Technology and Sickness: A Study of Small Engineering Enterprises in the district of Howrah, West Bengal

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ABSTRACT

In India, Small Enterprises (SEs) {formerly Small Scale Industries (SSIs)} are regarded as the most powerful organizations for socio-economic development. Among different states of India, West Bengal (WB), is notable for sickness of its engineering sector in the district of Howrah, the former Birmingham or Sheffield of the East. Howrah Small Engineering sector today has lost its glorious position in Indian economy due to reasons such as lack of adequate technical know-how of managerial personnel and the lack of application of updated and appropriate technology. The present paper primarily aims at detecting how far and to what extent the lack of technical knowledge of the managerial personnel is responsible for sickness in Small Engineering Enterprises of Howrah and suggesting some remedial measures for improvement of the prevailing situation.

Key Words: *SEs, Sick SEs, Small Engineering Enterprises, Technology, West Bengal, Howrah.*

I. INTRODUCTION

Small Enterprises (SEs) {formerly Small Scale Industries (SSIs)} may be regarded as the main contributors in socio-economic development of any developing country like India. As per the latest Census Report (All India Fourth Census Report, 2006-2007), SEs ensure alluring performance in production for ` 3,03,629.22 crore, export promotion for ` 27,561.86 crore and employment generation for 22,72,039 with nominal capital outlay. Besides, they are well capable of resolving the contemporaneous hazards of our nation – unemployment, poverty, economic and regional disparity, social unrest etc. Nevertheless, SEs have rigorously been experiencing hindrances from different corners, may be endogenous and/or exogenous. Moreover, the introduction of new economic reforms in 1991 has forced this sector to face a tremendous competition from the multinationals. Consequently, SEs have rapidly been slipped into sickness, the black hole of Indian economy. Sickness in SEs spreads its roots in every region of India, among which the eastern region, particularly the state of West Bengal (WB), is one of specially notable (17.59 percent of sick SEs, All India Fourth Census Report, 2006-2007) mainly for the degradation of the Engineering Enterprises of its district Howrah, the former Sheffield/Birmingham of the East. The Third Census Report of the Directorate of Cottage and Small Scale Industries (2001-2002), WB, reveals that the maximum number of sick SSIs belongs to the district of South 24 Parganas in West Bengal, followed by Howrah (15.62 percent), Kolkata (14.23 percent), Birbhum (9.95 percent) and East and West Midnapur (9.62 percent) etc. So far as the incipient sick SSIs are concerned, Howrah with 20.17 percent has been at the top and Kolkata, Birbhum, East and West Midnapur respectively come thereafter. The Census Report shows that SSIs of WB have been sickness-prone mainly due to Marketing Problems (48.20 percent), Lack of Demand (47.86 percent) and Shortage of Working Capital (WC) (47.18 percent). However, the lack of demand for the products may be due to its inferior quality which in turn may be attributed to the lack of application of appropriate technology and quality of other inputs.

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Now, in this context, the business enterprises have to produce and deliver better quality of goods and services at a competitive price in order to survive and grow in the present day competitive business environment. Technology may play a vital role in this regard. Considering the past glory and present dying condition of Small Engineering Enterprises of Howrah, the paper primarily aims at examining the technical qualification of the managerial personnel and to what extent the lack of technical knowledge and/or its improper application are responsible for sickness in the concerned enterprises.

II. SES IN INDIA AND CAUSES OF THEIR SICKNESS

The trendy structural concept of SEs in India has drastically been moved in 2006 when the first single comprehensive legislation – Micro, Small and Medium Enterprises Development (MSMED) Act, 2006 has been introduced with (i) a new ministry – Ministry of Micro, Small and Medium Enterprises (MSMEs), (ii) several new nomenclatures like enterprises (formerly industries), micro (formerly tiny) etc, (iii) afresh definitional criterion of the enterprises on operation like manufacturing (on investment in Plant and Machineries) and rendering of services (on investment in Equipments) and (iv) several reframed principles, policies and regulations for the sector [Indian Legislation, MSMED Act, 2006, Notification No.S.O.1642(E), 29.9.06]. As per the new Act, SEs in their manufacturing concerns should have investment in Plant and Machineries within ` 25 lakh – ` 5 crore, while in their service rendering activities the investment limit should be within ` 10 lakh – ` 2 crore in equipment.

According to the Reserve Bank of India (RBI), Chakraborty Committee Report (2007), SEs may be said to have become sick, if any of their loan accounts remains under Non Performing Asset (NPA) for at least 3 months or if there is erosion in the net worth due to accumulated losses to the extent of 50 percent of its net worth, excepting the condition of willful mismanagement.

