

In the concluding part of the chapter it seems to be necessary to say a few words about the practice of engaging up-country working hands that prevails in the industry. As explained in Chapter III the industry in the locality started in the last quarter of the 19the century when the local native workers were attitudinally averse to hard mannual work since permanent settlement of land in Bengal. The Bengali society at large did not like mannual work and the lower stratum of the society was not free from this attitude. They preferred to work in the fields rather than in factories. The lower stratum of the Bengali society could live through with difficulty as tenants of the local land-lords, so they could afford to avoid living on hard mannual work, Furthermore, the brick season invariably coincided with the harvesting season of the main Kharif crops of the locality. Some poorer sections of the tenants also engaged themselves in producing vegetables that had a very ready market in the city of Calcutta, which is adjacent to the brick fields under study. Again the Bengali poorer classes living on daily wages did not like to be segregated from their families and to live in the brick fields nor was it a practice with them to engage their wives and children as daily wage earners.

In comparision with the Bengali socio-economic condition the situation in Bihar (particularly in the region of Tribal majority) and eastern U.P. was the worst. In search of employment in the city of Calcutta and its suburbs a large flock of poorer people seasonally

migrated to Bengal. They had no skill, no tool excepting their physique. Because of their home-nexusness a good number of those migrated labours like to undertake any kind of mannual labour for a part of the year. Brick industry could offer the kind of employment that was suitable to them. Hence, the migratory seasonal workers become associated with the industry. Over the years the same particular regions of the two Ststes developed familiar relations with the enterpreneurs of the Uttarpara-Makhla-Bhadrakali and Kotrung areas. This practice is still continuing.

CHAPTER:V, ITEM NO:1 : FOREIGN EXAMINER'S DEMAND FOR EXPLANATION WHY FIRMS WITH LOWEST CAPITAL PRODUCED HIGHEST NUMBER OF BRICKS AND FIRMS WITH HIGHEST CAPITAL PRODUCED LOWEST VOLUME

It is our misfortune that the reasons elaborated in the pages 94-97 somehow escaped the notice of the adjudicator. The same material is reproduced here.

For lack of objective information, it is difficult to pin-point the specific reasons for the variation in efficiency/ inefficiency of the units under 5 different size categories. It has been noticed at the time of survey of the industry that in case of smaller firms mainly those belonging to categories IV & V, the owner-manager supervise their firms/and firms belonging to categories I & II are supervised by the paid managers. The paid managers are neither professionally skilled nor do they have any serious stake in the success or failure of the firm they are managing. On the other hand, the owner-manager of the smaller firms have a higher stake in the success of the firm as these firms are the only source of their family income. The owner-managers for self interest put more time, energy and effort in the supervision of the firms and this might have resulted in better utilization of the variable inputs. On the other hand the paid managers may loosen their grips of control over the utilization of the inputs. One thing that can be said with a little centainty is that because of loose control a bad practice developed among the labour force living in the firm huts to steal a good quantity of fuel meant for the kilns and to use it for cooking their means. The pilferage

of fuel obviously had the effect of increase in cost of production.

Another possible cause of higher variable cost of bigger firms may be inefficient utilization of labour force. The inefficiency of utilization of labour force is possible only when supervision over them is not very close and effective. In an earlier chapter we have noted that the Sardar contracts simultaneously with a number of firms for the supply of working hands. It has come to the notice of the present researcher that sometimes Sardar withdraws the entire labour force or a part of it from one firm and puts it into another firm when prospect of higher income is there. In brick industry there is a prime time as well as a lean time. If a part of labour force is withdrawn during the prime time and brought back during the lean time, there is a possibility that the unburnt brick may get damaged owing to early precipitation during the later part of the brick season. Furthermore, loose nature of supervision by paid managers, may potentially create opportunity for production of lower number of bricks than a labourer can normally produce or for production of bricks of lower quality, a large part of which has to be rejected after burning. Both are at least hypothetically potential reasons for inefficient utilization of labour force in the concerned brick fields. Hopefully, this seems to be the reasons for variations in the average variable cost among the 5 size categories. Optimality of firm size might be another cause of variation in variable costs among the size categories. In an unorganised industry like brick, determination of optimum size is difficult. However, it is guessed that the size of the kiln helps, to some degree, to determine the optimum size. A kiln is divided into a number

of chambers and firing of the kiln starts from one end and proceeds sequentially. The burning of the green bricks from the starting chamber to the end chamber takes a definite time period. The time peribd varies on the basis of number of chambers in the kiln. The period required for the operation from start to finish can be considered as necessary for the completion of a production run. The burning is a continuous process.

