Industrial Sickness in Micro, Small and Medium Enterprises in Bihar, India

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In

Development Economics

By

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Declaration

I declare that the thesis entitled “Industrial Sickness in Micro, Small and Medium Enterprises in Bihar, India” has been prepared by me under the guidance of Dr. Jainendra Kumar Verma, Assistant Professor, Department of Economic Studies, School of Social Sciences, Central University of Punjab. No part of this thesis has formed the basis for the award of any degree or fellowship previously.

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CERTIFICATE

This is to certify that Mr. Bishwajeet Prakash, a Ph.D. candidate with Registration No: CUPB/MPh-PhD/SSS/CES/2013-14/15 at Department of Economic Studies, Central University of Punjab, Bathinda, India has completed his doctoral thesis entitled "Industrial Sickness in Micro, Small and Medium Enterprises in Bihar, India" under my supervision. The thesis contains original work of the candidate, which is by and large based on the analysis made by him on primary data collected for the purpose. In case of quotations & citations appropriate references and acknowledgement have been made.

In my opinion, thesis does neither include in whole nor in part of any matter which is either accepted or rejected for any other degree/diploma/certificate/associate membership or for requirement of any academic distinction.

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ABSTRACT

Title: Industrial sickness in Micro, Small and Medium Enterprises in Bihar, India

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Key Words: MSMEs, Industrial sickness, Bihar, financial distress, causes & Remedies

The research entitled 'Industrial sickness in Micro, Small and Medium Enterprises (MSMEs) in Bihar, India' is an empirical study for various dimensions of industrial sickness in the state Bihar. The study investigates the magnitude of the financial distress among the MSMEs in the state, as well find out the major causes for the industrial sickness in MSMEs. The study has also included the significant remedial measure as revival for the sick enterprises in the state. MSMEs played a significant role in creation of new jobs, help in increasing Gross Domestic Product (GDP), entrepreneurship, and innovation; this sector emerged as vibrant key drivers for the Indian economy. In India, MSMEs contribute 40% in total GDP and provide second largest employment after agriculture. MSMEs faces huge number of challenges and problems, which lead to a business, became sick or failure in due course.

Industrial sickness is universal phenomena and spread in all type of industries all over the world. It adversely affects the health of industrial sector as well economy. This study covers the problems, causes, and prediction of industrial sickness among the various Micro small and medium industries in Bihar. The study is based on the perception of entrepreneurs and financial statement of the enterprises. Major objectives of this research are to study the growth and performance of MSMEs in Bihar, problems faced by entrepreneurs at all the stages of units, source of funding, causes of industrial sickness include internal and external factors responsible for sickness, predict the

industrial sickness in industries, remedial measure to fostering entrepreneurs, and suggest suitable policies to reduce the effect of industrial sickness in the economy.

The study is based on primary and secondary database. In primary data of 450 enterprises has been collected from 9 representative districts of Bihar, with including of all types of forms (Sole Proprietorship, Partnership, Private Limited Companies etc) and kinds (Services, Manufacturing) of business took part in the study. A pre-tested well designed schedule has been used for the collection of primary data from enterprises. The secondary data and financial statement of enterprises has been taken through various agencies' websites. The responses of the participants were analyzed by using the statistical package for social sciences (SPSS), which generated the frequency distributions, means, standard deviations, variances, chi-square statistics, analyses of variance (ANOVA), t-statistics, and factor Analysis of the responses. In order to identify the fore warning indicators of industrial sickness in small and medium enterprise, Altman Model is used. The hypothesis of the result has been tested at 0.05 level of significance. The study has resulted that 27 most important factors are responsible for the industrial sickness in the state.

The research may be beneficial to all concern especially researcher, academicians and policy makers to understand the magnitude of industrial sickness, its prediction and taking remedial measure.

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(Bishwajeet Prakash)

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List of Abbreviations

Sr. No.	Full Form	Abbreviation
1.	Book Value of Equity	BVE
2.	Bihar Industrial Promotion Board	BIPB
3.	Current Assets	CA
4.	Compound Aggregate Growth Rate	CAGR
5.	Credit-Deposit	CD
6.	Current Liabilities	CL
7.	Crore	Cr
8	District Industries Centres	DICs
9.	Earnings before interest and taxes	EBIT
10.	Federation of Association of Small Industries of India	FASII
11.	Gross Domestic Product	GDP
12.	Government of Bihar	GOB
13.	Gross State Domestic Product	GSDP
14.	Goods and Service Tax	GST
15.	Khadi and Village Industries	KVIs
16.	Kilowatts	Kwh
17.	Ministry of Corporate Affairs	MCA
18.	Major District Roads	MDR
19.	Micro Small and Medium Enterprise	MSME
20.	Micro, Small and Medium Enterprises Development	MSMED
21.	Market Value of Equity	MVE
22.	Megawatt	Mw
23.	National Council of Applied Economic Research	NCAER
24.	National Highway	NH
25.	National Institute of Bank Management	NIBM
26.	Non-Performing Assets	NPA
27.	Net Sales	NS
28.	National Sample Survey	NSS
29.	Outstanding	O/S
30.	Other Backward Classes	OBC
31.	Prime Minister Employment Generation Program	PMEGP
32	Research & Development	R&D
33.	Retained Earnings	RE
34.	Rupees	Rs.
35.	Schedule Castes	SC

36	Small Enterprises	SEs
37	State Highway	SH
38.	Sick Industrial Companies Act,1985	SICA
39.	Small Industries Development Organisation	SIDO
40.	State Level Bankers Committee	SLBC
41.	Small and Medium Enterprises	SME
42.	Small Medium Enterprise	SME
43.	Small Scale Industries	SSI
44.	Small Scale Industries Board	SSIB
45.	Small Scale Service and Business Enterprise	SSSBE
46.	Small Scale Service and Business Enterprise	SSSBE
47.	Schedule Tribes	ST
48.	Total Assets	TA
49.	Total Liabilities	TL

1. Introduction and Overview

1.1 Background

The Industrialization has recognized as a key strategy of development around the world. In the process of industrialization, human abilities play a dominant role and if the human factor has neglected it would weaken the economic operation of country. Each country in the world has been more emphasizing on the process of industrialization. Developing economies have faced the conflict between development and employment in their efforts on industrialization because these countries have to achieve higher levels of employment. Thus, the appropriate strategy and techniques for developing countries are completely different from those which were considered to be most advanced countries (Vepa, 1967).