SEs may be treated to have reached the stage of incipient sickness, if any of the following events are found:

- There is delay in commencement of commercial production by more than six months for reasons beyond the control of the promotion which entails cost overrun.
- The unit incurs losses for two years or cash loss for one year, beyond the accepted time frame on account of change in economic and fiscal policies.
- The capacity utilisation is less than 50 percent of the projected level in terms of quantity or the sales are less than 50 percent of the projected level in terms of value during a year.

◙ Causes of Sickness in SEs in India

Based on different reports of RBI Working Committees and findings of various research studies, internal and external causes of sickness in SEs in India have been summariesed in below.

TABLE – I

CAUSES OF SICKNESS IN SES IN INDIA

CAUSES OF SICKNESS	INTERNAL CAUSES	EXTERNAL CAUSES

Relating to Project	(i) Faulty project selection and planning and delay in implementation of the project. (ii) Wrong selection of site. (iii) Inappropriate plant and machineries, improper installation. (iv) Under-estimation of capital cost. (v) Over-estimation of demand. (vi) Over-estimation of profit.	(i) Faulty project appraisal by commercial banks and other financial institutions. (ii) Delay in sanction / approvals pertaining to the project, by different government agencies concerned.
Relating to Finance	(i) Inadequate need based finance. (ii) Wrong estimation of financial requirement. (iii) Poor utilisation of current assets and under utilisation of installed capacity (iv) Inadequate mobilisation of finance. (v) Poor debt collection management. (vi) Block of fund due to over stock. (vii) Deficiency in formulating budget and budgetary control. (viii) Unplanned payment to creditors. (ix) Diversion of fund to other units. (x) Unplanned expansion/ diversification of funds. (xi) Unproductive expenditure. (xii) Large order book at fixed process in an inflationary market without price variation clause.	(i) Delayed disbursement of loans. (ii) Inadequate disbursement of loans. (iii) Delay in payment of bills by government departments and large industries. (iv) Credit restraint policy. (v)Unfavourable investment climate. (vi) Inflation.
Relating to Production	(i) Inadequate material control. (ii) Lack of production planning and control. (iii) Inadequate maintenance of plant and machineries. (iv) High material wastage. (v) Lack of quality control. (vi) Lack of emphasis on research and development. (vii) Obsolete plant, machineries and technology.	(i) Shortage of raw materials, power, fuel, water, transport and such other essential inputs. (ii) Import restrictions on essential inputs. (iii) Delayed supplies from subcontractors.
Relating to Marketing	(i) Inaccurate demand forecasting. (ii) Inappropriate and unscientific product marketing. (iii) Poor quality of products or product obsolescence. (iv) Don one buyer /very few buyers. (v) Irregular deliveries. (vi) Lack of market research. (vii) Inappropriate sales promotion. (viii) Poor public relation.	(i) Market recession and competition. (ii) Restraint on purchase by bulk purchase. (iii) Excessive taxation policy. (iv) Liberal licensing policy. (v) Change in international market scene.

Relating to Workforce Management	(i) Inefficiency in recruitment of proper workforce. (ii) Lack of behavioural approach causing dissatisfaction among the personnel. (iii) Poor inter-relation. (iv) Low productivity of labour. (v) Absence of manpower planning. (vi) High cost of labour. (vii) Inappropriate wage and salary administration.	(i) Non – availability of skilled manpower. (ii) Inter-union rivalry. (iii) General labour unrest in the area. (iv) Wage disparity in similar industry.
Relating to Corporate Management	(i) Lack of professionalism in management. (ii) Improper corporate planning. (iii)Lack of coordination and control. (iv) Resistance to change. (v) Lack of integrity in top management. (vi) Unplanned expansion. (vii)Failure to treat employees as partners in progress.	----------
Source: Mathur, S.B. (1999); Krishnamurthis (2002); Desai, V (2006); RBI, Kohli Committee (2002); RBI, Chakraborty Committee (2007)		

Table 1 shows different factors, identified through several research studies that may cause sickness in SEs. But, technology and its proper application may also be considered as an important factor which contributes significantly towards survival and growth of any organization, large or medium or small, particularly in a competitive global business environment.

III. TECHNOLOGY IN SES IN INDIA

Need for technology in any organisation depends on its nature, size, type etc. However, now-a-days some requirements like computers with appropriate hardware and software programmes, internet facilities, skilled operating personnel etc. are the minimum ones. In this connection, Ministry of MSME with the authoritative institutions has announced different policies to upgrade technology in the very enterprises and channelised the same to the small entrepreneurs through different training programmes as mentioned below.