As soon as bruning is complete in a chamber the burnt bricks should be taken out and green bricks be put in it. If for some reason the replacement is delayed the next production run will take longer time period. This is a potential source of diseconomy of brick production. In a poorly supervised firm this kind of incident is a distinct possibility.

In case of such a misfunctioning firm the fireman may leave the kiln to fire and tender the kiln of a nearby firm to earn extra money, and the task of firing is left to an inexperienced worker. In that event there is a strong possibility that the replacement of burnt bricks by green bricks may not be done as soon as firing in a particular chamber has been completed. In the process the production run period covers a longer time period than is necessary. It may be guessed that firms with larger capital and more working hands and supervised by salaried managers take unnecessarily longer production run, which it may be observed, may result in higher average variable cost.

CHAPTER:V, ITEM NO:2 : FOREIGN EXAMINER'S ADVICE FOR SETTING COST STANDARDS FOR ANALYSIS

The Bengal Brick Field Owners' Association prepares cost analysis for the whole of the State of West Bengal, probably by averaging production cost incurred by all types of manufacturing establishments (large, medium, and small) spread over the State. Even after much prodding the Association office failed to provide us with any cost structure of the area under study. To cope with the situation the present researcher made elaborate field study and intensively interviewed the owners of the establishments. The cost structure presented in the paper are the actuals for all the five categories discussed in this chapter.

As the industry of the region employ traditional and indegenous technology, it is very difficult to compute the standard cost, The Bengal Brick Field Owners' Association also failed to offer any help in this regard. In the context of this reality it is difficult to compute any schedule of standard cost per 1,000 bricks for establishments of different sizes. So after initial attempts the present researcher abandend the exercise.

CHAPTER:VI, ITEM NO:1 : FOREIGN EXAMINER'S SUGGESTION FOR OBTAINING OPPORTUNITY COST

The foreign examiner expressed his dismay in our avoiding inclusion of opportunity cost computation. He suggested to derive it by random enquiry.

In the main body of the thesis (Page No:88) we expressely stated "We are conscious that exclusion of these items of implicit cost marginally vitiates the findings attempted in this paper yet for certain immediate but imponderable considerations this has been risked". The reasons for the exclusions of the marginal cost from our consideration were not stated which are now done.

In fact, we conducted a random enquiry by taking a small sample of 13 firms that included at least 2 from each category. The owners of the firms stated unequivocally that with the skill they possess their ability to take to any alternative work was almost bleak. Their heredity ascribed to them a social status which debarred them from joining the rank of mannual workers in industry. In their vicinity only mannual work was all that was available. Further, the wages that they might earn from such mannual work, they apprehended, would be much lower than the present income level of their families. On the other hand, the local community bestowed higher social status to enterpreneurship, even if income from such enterprises was lower than the income that might be hupothetically earned from any other nonentrepreneurial job.

It has been noted, in the main body of the thesis, that capital investment in fixed assets in any type of categories of

firm was small. However small the invested capital provided by the owner himself was hypothetically it had alternative uses. One such use was term deposit in financial institutions. The retunes from such term deposits was so paltry that it would not be equal to the return from the current use. Our samples also revealed that even if the term deposits ensured the current living standards they would have to pass a non-working liesure life which the local community viewed suspiciously. In fact they believed that the small capital that they had practically had no alternative uses.

In regard to the land and buildings, located in the vicinity of the brick fields and owned by the owners of the firms, taken for sample, it may be pointed out that there was hardly any alternative use of such land and building excepting renting them out to some other people. As there was no other industrial or commercial activities within the belt there was least opportunity to put the two assets to any other use. Moreover, these could not be used for residential purposes.