Industrialization is a process in which the product and technology are changed from time to time and motivated to entrepreneurs to innovate new industrial process. The industrialization process is the effect on the per capita income and standard of living in the country. A higher standard of living implies that the number of industrial goods flows into the consumption basket of the people. The net economic impact of industrialization must travel down ultimately to maximum number of people (Sharma & Desai, 1980), without industrialization, no country can have political or economic freedom which can improve the standard of living of their people rapidly (Myrdal, 1968).

The Micro, Small and Medium Enterprises (MSMEs) are more labour intensive and less capital intensive. This sector contributes and helps to developed and developing economy to eliminate regional imbalances and economic backwardness. In India MSMEs sectors are promoting equitable, sustainable, inclusive and employment-friendly economic growth. Besides by enlarging represent on the stage of transition from traditional to modern technology. This sector helps to use the indigenous skill as well as high level of contemporary technology (Kumar & Rajendra, 2015).

In India, The Micro Small and Medium Enterprises are acting as the power and sprit of economic growth in 21st century (Chandraiah & Vani, 2014). MSMEs sectors are playing a significant and dynamic role in the overall economic development of the country where poverty and unemployment/underemployment

are the two fundamental and deep-rooted problems of the economy. The promotion and growth of this sector is aligned with job creation, redacting the poverty, bridging the income inequality (Jena et.al, 2018).This sector solves the fundamental issues of poverty and unemployment through providing a large scale of employment, with less investment and considers being a second largest labor-intensive sector followed by agriculture (Prakash & Verma, 2017).

Micro, Small and Medium Scale Industries constitute the key process of socio-economic transformation in the unstructured economy, and it helps in the tapping of resources including entrepreneurship, capital, labor, and raw materials. These industries attract less technical and managerial skill people who start their enterprises. The MSMEs sector work like a nursery of entrepreneurship often driven by innovation and creativity (MSME Report, 2007).The MSMEs are important not only to contribute in gross domestic product but also promote the export of the country (Justus & Jeyaseeli, 2014). According to National Sample Survey (NSS) 73rd round survey conducted by Ministry of Micro, Small and Medium Enterprises (MSMEs), Government of India, Annual Report 2017-18 the total employment generation by MSMEs sector are 360.40 lakh in manufacturing, 387.18 lakh in trade and 362.82 lakh in other services across the country. Among which 45% are working in rural area and 55% are working in urban area (MSME Report, 2018). Thus Micro, small and medium enterprises are a significant source of employment in most townships, keeping small communities financially viable and contributing to the prosperity of the region.

1.2 Micro-Small and Medium Enterprises in Global Scenario

Micro small and medium scale enterprises are known as backbone of any economy. Every economy is paying proper attention to ensure the growth of MSMEs. These Industries not only solve the problem of unemployment but also reduce disparities and help to generate the foreign exchequer by the way of export (Geete & Thakur, 2012)

The MSMEs have been globally considered as an engine of economic growth and as key instruments for promoting equitable and sustainable development of the country. The major advantage of this sector is its employment opportunity at low capital cost. The MSMEs provide higher labour intensity as compare to large scale industries.

MSMEs constitute more than 90% of total enterprises in most of the economies and credited with generating the highest rates of employment growth and account for a major share of industrial production and exports. In India too, MSMEs play a vital role in the overall industrial economy of the country. The role and significance of small and medium enterprises are equally around the world. This sector easy adapts to the local environment and market friendly approach as compare to large enterprises. 75% of the business units of entire the world are small and medium enterprises (Tuteja, 2000)

According to Roper & Hart (2018)“ even in terms of productivity small industries (less than 100 employees) produce about 90% of the average industrial output per person in the United States and about 85% in the United Kingdom”. In Japan SMEs contributes 70% in national employment and more than 50% added in the total production of the country. Japan known for its unique style of entrepreneurial management, development and innovate new technique of marketing style which improve the efficiency of the small business product (Poulove et.al, 1994). Small scale businesses are crucial for the development of United Kingdom. These businesses are breeding indigenous entrepreneurial talents and new ideas with inbuilt flexibility to adapt to dynamic business environment. Small businesses accounted 99.3% of all private business and annual turnover more than £2.0 trillion.

In Europe SMEs stand out with its effort and providing raw materials for large scale enterprises. In Italy the product of SMEs are high quality and highly competitive. According to Canadian government report SMEs provide local level of employment, they supply essential goods and service to consumers and other business and also demonstrates the innovation and entrepreneurship which spring up more successful entrepreneurs. A study in Taiwan reveals SMEs contributes in the economy as well increases the entrepreneurial growth in the country (SIDBI, 2000). In Indonesia MSMEs and entrepreneurs are played an important role, it accounts 99% of all firms in economic sector and employ 95% of the population.

China has a predominant small industry sector contributing to the national economy and is said to continue to rely on Mao's aphorism of walking on two legs- “one small and the other large”. Germany keeps up the long tradition of craft system in the manufacturing field. Heterogeneity rather than homogeneity is the specialty of small enterprise system in Germany.

1.3 Definition of MSMEs in Global Context

The definition of Micro, Small, and Medium varies from countries to countries. Nature, concept, and definitions are varied to all developed, developing and underdeveloped countries. The definition of MSMEs is based on qualitative and quantitative elements such as the number of workers employed or annual turnover or investment in fixed assets. However, employment is a universal criterion for determining the size of the unit in most of the countries. The definitions are used in various countries are tabulated in Table 1.3.