- Promotional Policies of Ministry of MSME in Technology Ministry of MSME with its Implementation Status of the Package for Promotion of Micro, Small Enterprises, 2007, has declared the schemes like (i) establishment of Training-cum-Product Development Centres (TPDCs), (ii) strengthening of the existing Centre Footwear Training Institutes, (iii) promotion of Vertical Shaft Brick Kiln (VSBK) technology with one-time capital subsidy (limited to 30 percent of the cost or ` 2 lakh), (iv) promotion of energy efficiency in electrical pumps and motors manufacturing SEs, (v) assistance for introduction of the International Organisation for Standarisation (ISO) 9000 and 14001 Standards for SEs and covering of Hazard Analysis and Critical Control Points (HACCP). Besides, the Ministry is operating a scheme for technological upgradation for SEs called the Credit Linked Capital Subsidy Scheme (CLCSS) under which SEs can

avail of 15 percent capital subsidy on institutional finance (not exceeding ` 1 crore) for induction of well established and improved technology in approved sub-sectors/products.

Development Organisation for Micro, Small and Medium Enterprises (DO-MSME) extends its support in the field of technology by means of State of the Art Tool Rooms and Training or Testing Centres.

- Promotional Policies of Micro, Small and Medium Enterprises – Development Institute (MSME-DI) in Technology: MSME-DI aims at (i) offering product-cum-process programme, modernisation programme through Computer Aided Design (CAD), Management Training and Technical Library Facilities, (ii) organising training on Information Technology through Computer Network and Total Quality Management (TQM), (iii) introducing Quality Upgadation Scheme through the Quality Management System (QMS) for obtaining the International Organisation for Standardisation (ISO) – 9000/14001 Certification (with an incentive of 75 percent of the amount of acquisition to a maximum of ` 75,000), (iv) providing consultancy services at 0.5 percent of the project cost subject to a maximum of ` 5,000 for the respective entrepreneurs, (v) ensuring required Tool Room Facilities in respective fields, (vi) assisting in the selection of appropriate and cost effective Mechanism, Tools and Techniques, (vii) conducting Cluster Studies, Seminar, Workshop, Awareness Programme, District Industrial Potential Surveys etc.

- Promotional Policies of National Small Industries Corporation (NSIC) Limited in Technology: NSIC Ltd. provides technical support to SEs through NSIC Technical Services Centres (TCS) and a number of extension and sub centres spread across the country. The range of technical services provided through these centres include training in Hi-Tech as well as conventional trades, testing, common facilities, toolkits, energy audit, environment management etc.

- Promotional Policies of India SME Technology Services Ltd. (ISTSL): ISTSL provides a platform where SEs can tap opportunities at the global level for acquisition of new and emerging technology or establish business collaboration. It gives the user updated information on sources of technologies and means of accessing them. More, the information on technology-seeking enterprises is maintained here and made available to interested technology suppliers and collaborators. It extends professional support to tie up financial assistance and other requirements for transfer of technology and joint ventures. In addition, it arranges consultancy services, visits of overseas experts for in-plant counseling, coordinates buyer-seller meets for specific product process technologies and represents the business interests of SEs in international events.

Beside these institutions, District Industries Centre (DIC) assists SEs in preparing Project Report.

IV. METHODOLOGY, ANALYSIS AND FINDINGS OF THE STUDY

Under this section, the methodology followed by the present paper, the profile of the units surveyed in different modes and the detailed analysis of the study applying statistical tools and techniques have been discussed on the basis of which the findings of the present paper can be sketched.

Methodology of the study

- The present paper is predominantly a descriptive one, which aims at identifying the association between technical knowledge of the managerial personnel and sickness of SEs through an intensive investigation and careful analysis.
- Data of the present paper have been collected through primary survey, conducted during January 2011 to September 2012 among 232 small (sick) registered urban light engineering sample units, selected randomly from 318 of such units (population) as enlisted in District Industries Centre (DIC), Howrah and registered during 2000-2001 to 2009-2010. Sick units here have been identified as per RBI's Guidelines (p-4).
- Selection of sample for the primary survey has been made through simple random sampling method.
- The sample units have been visited personally and information have been collected through questionnaire.
- In questionnaire, a 5 point Rating Scale (1 = not responsible at all, 2 = not very responsible, 3 = somewhat responsible, 4 = responsible and 5 = highly responsible) has been used to detect the degree of responsibility of the causes of sickness under the area of Technology. Here, to detect the responsibility of the respective causes of sickness related to Technology more firmly, the responses of the surveyed sample units on the 5 point rating scale have been summarised in three categories as follows.