For the above reasons we left out the question of opportunity cost from our calculation.

CHAPTER:VI, ITEM NO:2 : FOREIGN EXAMINER'S SUGGESTION FOR COMPUTING COST OF WORK OF EMPLOYER,RENT AND INTEREST FOR CORRECT COST COMPARISION

The foreign examiner wanted that the wages of the employer, rent and interest to be included in the cost structure for making correct cost comparison. He hunched that if this was done the conclusion that, "The smaller units are more efficient than the bigger units", might not have stood.

In page 89, while specifying the items of fixed cost we mentioned "other items". These other items included wages to employer, rent on land and building (either owned, rented or leased) and interest on capital (either borrowed or owned).

It is regreted that inadvertantly the wages to employer, rent and interest had been lumped together and termed as "other items". As these cost items had already been taken into account there is no question of reimputing the cost structure. We reassert that our conclusion, "That the smaller units are more efficient than the bigger units", stands.

CHAPTER:VI, ITEM NO: 3 : FOREIGN EXAMINER'S SUGGESTION FOR FINDING OUT THE REASONS FOR VARIATIONS IN FIXED VARIABLE COST RATIOS OVER YEARS

The reasons for failure in finding out the reasons by taking the clementwise cost classification had been mentioned in our comment on Item No:2 of Chapter:VI.

CHAPTER:VII, ITEM NO:1 : FOREIGN EXAMINER'S COMMENT ON THE ABSENCE OF B.E.P.

With all humility we expressed that we would have worked out B.E.Ps for all the categories of brickmaking firm. We now fill up the gap.

Break even capacity is a measure of profitability. It denotes the capacity to be utilised for recovering the fixed cost. Lower the break even capacity higher is the prospective profitability since the firm retains a large part of its capacity to generate surplus. A firm having its break even capacity very near to its maximum capacity has a little chance to generate surplus.

Once maximum capacity is known break even capacity can be expressed in terms of percentage. In that case we can simply state that a firm with break even capacity of 25% has far better prospect than a firm with break even capacity of 50%. However, difficulties arise when maximum capacity is not determinable in terms of units. In that case the percentage form of expression of break even capacity may not be worked out. Of course, the concept need not be abandoned as the break even capacity in units (and not in %) may also be very much usefull for comparative study of profitability of different firms. If the comparative study is not restricted to a point of time but extended along a period time, to avoid the unnecessary complications arising from changes in fixed costs and variable costs structure over a period of time, we may simply calculate break even capacity in units for different years by applying the general formula :

$$\frac{FC}{(TR - VC)\,U} \quad \text{i.e.} \quad \frac{FC}{\text{Contribution Per Unit}}$$

In reality it is not expected that the break even capacity in units for different years will move along a straight line and observation also reveals that it forms a non-linear curve. In graphical presentation of break even capacity (units) for different years the logarithemic measure has been used.

The original data have been given in Tables 5.1, 6.3 and 7.1 from which logarithemic measures have been computed. Actual computation is given in the Appendix. Break even capacity of firm I to V has been shown in the graph in lines of different colours as specified.

Category IV with all their ups and downs show that their break even capacity is lower than that of the others and again it is further declining. It signifies that the cost efficiency and profitability is not only higher than other but also improving further.

FOREIGN EXAMINER'S GENERAL COMMENTS

ITEM NO:1 : We cannot help the smallness the thesis. We believe that despite its smallness the work has dealt with all the major aspects of the industry and the clearly identified the optimum size that a brickmaking firm should attain to derive economies of scale.

ITEM NO:2 : With the inclusion of the concept of break even capacity and the graph the conclusion part has been enriched and the conclusion drawn earlier (without it) has been strongly supported.

ITEM NO:3 : While attending with comment on literature review, Chapter:1, Item No;2, we made our stand sufficiently clear.

Further, it needs to be pointed out that the bibliography includes 18 Annual numbers only, and not many, out of 73. i.e. 25% of the total. The scientific papers of Bureau Of Indian Standards (Serial No:35-47) are seperate books, not Annual Numbers.