Table 1.3: Definitions of MSMEs in the World

Country	Type of Industries	Official Definitions	Basis of Definitions
Australia	Manufacturing	Small unit ≤ 100 employees Medium units ≤ 20 employees	Employment
Belgium	SME	Annual maintains 50 staff	Employment
Canada	Manufacturing	Private firms with < 200 employee	Employment
China	SME	Employee < 100 Investment < 30 million Yuan	Employment & Investment
France	SME	10 to 499 employees	Employment
Greece	Small Enterprise	< 50 employees	Employment
Indonesia	SME	A unit with annual sales volume not more than Rupails 1 billion	Output
Ireland	SME	< 500 employees	Employment
Turkey	Small size enterprises	10 to 49 employees < 5 million annual turnover	Employment & Output
Korea	Manufacturing Services	< 300 employees < 200 employees	Employment
Netherlands	SME	<10 employees >10 to 100 employees	Employment
Singapore	Manufacturing	Investment < 12 million in fixed assets Employee <100	Employment & Investment
Sweden	SME	Autonomous firms with < 250 employees	Employment
Thailand	Manufacturing Service	< 200 employees <100 employees	Employment
United	SME	Small company annual turnover not	Employment

Kingdom		more than £6.5 million, and a balance sheet total of not more than £ 3.26 million. Employee < 50	& Investment
USA	Tiny, Small and Medium enterprises	Employee < 20 20-99 employees 100-499 employees	Employment
Mexico	Industry and Services	Employee < 250 Employee < 100	Employment
Denmark	Manufacturing	< 500 employee	Employment
Germany	SME	< 500 employee	Employment
Italy	Small Enterprises	< 200 employee	Employment
Spain	Small Medium	< 200 employee < 400 employee	Employment
Pakistan	Small Medium	< 10 million Rupee < 10 million – 100 million Rupee	Investment
Brunei	SME	Employee 02-100	Employment
World Bank	SME	≤ 300 employees; ≤ $15 million turnover; ≤ $15 million assets	Employment, Turnover and Assets
UNDP	SME	≤ 200 Employees	Employment
Nigeria	Micro Small Medium	< 10 Employees; < ₦ 5 million Assets 10 – 49 Employees; ₦ 5 – 50 million 50 – 199 Employees; ₦ 50 – 199 million	Employment and or Assets (Excluding land and Building)

Source: SIDBI report 2010, Aldaba (2012), Ajuwon, et,al (2017)

1.4 Definition of Micro, Small and Medium Enterprise in India

In India, in 1948 soon after the independence, our prominent leaders recognized the need to facilitate the small-scale and cottage industries. In the ongoing process of Government effort, up-gradation of Small-scale enterprise was started in 1953-54 when Ministry of Commerce and Industry invited an International Planning Team to get suggestions for measures to be taken to develop the small businesses. The team recognized the scope and expansion of small-scale enterprises in the country and recommended to the Government of India to establish the Central Small Scale Industries Organization (CSSIO), with an

advisory body - Small Scale Industries Board (SSIB). Subsequently, as per the approval of the Federation of Association of Small Industries of India (FASII), the investment in fixed assets in plant and machinery whether held in terms of ownership or by lease or by hire purchase, was considered in granting the status of a unit under Small enterprises (Desai, 2006). Previous to MSMED Act 2006, SEs covered a wide spectrum of two clearly identifiable segments under- Traditional SEs, including Khadi and Village Industries (KVIs), Handlooms, Handicrafts, Coir, Silk and modem SEs, including Ancillary, Small Scale Industrial Undertaking, Tiny Industry, Small Scale Service and Business Enterprise (SSSBE) (Desai, 2006).

1.4.1 History of the Small Industries in India

In India, the concept of the SSI is discussed by various institutions and agencies in different ways. The concept and definition of MSMEs are discussed in Tabled 1.4.1.

Table: 1.4.1; History and Definition of MSMEs in India

Year	Concept and Definition
1948	Immediately after independence, our leaders recognized the role of small-scale industries in the development of the economy. In 1948 the first industrial policy was announced by late Shyama Prasad Mukherjee, to accelerate the industrial development in the country. All traditional units and small industry segment not covered under the Factories Act of 1948 constitute unorganized sector. In such units generally employee are not more than ten workers if the power used and 20 workers if the power is not used.
1955	In January 1955, the government of India realized the need to provide assistance to small-scale and traditional units. On 6th January Ministry of Industries adopted the working definition of the small-scale industries unit as:" a unit employing less than 50 persons, if using power and less than 100 persons if not using power with capital assets not exceeding more than 5 lakh".
1957	Ministry of Commerce and Industries (1955) recommended SEs as the units working multi-shift basis with the same level of employment and investment in the capital.
1960	The Ministry of Small-Scale Industries and Ministry of Commerce notified

	new definition as "small-scale industries include all industrial units with a capital investment of not more than five lakh, irrespective of the number of people employed."
1966	In 31st October 1966, Ministry of Industries defined the small enterprise's definition has changed to mean an enterprise with a fixed capital investment was then Rs. 5 lakh and ancillary units with a fixed capital investment less than Rs. 10 lakh.
1974	Small-Scale Industries Board declared small-scale enterprises as an undertaking having an investment in plant and machinery not exceeding Rs. 10 lakh, whereas for the ancillary that was not more than Rs. 15 lakh. Apart from increasing the monetary ceiling, the new definition changes the few concepts: (i) Units providing intermediary goods were under ancillary (ii) Units providing service facilities recognized as ancillary.
1977	The industrial policy introduced the concept of "Tiny industries" (Micro enterprise) and defined those as units with investment in plant and machinery for not more than Rs. 2 lakh and situated in rural areas and small towns with the population of less than 50 thousand.
1980	The government of India passed a resolution on 23rd July 1980 raising the investment ceiling in plant and machinery less than Rs. 20 lakh for small-scale industries and Rs. 25 lakh for ancillary industries
1985	The government of India increased the ceiling limit to investment in plant and machinery less than Rs. 35 lakh.
1991	The government announced the new policy for the small-scale sector on 6th August 1991. The policy has raised the investment ceiling in plant and machinery for small-scale industries from Rs. 35 lakh to Rs. 60 lakh, in respect of ancillary units from Rs. 45 lakh to Rs. 75 lakh and for tiny (micro) industries the investment ceiling raised from Rs. 2 lakh to Rs. 5 lakh.
1997	The government of India defined small-scale industries as units with investment ceiling in plant and machinery not exceeding to Rs. 3 crore.
2000	The Government of India, in response to the constant pressure from all comers of small enterprises, declined the investment ceiling in plant and machinery from the previous year (Rs. 3 crore) to Rs. 1 crore excepting in some special cases of ancillary SEs where the investment ceiling was declared to be within Rs. 5 crore.