  (i) Not Responsible (1)

  (ii) Not Fully Responsible {Not Very Responsible (2) + Somewhat Responsible (3)}

  (iii) Fully Responsible {Responsible (4) + Highly Responsible (5)}
- The data obtained through primary survey have been tabulated and analysed using a non-parametric Chi-Square (χ^2) test using Snedecor and Irwin Formula.

The information collected through primary survey of the concerned units have been shown in Tables 2- - 5.

Profile of the Units surveyed

TABLE – II

Ownership Pattern of the Surveyed Sample Units

OWNERSHIP PATTERNS	VIABLE UNITS *			NON-VIABLE UNITS	TOTAL NUMBER OF UNITS SURVEYED
	BY BANK	BY DIC	BY BOTH BANK AND DIC		
SP	38	36	6	93	173
Pt.	19	-	-	24	43
Pvt.	-	6	-	10	16
Total	57	42	6	127	232

Source: Primary Survey (January 2011- September 2012)
SP = Sole Proprietorship, Pt. = Partnership, Pvt.= Private Limited Company
* Viability of units has been identified following the RBI's Guidelines.

- Nature of Operation of the surveyed sample units

The units are engaged in producing 11 main light engineering products, like Shaft, Bush, Pin, Nuts, Bolt etc. All the units have used electricity in their operation as the only source of power.

- Phone, Computer used by the surveyed sample units

  Out of 232 surveyed sample units 191 (82.33 percent) have telephone facilities, while only 10 units (4.31 percent) have computer facilities.

- Concept of International Organisation for Standarisation (ISO) 9000

  Among the concerned units surveyed, only 53 units (22.84 percent) have the idea regarding International Organisation for Standarisation (ISO) 9000.

- Assistance received by the surveyed sample units in the field of technology (Table – 3).

The responding units have taken technical assistance from MSME-DI and NSIC. From MSME-DI, the units have availed of assistance mainly in the areas of the (i) Quality Upgradation Scheme for obtaining ISO-9000/14001 Certification, (ii) selection of appropriate and cost effective mechanism and (iii) consultancy service at respective terms and conditions. NSIC, in this context, has assisted the units in conventional trades and testing facilities mainly.

TABLE –III

Technological Assistance Availed of by the Surveyed Sample Units

OWNERSHIP PATTERNS	ASSISTANCE AVAILED OF BY UNITS		ASSESSMENT OF ASSISTANCE[1]				
	NUMBER OF UNITS	SOURCES WITH NUMBER OF UNITS	5	4	3	2	1
SP	25	20 (MSME-DI), 5 (NSIC)	-	-	5	13	7
Pt.	4	2 (MSME-DI), 2 (NSIC)	-	-	1	3	-
Pvt.	6	4 (MSME-DI), 2 (NSIC)	-	-	-	4	2
Total	35	26 (MSME-DI), 9 (NSIC)	-	-	6	20	9

Source: Primary Survey (January 2011- September 2012)

[1]5 = More than Sufficient, 4 = Sufficient, 3 = About to be Sufficient, 2 = Little bit Insufficient, 1 = Totally Insufficient.

Assessment of Assistance i.e. Degree of Sufficiency of Technical Assistance provided to the responding units can be judged on the basis of their responses collected through the Primary Survey (January 2011- September 2012), that is whether the respective assistance is sufficient enough to improve their performance in practice or not and then plotted on the 5 point rating scale accordingly.

- Technical knowledge of the managerial personnels of the surveyed sample units and its application in operation

TABLE – IV

Application of Technical Knowledge of the Entrepreneurs of the Surveyed Sample Units

OWNERSHIP PATTERN	UNITS WITH MANAGERIAL PERSONNEL HAVING TECHNICAL KNOWLEDGE AND APPLICATION[2] IN OPERATION						UNITS WITH MANAGERIAL PERSONNEL HAVING NO TECHNICAL KNOWLEDGE[1]
	NUMBER OF UNITS	ASSESSMENT OF APPLICATION OF TECHNICAL KNOWLEDGE[3]					
		5	4	3	2	1	
SP	42	-	-	5	10	27	131
Pt.	7	-	-	-	4	3	36

Pvt.	6	-	-	1	1	4	10
Total	55	-	-	6	15	34	177

Source: Primary Survey (January 2011- September 2012)

[1] Question of assessment of Technical Application does not arise in case of second group of units.

[2]Application specifies the use of Technical Knowledge of the managerial personnels of the concerned units in practical operational fields.

[3] 5 = Excellent Application, 4 = Very Good Application, 3 = Good Application, 2 = Satisfactory Application, 1 = Dissatisfactory Application.

Assessment of Application of Technical Knowledge i.e. Degree of Satisfaction of Applying of Technical Knowledge of the Managerial Personnels of the respective units in practice can be judged on the basis of their responses, collected through the Primary Survey (January 2011- September 2012), that is whether the respective assistance is sufficient enough to improve their performance in practice or not and then plotted on the 5 point rating scale accordingly.

TABLE V

Profile of the Entrepreneurs of Surveyed Sample Units

OWNER SHIP PATTERNS	NUMBER OF ENTREPRENEURS IN THE UNITS AS PER CHARACTERISTICS							
	SEX		CASTE		NATIVE PLACE		EDUCATIONAL QUALIFICATION	
	MALE	FEMALE	GENERAL	RESERVED	WB	OUT OF WB	WITH TECHNICAL QUALIFICATION	WITHOUT TECHNICAL QUALIFICATION
SP	162	11	87	86	100	73	17	156
Pt.	78	16	57	37	49	45	4	90
Pvt.	38	15	30	23	29	24	-	53
Total	278	42	174	146	178	142	21	299

Source: Primary Survey (January 2011- September 2012)

Analysis of the study

Four factors in the field of Technology – Lack of Technical Know-how of the Managerial Personnel (LTKH); Inadequate Maintenance of Machinery (IMM); Obsolete Plant, Machinery and Technology (OPMT) and Lack of Government Support to Upgrade Technology (LGSUT) have been identified by the respondents as the reasons for sickness of their units. The responses obtained through primary survey, in five point rating scale, have been shown in Table – 6 and Bar Diagram 1.

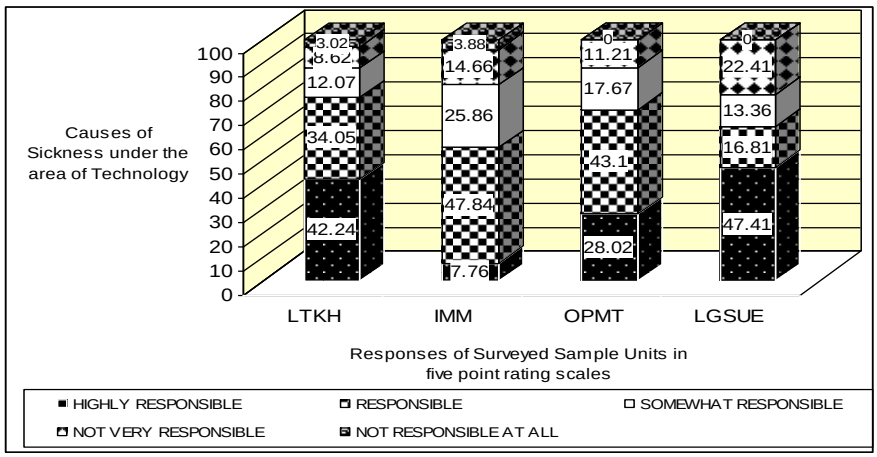
TABLE VI

Responses of the Surveyed Sample Units on the Causes of Sickness in the Area of Technology

CAUSES OF SICKNESS OF UNITS	RESPONSES IN FIVE POINT RATING SCALE						
	5	4	TOTAL	3	2	TOTAL	1
Lack of Technical Know-How of the Managerial Personnel (LTKH)	98 (42.24)	79 (34.05)	177 (76.29)	28 (12.07)	20 (8.62)	48 (20.69)	7 (3.02)
Inadequate	18	111	129	60	34	94	9

Maintenance of Machinery (IMM)	(7.76)	(47.84)	(55.60)	(25.86)	(14.66)	(40.52)	(3.88)
Obsolete Plant, Machinery and Technology (OPMT)	65 (28.02)	100 (43.10)	165 (71.12)	41 (17.67)	26 (11.21)	67 (28.88)	0
Lack of Government Support to Upgrade Technology (LGSUT)	110 (47.41)	39 (16.81)	149 (64.22)	31 (13.36)	52 (22.41)	83 (35.78)	0

Source: Primary Survey (January 2011- September 2012)
The percentage of the responding units to total units (232) has been shown in parenthesis.
Here, 5 = Highly Responsible, 4 = Responsible, 3 = Somewhat Responsible, 2 = Not Very Responsible, 1 = Not Responsible At All



BAR DIAGRAM – 1

CAUSES OF SICKNESS UNDER TECHNOLOGY IN FIVE POINT RATING SCALE

Table - 6 and Bar Diagram – 1 show that a significant number of respondents have identified 'Lack of Government Support to Upgrade Technology' and 'Lack of Technical Know-how of the Managerial Personnel (47.41 percent and 42.24 percent respectively) as highly responsible for sickness of their units. Moreover, majority of the respondents (55 percent – 76 percent) have identified all the four factors – Lack of Technical Know-how of the managerial personnel, Inadequate Maintenance of Machinery, Obsolete Plant, Machinery and Technology, Lack of Government Support to Upgrade Technology, as highly responsible or responsible (responses to 5 and 4 of the rating scale taken together) for sickness of their units. Only about 3 percent and 4 percent of the respondents respectively expressed their views that 'Lack of Technical Knowledge of the Managerial Personnel', 'Inadequate Maintenance of Machinery' are 'not at all responsible' for sickness of their units (responses to 1). All of the respondents have opined that all the four factors mentioned above are responsible for sickness in varying degrees.