Source: Desai (2006), Mathur (1998), Krisnamurthi (2002), Saxena K. K (1987), Singpon. P (2002)

To facilitate the growth and development of the sector under single comprehensive legislation and to fulfill the long-standing demands of small enterprises, the Government of India has enacted the MSMED Act, 2006, in compliance with the S.P Gupta Committee Report. The president of India approved the amendment of the Government of India rules 1961 and notified the new act on 9th May, 2006. Under this Act, two separate ministries the Ministry of Small-scale Industries and Ministry of Agro and Rural Industry, have been merged into single ministry, namely "Ministry of Micro, Small and Medium Enterprises" (MSMED Act, 2006).

The Act received the consent of the President of India on June 16, 2006, to come into force with effect from October 2, 2006. With the introduction of the newly framed legislation, the conceptual and structural recognition of industry has drastically been modified and replaced with the nomenclature enterprise, any industrial undertaking or a business concern or any other establishment like Sole Proprietorship, Partnership, Hindu Undivided Family, Cooperative Society, Association of Persons, Company or Undertaking (Section 7 (1) of MSMED Act, 2006). Besides that MSMED Act has renamed tiny industries as micro enterprises and considered separately from small enterprises, while medium enterprises have got their legal recognition for the first time (Section 7(1), MSMED Act, 2006). The Act has mentioned the main divisions of enterprises based on the functions of the units like Manufacturing and Service Rendering (MSMED Act, 2006).

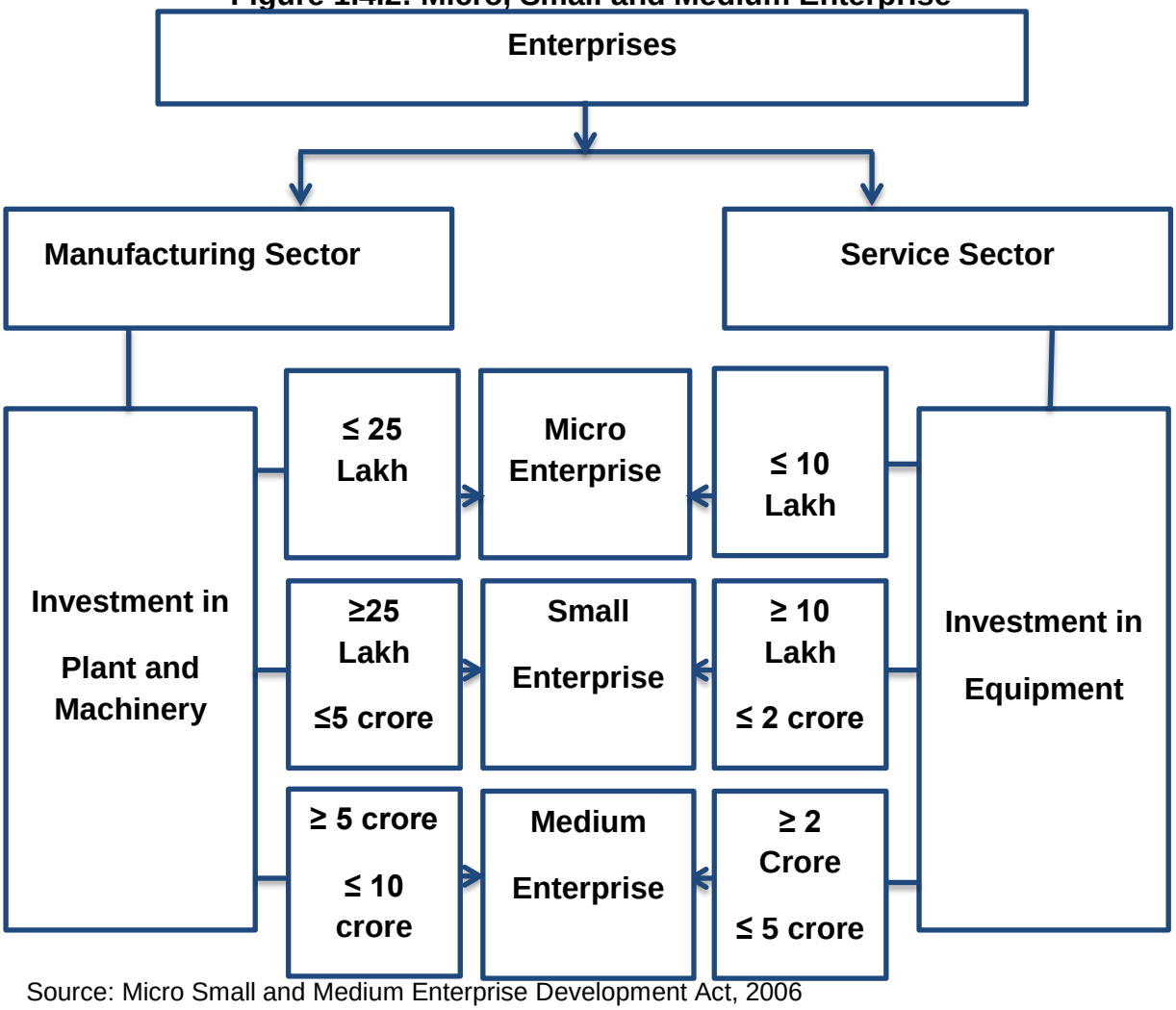
- **Manufacturing MSMEs** engage in the manufacture or production of goods relating to any industry mentioned in the First Schedule of the Industries Development & Regulation Act, 1951 (Garg, 2007). They are defined in terms of investment in plant and machinery (excluding the cost of pollution control, research and development, industrial safety devices and other notified items) to the investment limit maximum up to Rs. 25 lakh for micro, up to Rs. 25 lakh Rs. 5 crore for small and up to Rs. 5 crore to Rs. 10 crore for medium enterprises.
- **Service Rendering MSMEs** defined regarding investment in equipment with maximum of Rs. 10 lakh for micro, up to Rs. 2 crore for small and Rs. 5 crore for medium Enterprises. Under the new classifications of enterprises, the previous traditional Small enterprises has considered as manufacturing micro enterprises, and the tiny sector of modern SEs has been under the purview of both manufacturing and service rendering micro enterprises based on their functions. In

the same line, the Small Scale Industrial unit and Small-Scale Service Business Enterprises (SSSBEs), have been under the small manufacturing enterprises and small service-rendering enterprises respectively based on their nature of activities and investment level in plant and machinery or equipment.

1.4.2 Micro, Small and Medium Enterprises Development Act, 2006

According to Micro, Small and Medium Enterprises Development Act, 2006 the enterprises are categorically classified into two categories according to their activity such as enterprises engaged in the manufacturing or production and enterprises involved in services. The manufacturing enterprises are defined in terms of investments in plant and machinery, whereas service enterprises are defined in terms of investment in tools and equipment's. The act also introduced and defined medium enterprise for the first time. The enterprises are further categorized into Micro, Small and Medium categories. The investment ceiling in MSMEs classified in figure 1.4.2.

Figure 1.4.2: Micro, Small and Medium Enterprise



Source: Micro Small and Medium Enterprise Development Act, 2006

1.5. Growth and Performance of Micro Small and Medium Enterprises in India

The Micro, Small and Medium enterprises (MSMEs) have played a vital role in shaping the destiny of the nation and strengthen the unity of the nation. It has emerged as a highly energetic and dynamic sector of the Indian economy. It has helped to invent new products and start-up to new entrepreneurs. The MSMEs are contributing to the expansion of entrepreneurial culture through business environment. The MSMEs widely spread all communities and produce around 8,000 varieties of product from traditional to modern technology product. The contribution of MSMEs in the Gross domestic product is 6%, in the manufacturing sector 33%, and 45% in export. This sector also provides the maximum opportunities for both self-employment and employment generation for others. The performance of MSMEs in India is presented in Table 1.5.

Table: 1.5; Performance of Micro, Small and Medium Enterprises (MSMEs) In India

Year	Units	Production	Employment	Fixed Investment	Production Per Unit	Employment per Unit	Production Per employee	Fixed Investment per Unit
	Lakh (No.)	Lakh Rupees	Lakh Persons	Lakh Rupees	Lakh Rupees	Persons	Lakh Rupees	Lakh Rupees
2006-07	361.76	119,881,800	805.23	86,854,379	3.31	2.23	1.49	2.40
2007-08	377.36	132,277,700	842	92,045,984	3.51	2.23	1.57	2.44
2008-09	393.70	137,558,900	880.84	97,711,472	3.49	2.24	1.56	2.48
2009-10	410.80	148,835,200	921.79	103,854,608	3.62	2.24	1.61	2.53
2010-11	428.73	165,362,200	965.15	110,593,409	3.86	2.25	1.71	2.58
2011-12	447.64	178,858,400	1,011.69	118,275,764	4.00	2.26	1.77	2.64
2012-13	467.54	180,997,600	1,061.40	126,876,367	3.87	2.27	1.71	2.71
2013-14	488.46	203,206,006	1,114.29	136,370,054	4.16	2.28	1.82	2.79
2014-15	510.57	222,368,332	1,171.32	147,191,294	4.36	2.29	1.90	2.88
2015-16#	633.88	239,312,799	1,209.30	NA	NA	1.91	NA	NA
CAGR (%)	5.77	38.33	4.15	6.04				

Source: MSMEs Annual Reports of various years, Dept. of MSME, Govt. of India. (2) Reserve Bank of India Handbook # Projected

Discussion

The Table-1.5 has shown the growth and performance of MSMEs in India for the period of 2006-07 to 2015-16. The available data for the period categorized and included number of MSMEs units, production by these units, (at constant prices), total employment generated by these units, investment in fixed capital, production per unit (at constant prices), employment per unit, production per employee and fixed capital per unit. The data mentioned in the table 1.5 for the period of 2006-07 onwards, data was collected and published by the government in MSMEs report and Reserve bank of India report on MSMEs. The important observations emerging from this table are briefly summarized as a follows:

(i) Total units of MSMEs in the Indian economy were found to be 361.76 lakh units in the year 2006-07 which increased to 633.88 lakh units in 2015-16. During the period 2006-07 to 2015-16, a rise of 272.12 lakh MSMEs which resulted, an increase of 75.2% units.

(ii) Total production at constant prices consistently increased in the period from 2006-07 to 2015-16. Total production of MSMEs in India in 2006-07 was Rs. 119,881,800 lakh which have risen to Rs. 239,312,799 lakh in 2015-16, which is two times of the year 2006-07 resulting in around 100% increase.

(iii) In 2006-07, production per unit in MSMEs was Rs. 3.31 lakh which increased to Rs. 4 lakh in 2011-12 which resulting in 22% rise. It means in five years per unit production continuously increased. The production per unit decreased to Rs. 3.87 lakh in 2012-13 but increased onwards up to Rs. 4 lakh in 2014-15. Production per unit of MSMEs was also found to have consistently improved over the period except 2012-13 under analysis. Production per employee in 2006-07 was Rs. 1.49 lakh which increased to Rs. 1.90 lakh in 2014-15.

(iv)MSMEs have continuously been growing over the periods. The MSMEs sectors consistently maintained a higher growth vis-à-vis the overall industrial production. The MSMEs sector generates the second highest number of employment after agriculture. The total employment generated in the registered sector in the MSMEs in the country was 93.09 lakh persons as per the Fourth Census of MSMEs in 2006-07.

(v) In Table 1.5, for the year 2006-07 there were 805.2 lakh persons were employed in MSMEs which increased to 1209.30 lakh persons in 2015-16 resulting in approximately 50% increase.

(vi)The compound growth rate of MSMEs units, Employment, Production and Fixed Investment are 5.77, 4.15, 38.33 and 6.04 respectively.