Statistical Analysis

Chi-Square (χ^2) test has been used here for testing the following hypotheses.

H_{01}: There was no significant association between the technical knowledge of the managerial personnel of the units and the degree of responsibility of Inadequate Maintenance of Machinery (IMM), in bringing about sickness in the Small Engineering units of Howrah.

H_{02}: There was no significant association between the technical knowledge of the managerial personnel of the units and the degree of responsibility of Obsolete Plant, Machinery and Technology (OPMT), in bringing about sickness in the Small Engineering units of Howrah.

H_{03}: There was no significant association between the technical knowledge of the managerial personnel of the units and the degree of responsibility of Lack of Government Support to Upgrade Technology (LGSUT), in bringing about sickness in the Small Engineering units of Howrah.

For calculating the test statistic ($\chi 2$), the Snedecor and Irwin formula, as mentioned below, has been used.

$$\chi^2 = G^2 / C_1 C_2 [\{\sum (a_i^2 / R_i) - C_1^2 / G\}]$$

The formula used in the present study, with the change of notations, stands as follows.

$$\chi 2 = T^2 / T_A T_B [\{\sum (a_i^2 / T_i) - T_A^2 / T\}] \quad \{\text{Goulden, (Second Ed.)}\}$$

Here, T (in place of G) = Total sick sample units,

T_A (in place of C_1) = Total of Group A,

T_B (in place of C_2) = Total of Group B,

T_i (in place of R_i) = Total number of sample units in specific rank,

a_i / T_i = Number of surveyed sample units in the specific ranking / corresponding total number of sample units

For testing the hypotheses, scores have been obtained from the frequency distributions of the surveyed sample units. Units surveyed have been classified into two groups – units with managerial personnels having technical knowledge (Group A) and units with managerial personnels having no technical knowledge (Group B) with respect to their different perceptions in connection with the degree of responsibilities of the respective causes of sickness. The necessary information required for hypotheses testing are shown in Table – 7.

TABLE – VII

Necessary Information for Hypotheses Testing

GROUP	OPERATIONAL DEFINITION	NUMBER OF UNITS
A Units with Managerial Personnels having Technical Knowledge	This term, units with managerial personnels having Technical Knowledge signifies the type of small sick engineering units of Howrah where at least one managerial personnel has been with technical knowledge and hence considered to be belonging to one group. Here, the term Technical Knowledge can be considered as the knowledge arrived from (i) Technical Degree/Diploma or (ii) Training in Technical Field or (iii) Experience or (iv) All.	55

B Units with Managerial Personnels having no Technical Knowledge	This term, units with managerial personnels having no technical knowledge signifies the type of small sick engineering units of Howrah where not a single managerial personnel has been with technical knowledge and hence considered to be forming other group. Here, the term Technical Knowledge can be considered as the knowledge arrived from (i) Technical Degree/Diploma or (ii) Training in Technical Field or (iii) Experience or (iv) All.	177

The hypotheses have been tested for 3 degrees of freedom (d.f.) {(number of rows – 1) i.e. (n-1) = 4-1 = 3}. It may be mentioned in this context that responses to 2 to 5 of the rating scale (i.e., not very responsible, somewhat responsible, responsible and highly responsible respectively) have been considered ignoring the responses to 1 (not responsible at all). Calculation of χ^2 value for $H_{01,}$ in details, has been shown in Table – 8. Other results have been computed accordingly and shown in Table – 9.

Computation of χ^2 Value using Snedecor and Irwin formula with respect to H_{01}

TABLE VIII

Technical Knowledge of Managerial Personnels of the Units and

Inadequate Maintenance of Machinery (Imm): Opinion of the Units Surveyed

RESPONSES OF SURVEYED SAMPLE UNITS IN THE RATING SCALE	UNITS WITH MANAGERIAL PERSONNEL HAVING TECHNICAL KNOWLEDGE (GROUP A)			UNITS WITH MANAGERIAL PERSONNEL HAVING NO TECHNICAL KNOWLEDGE (GROUP B)			TOTAL
	NUMBER OF UNITS	FULLY RESPONSIBLE (FR) (%)	NOT FULLY RESPONSIBLE (NFR) (%)	NUMBER OF UNITS	FULLY RESPONSIBLE (FR) (%)	NOT FULLY RESPONSIBLE (NFR) (%)	
5 (Highly Responsible)	6 (11.32)	67.92	-	12 (7.06)	17.55	-	18
4 (Responsible)	30 (56.60)			81 (47.65)			111
3 (Somewhat Responsible)	11 (20.75)	-	32.08	53 (31.18)	-	45.29	64
2 (Not Very Responsible)	6 (11.32)			24 (14.12)			30
Total	53 = T_A			170 = T_B			223 = T
Source: Primary Survey (January 2011- September 2012) 9 respondents were found in rank 1. as their responses were not taken, the total number of responses was 223 (232-9).							

Calculated value of $\chi^2 = 3.20$

Critical value of χ^2 at 5 percent level of significance for d.f. 3 is 7.81. Therefore, H_0 has been accepted and it may be concluded that there has not been any significant association between the technical knowledge of managerial personnels of the units and the degree of responsibility of Inadequate Maintenance of Machinery (IMM) in bringing about sickness in the concerned units

TABLE – XI

Responses of the Surveyed Sample Units on the Degree of Responsibility of the Respective Causes of Sickness Under the Area of Technology

CAUSES	DEGREE OF RESPONSIBILITY OF THE CAUSES												RESULTS OF **X2**	REMARKS
	GROUP A						GROUP B							
	5	4	FR	3	2	NFR	5	4	FR	3	2	NFR		
IMM	6 (11.32)	30 (56.60)	36 (67.92)	11 (20.75)	6 (11.32)	17 (32.08)	12 (7.06)	81 (47.65)	93 (17.55)	53 (31.18	24 (14.12)	77 (45.29)	3.20	A (5%)
OPMT	9 (18.75)	19 (39.58)	28 (50.91)	21 (43.75)	6 (12.5)	27 (49.09)	56 (31.64)	81 (45.76)	137 (77.40)	20 (11.30)	20 (11.30)	40 (22.60)	21.90	R (1%)
LGSUT	26 (47.27)	10 (18.18)	36 (65.45)	12 (21.82)	7 (12.73)	19 (34.55)	84 (47.46)	29 (16.38)	113 (63.84)	19 (10.73)	45 (25.42)	64 (36.16)	6.91	A (5%)

Source: Primary Survey (January 2011- September 2012)
Group A = Units with Managerial Personnel having Technical Knowledge,
Group B = Units with Managerial Personnel having no Technical Knowledge
FR = Fully Responsible, NFR = Not Fully Responsibility. A=Accepted, R=Rejected
1 P value for 3 d.f. at 5 % level of significance is 7.81 and at 1 % level of significance is 11.34. The figure in parenthesis of Remark column shows the level of significance at which the hypothesis is accepted or rejected.

As per Table - 9, H_{02} has been rejected, that is, there was no significant association between the technical knowledge of the managerial personnel of the units and the degree of responsibility of Obsolete Plant, Machinery and Technology (OPMT), in bringing about sickness in the Small Engineering units of Howrah.

In this context, the units of Group B (Units with Managerial Personnels having no Technical Knowledge) have suffered more than the other Group of units (Group A - Units with Managerial Personnels having Technical Knowledge). Here, more than 77 percent units of Group B have mentioned the concerned cause as fully responsible one for their sickness, while the concerned percentage in the respect of units of Group A has found as 50.91 percent. Units of Group B, in this regard, have not been able to select appropriate, long-lasting, production specific Plant, Machineries and suitable mechanism to handle the existing Plant and Machineries due to the absence of the technical knowledge of their entrepreneurs. They here, might not be able to understand the modernized technical requirement, needed to build up the successful operational activities. Accordingly, they might not feel the need to recruit technically skilled personnels in their units who might assist the units to equip modernized, operation-friendly Plant, Machineries and scientific mechanism to handle the same. In this respect, the units have not considered the ever-increasing high level competition in market which could be fought against by the appropriate technical knowledge and its application in operation in selecting suitable Plant, Machineries and Technology.

The units of Group A, in this connection, somehow could handle the very problematic situation though not satisfactorily, with the help of the technical knowledge of their entrepreneurs, might be arrived from their technical degree/diploma or from training programme of the respective institutions in technical field or from their experience or from all and also with the application of the same in selecting the suitable Plant, Machineries and mechanism of carrying on the scientific operational technique.