Employment per unit for MSMEs ranged between 2.23 to 2.9 for the period 2006-07 to 2014-15 and reduced to 1.96 in 2015-16. Hence it can be observed that there was no remarkable rise or reduction in employment per unit in MSMEs. It is found that with an increase in the total number of MSMEs there was a quite insignificant impact on employment per unit. In other words, this means that MSMEs growth is not employment-intensive. This is one of the primary objectives of MSMEs, such as employment generation has not been satisfied. This probably means that employment generation production methods of MSMEs sectors in the Indian economy have become more and more capital intensive.

In 2006-07, the fixed investment by MSMEs was 86,854,379 which increased to Rs. 147,191,294 in 2014-15. It shows Rs. 60,336,915 increased during 2006-07 to 2014-15. Fixed investment per unit was Rs 2.40 lakh in 2006-07 which increased to Rs. 2.88 lakh per unit in 2014-15. It was a remarkable increase in fixed investment of MSMEs.

In overall, the number of MSMEs, production and per unit production increased during the period 2006-07 to 2014-15. Per employee production also had shown an increasing trend. The employment generation per unit is shown an increasing trend, but at decreasing rate. The investment in fixed investment growth increased on a consistent basis.

1.6 MSMEs Share in India's Merchandise Exports

The share of the MSMEs sector into total exports increased consistently from 31.92 % during 2006-07 to 42.35% during 2014-15. In absolute terms, the exports of the MSMEs sector increased from Rs. 18,253.8 crore in 2006-07 to Rs. 84,924.8 crore registering an increase of 465.71% in 2014-15. The share of MSMEs in export ranged to 30% to 46%. This provides evidence to the fact that there has been a marked increase in the exports of MSMEs sector during the period 2006-07 to 2014-15.

Table: 1.6; MSMEs Share in India's Merchandise Exports

Year	Total Export (Crore.)	MSMEs Export (Crore.)	Shares of MSME Sector (%)
2006-07	571,779	18,253.8	31.92
2007-08	655,864	202,017	30.80
2008-09	840,755	NA	NA
2009-10	845,534	391,159	46.26
2010-11	1,142,922	507,739	44.42
2011-12	1,465,959	630,105	42.98
2012-13	1,635,261	698,166	42.69
2013-14	1,905,011	806,878	42.35
2014-15	1,897,026	849,248	44.76

Source: Reserve Bank of India (RBI) Handbook 2016.

1.7 State wise Performance of Micro, Small and Medium Enterprises in India

According to the report of the 73rd round of NSS survey (2015-16) on Micro, Small and Medium enterprises indicate Uttar Pradesh had registered the highest number of MSMEs a share of 14.20% of MSMEs in the country, followed by West Bengal comes an as close second with a share of 13.98%. Top 10 states accounted for 74.05% of the total estimated number of MSMEs in the country.

Table: 1.7; Distribution of MSMEs in the top Ten States.

No	State/UT	Number (in lakh)	Share (in %)
1.	Uttar Pradesh	89.99	14.20
2.	West Bengal	88.67	13.98
3.	Tamil Nadu	49.48	7.80
4.	Maharashtra	47.78	7.53
5.	Karnataka	38.34	6.04
6.	Bihar	34.46	5.43
7.	Andhra Pradesh	33.87	5.34
8	Gujarat	33.16	5.23
9.	Rajasthan	26.87	4.23
10.	Madhya Pradesh	26.74	4.21
11.	Other State/UTs	164.52	25.95
	All	633.88	100

Source: MSMEs Report 2016-17

1.8 Industrial Sickness

Industrial Sickness in Indian industry just like the human transition face of human life like birth, growth, and death, industrial growth, sickness, and death is an inevitable aspect. An industry grows in an initial state rapidly may face disclosure in a later stage. A sick unit is like a patient at home. A patient, apart from being afflicted with illness, causes discomfort for others and often ruins the family, especially when treatment is prolonged and expensive. Laterally with a sick unit, there is a severe impact on the economy, a part from it, adversely affects the interests of people directly related to the people.

The industrial sickness appears as a severe problem in the economy. The industrial sickness is not only the concern for the developing countries but also expose the weakness of developed countries. In India, there has been an increase in industrial sickness in micro, small and medium enterprise. The expansion of sickness among the MSMEs units creates alarming concern for the owners, employees, customers, creditors, government, but also causes the wastage of the natural resources and social unrest. Therefore, it is considered essentials to discover the measures to deal with the industrial sickness in micro, small and medium enterprise in India.

1.9 Concept of Industrial Sickness

An industrial unit is known as sick when the unit is not functioning well means the unit is not having the higher utilizing capacity, liquidity, highest complain from customers. The definition of sickness in the industry is complicated to define; the definition is based on the generation of income, the position of liquidity and insolvency, and the irregularities in the accounts. Industrial sickness is a situation where revenue could not meet the cost and investment of the product. In general, a sick unit whose various departments and functional areas such as production, marketing, finance, personnel, and corporate management develop any abnormality, the whole unit may become sick.

The industrial sickness is subjective in handle and perceived differently from person to person. The workers may consider the unit as sick if they are not getting their wages on time. The management and shareholders may measure the sickness in terms of low return on their investment and irregular dividend. The financial institutions/banks give importance to the repayment of their loans and units' ability to pay interest regularly. To an investor, the industrial sickness is one

who skips dividends. To an industrialist, it means recurring losses and tottering on the brink of closure. So, the meaning of sickness based on different norms such as the generation of surplus, liquidity and solvency position, erosion of equity, the amount and the period of irregularities, etc. The definition and meaning of sickness are given below.

1.9.1 Definition of Industrial Sickness

Industrial sickness can be described as a phenomenon whereby large numbers of industries are unable to meet their dues or service their debts due to deteriorating financial position for a variety of internal and external causes. The real sickness starts in the industry when a unit unable to plan for future. The unit begins working below the break-even point. In India, the industrial sickness was first coined during mid of 1960 when the first time the engineering and cotton textile industries experienced problems in their operations in different parts of the country. Over the more than five decades that have elapsed since, industrial sickness has spread to various other segments, bringing under its gamut several thousand units of different sizes. It would be quite relevant to place the definition and meaning of the term industrial sickness now because the extent and dimension of sickness cannot be made clearer before revealing the introduction and connotation of the phrase.

1.9.1.1 Definition by Leading Institutions

State bank of India (1975) study team headed by J.S. Varsheya in his report on small-scale industrial advance defined a sick unit which fails to regenerate adequate internal surplus regularly and depends on its continuous infusion of external financial assistance, to which it brings a severe imbalance in financial structures (Desai,1983).

Tiwari Committee report (1983), The Reserve bank of India appointed an expert committee under the Chairmanship of T. Tiwari to restructuring the companies. According to the committee, a sick unit is one which (i) Incur cash loss in the immediate preceding accounting year after making provisions for all expenses, including interest but without providing for any depreciation and transfers to reserves; (ii) The current ratio is adverse according to the prevalent commercial accounting practice in the immediately preceding accounting year, and (iii) The accumulated losses at the end of the immediate preceding accounting

year result in erosion of 50% or more of its net worth or any erosion of its paid-up capital.

The Government of India enacted the Sick Industrial Companies (Special Provisions) Act (SICA) 1985, which defines sickness by consecutive losses and the complete erosion of the equity base of the unit. According to this Act, "an industrial units becoming a company registered not less than seven years is as sick when it has at the end of any financial year accumulated losses equal to or exceeding its entire net worth and has also suffered cash losses in such fiscal year, and the financial year immediately preceding such financial year" (MCA,1993).

The National Institute of Bank Management (NIBM) defined sick units as "those where the operation result in continuous losses which brings down the working capital available and ultimately affecting the borrowing potential almost permanently" (Biswasroy & Panda, 1990).

In 1989, The Reserve Bank of India defined

(i) A unit may be considered as sick, if it has incurred cash losses for one year and, in the judgment of the bank, it is likely to continue to suffer cash losses for the current year as well as the following year.

(ii) The unit has an imbalance in its financial structure such as current ratio is less than 1:1 and worsening debt-equity ratio.

As far as the small sector is concerned, that small-scale industrial unit is considered to be sick that has:

(a) Incurred a cash loss in the previous accounting year and was likely to continue with losses in the current accounting year and erosions on account of cumulative cash losses to the extent of 50% or more of net worth during the last consecutive five years; and / or,

b) Continuously defaulted in meeting four consecutive installments of interest or two half - yearly payments of principal on term loan and there were persistent irregularities in the operation of its credit limits with the bank. While both (a) and (b) would have to be satisfied in the case of larger small-scale units, it would suffice if either alternative (a) or (b) was fulfilled in the case of tiny and decentralized sector units. “

According to Goswami Committee (1993), an industrial unit is termed as sick when it is unhealthy and is in financial distress on a continuing basis. Some of

the signals of ill business health are when a unit is performing systematically worse than the average, failing to cover its fixed costs and frequently reneging on its debt.

According to the Reserve Bank of India (2002), a sick unit is one (a) which faces a cash loss for the previous year and is likely to continue the cash loss for the current year (b) has an imbalance in the financial structure, such as the current ratio is less than 1:1 and poor debt-equity ratio, and (c) accumulated losses are equal to more than 50% of their peak net worth.

According to MSMEs Act, 2006 a unit may become sick, if any, of the borrowed accounts of the enterprise remains Non-Performing Assets (NPA) for consecutive three months or more or there is erosion in the net worth due to accumulated losses to the extent of 50% of its total net worth. However, the willful defaulter account is identified, or the borrower is absconding would not be under the category of the sick unit and not liable for any relief from the government.

According to Companies Act, 2013 relating to determination of sickness read as under: “(1) Where on a demand by the secured creditors of a company representing 50% or more of its outstanding amount of debt, the company has failed to pay the debt within 30 days of the service of the notice of demand or to secure or compound it to the satisfaction of the creditors, if any secured creditor willing to file an application to the tribunal in the prescribed manner along with the relevant evidence for such default, non-repayment or failure to offer security or compound it, for a determination that the company be declared as a sick company. (2) The applicant under sub-section (1) may, along with an application under that subsection or at any stage of the proceedings thereafter, make an application for the stay of any proceedings for the winding up of the company or for execution, distress or the like against any property and assets of the company or for the appointment of a receiver in respect thereof and that no suit for the recovery of any money or the enforcement of any security against the company shall lie or be proceeded” (Ministry of Corporate Affairs, 2013).

The Reserve Bank of India (2013) was instrumental in appointing Committees from time to time to look into the issue of the sickness affecting the sector. The new definition of sickness given by the Working Group on Rehabilitation of sick units under the chairmanship of S.S. Kohli is given below: - "An MSME is considered sick when any of the borrower accounts of the enterprise

having NPA for three months or more, or there is erosion in the net worth due to accumulated losses to the extent of 50% of its net worth" (Muthu, 2015).

1.9.1.2 Definition by Scholars

Industrial sicknesses are a very crucial and sensitive phenomenon for researcher and academician and only for the depth of knowledge, but also help to management and policy makers to reduce the probability of sickness. The following are the important definition of sickness in India and abroad.

Altman (1968) includes the term in the category of industrial sickness that had some legally bankrupt and placed in received and granted the right to recognize under the provision of the National Bankruptcy Act of the U.S.

In India, Prof. Farooq defined industrial sickness as "the situation where the revenue of a firm has insufficient funds to meet the cost and the rate of return on investment is less than the firm's cost of capital" (Khan, 1986).

The definition of sick units adopted leading financial institutions are based on the irregularities in continuous cash losses, defaults on debt servicing requirements and irregularities in meeting statutory and other liabilities. Thus, an industrial unit is categorized as sick by the term- lending institutions keeping in mind the following symptoms: (i) continuous defaults in meeting four consecutive half yearly installments of interest or principal in respect of the institutional loans; (ii) constant cash loss or continuous erosion for a period of 50% or more in net worth and (iii) outstanding dues due to statutory or other liabilities for a period of one or two years (Bidani & Mitra, 1983).