The units here have not been capable enough to feel the requirement of the present competitive arena in respect of the selection of the suitable, modernized Plant, Machineries for successful survival. Therefore, to fulfill the requirement, they have recruited managerial personnels

with technical degree/diploma and/or experience who would like to perform suitably in this regard or made them trained up from the training institutes in technical field for further betterment.

But the units have not been fully satisfied by the training programmes followed by the specific institutes as mentioned earlier in technical field might be due to the sub-standard practical application of the knowledge not compatible with the competitive operational requirement. Moreover, they might not consider their technical knowledge got from their degree/diploma and/or experience capable enough to make them successful in the competitive arena. All these have forced more than 50 percent of the units of the said Group to respond against the cause and remark this as fully responsible for their sickness.

V. CONCLUSION AND SUGGESTIONS

The foregoing analysis has revealed the necessary condition of acquiring the technically knowledgeable personnels in the units and application of their knowledge in practical operational field in appropriate scientific way to sustain in competitive arena. Therefore, efforts of all concerned parties are required for developing the technical knowledge and skill of the entrepreneurs so that they may use the modern plant and machineries with updated technology and improve their productivity, quality and profitability, which in turn will help them to survive and grow. A few suggestions are given below for improvement of the prevailing situation.

- The institutions like MSME-DI, NSIC etc. should help the entrepreneurs in assessing the need for appropriate technical knowledge and should conduct the training programmes in technical field keeping in mind the practical competitive requirement of the units for their survival and growth.
- Training programmes should be designed keeping in mind the need of the entrepreneurs, their academic background, nature of activities of the units in which they are engaged, etc.
- There should be scope for using the technology, as far as practicable, in the training institution itself so that the trainee entrepreneurs may get opportunities to learn through actual use of the same.
- There should be feedback and monitoring system which would help assessing the effectiveness of the training programme.
- The training institutes should arrange Seminar, Workshop on the technical field and invite the entrepreneurs of the respective units to participate there by making the same public as far as possible.
- Special industrial bulletin containing required technological information may be published by the Government and made available to small entrepreneurs at affordable price.
- Units by themselves should understand the condition of survival and growth in the present competitive scenario and likewise should opt for technically knowledgeable personnels and/or may help to upgrade the technical knowledge of the existing personnels of their units by allowing them to participate in the training programme of the institutions in technical field.
- Labour union, in this respect, should convey the requirements of the personnels to upgrade the technical knowledge, if there be any and should also held the personnels of the respective units to feel the necessity of upgrading the technical knowledge by explaining the present situation of the competitive environment.

Hence, it is the sole responsibility of all the respective associated parties to support the very sector of Howrah to the fullest extent and make it able enough to regain its lost reputation in national and international market and recognition as Birmingham/Sheffield of the East.

Endnotes

As the state-wise Fourth Census Report of India (2006-2007) has not yet been released, the data of the Third Census Report, Directorate of Cottage and Small Scale Industries, WB (2001-2002) on sickness have been used. It may be mentioned in this connection that SEs were recognised as SSIs, including tiny (now Micro) also, at that time.

References

Desai, V. (2006.) *Small Scale Industries and Entrepreneurship in the twenty-first century: Spirit of Enterprise.* Mumbai: Himalaya Publishing House.

Golden, C.H. (Second Edition.) *Methods of Statistical Analysis*. New York: John Wiley and Sons Inc.

Krishnamurthis (2002.) *SEs – Policy, Rules and Regulation*. Orient Publishing Company.

Mathur, S.B. (1999.) *Sickness in Small Scale Sector – Causes and Cures, with special reference to the role of commercial banks*. New Delhi: Concept Publication.

Government Publications:

District Industries Centre. Unpublished Reports, 2001-2002 to 2008-2009. Howrah:

Government of India, Ministry of Small Scale Industries. All India Third Census Report, 2001-2002. New Delhi:

Government of India, Ministry of MSME, Office of the Development Commissioner. All India Fourth Census Report, 2006-2007. New Delhi:

Government of India, Ministry of MSME. Indian Legislation, Micro, Small and Medium Enterprises Development Act, 2006. New Delhi:

Government of India, Ministry of MSME, Office of the Development Commissioner. Implementation Status of the Package for Promotion of Micro and Small Enterprises, 2007. New Delhi:

The Reserve Bank of India. Chakraborty Committee Report (RPCD.PLNFS.NO.12002/06.02.28(1)/2006-2007. New Delhi:

The Reserve Bank of India. Kohli Committee, 2002. New Delhi:

Websites:

www.ssiinindia.com.,

www.ssi.nic.in.,

www.dcmsme.gov.in,

www.msme,nic.in.,

www.dcmsme.gov.in.,

www.rbi.org.in