Mr. Sudarsan Lal in his definition of sick unit has indicated two stages of sickness: a unit can be considered as sick if it operates below the breakeven point, i.e. it is unable to meet its costs and depreciation, the unit, which has eroded its capital and reserves, should be considered to have reached an advanced stage of sickness" (Dutta & Sundram, 1999).

According to Bhaskar Banerjee "A sick unit defined as one which fails to generate an internal surplus on a regular basis, and which has not been able to generate even margin money for borrowing capital and where part of the fixed capital has been lost " (Banerjee, 1979).

By definitions mentioned above, it may be concluded that an industrial unit may be considered sick if it does not perform primary functions like purchase, production, sales, collection, and repayment of debts and dues satisfactorily. It is a

unit which fails to generate an internal surplus and continuously depends on external funds for its survival. In a layman term, industrial sickness is defined as a unit struggling to survive; it is the loss-making unit for the investors, bad debts for creditors, a problem multiplier for the government, low level of technology to innovators, a severe concern for a financial institution, and wasteful use of natural resources. The crux of the above definition is the negative return from the capital investment.

On the definitions mentioned above of a sick industrial unit, the following features may be identified for the sick unit.

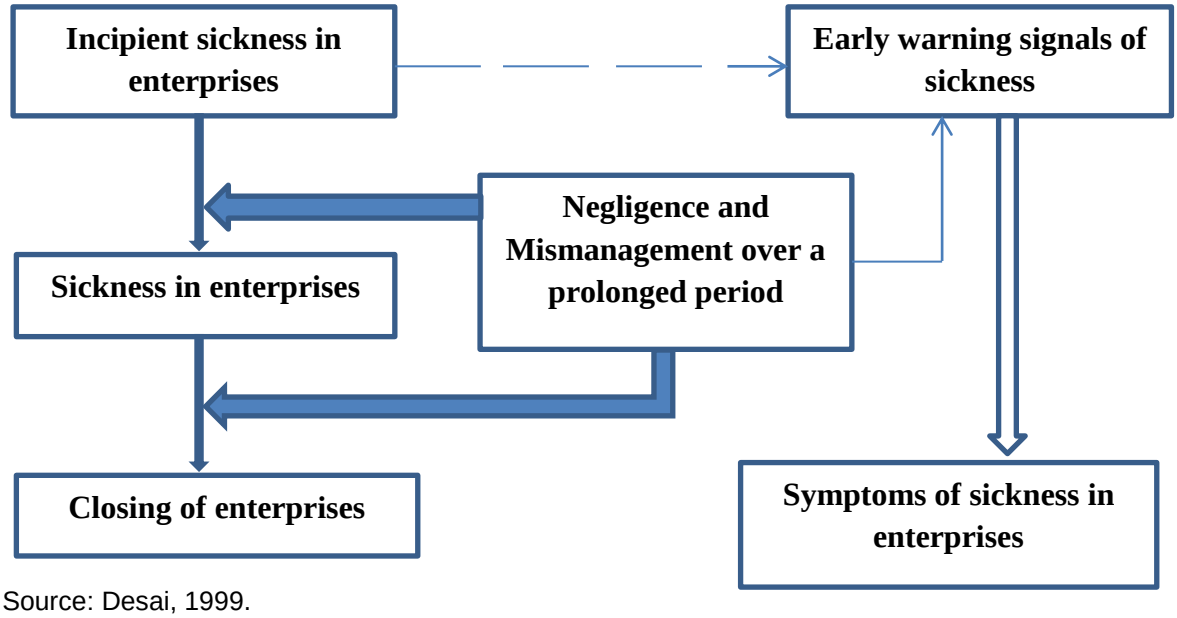
- A sick unit is one that has incurred cash losses in the immediately preceding two years, and the prediction of credit institutions is expected to suffer losses during the current financial year. This may be called financial loss.
- A sick unit is one whose net worth has been eroded to the extent of minimum 50%. This may be called the net worth erosion.
- A sick unit is one whose working capital with the bank was irregular, and this persisted over some time, say 12 to 18 months, and likely to become more persistent. This may be called the working capital.
- A sick unit is one which has not be able to repay in four consecutive half-yearly (or two consecutive annual) installments of principal and interest on term loans, if any. It may be called the loan repayment failure.
- A sick unit is one which operates below 20% of its installed capacity and production capacity below the cost. It may be called low capacity utilization criterion.

1.10 Signal and Symptom of Industrial sickness

Industrial sickness is a time phenomenon, all of sudden an industrial unit does not become sick unless a major accident or catastrophe does not happen. Like the human organism sick enterprise gravely used to symptom and signal on the initial stage. Sickness does not occur immediately or overnight; it is the gradual process which followed through multiple stages. The warning should be considered as the signal, and prompt action should be taken at that stage. The symptoms of sickness could be guessed from the process of activities of an enterprise. In fact, the symptoms are generally hidden, except in cases of major

catastrophes (Desai, 1999). Figure 1.10 exhibits the symptom of the industrial sickness in the enterprises.

Figure: 1.10; Symptoms of Sickness in Enterprises



Source: Desai, 1999.

Discussion: Generally, in the initial stage the management of enterprise does not pay attention to early warning signal of sickness, it's forced to the next stage, then due to prolonged the continuous negligence it become the serious, leading to closing with the same due to mismanagement over a prolonged period.

Therefore the signal needs to be identified and monitored at the early stage of the sickness. To identify the symptom of the sickness in the enterprise, the Reserve Bank of India constituted Tiwari committee in 1981 to develop the model to identify the sickness. The committee identified a symptom of sickness in the following manners

- Low capacity utilization
- Profit fluctuation, downward trends in sales
- The higher rate of rejection of manufactured goods
- Reduction in credit
- Failure to pay liabilities
- Huge outstanding in the billing account
- Constant utilization of costly facilities to the maximum and failure to pay timely installments of principal and interest on the term loan and installment credit

- Non-submission of the annual financial data statement
- Fixed capital amount is to be used to fulfill working capital
- The decrease in working capital on account of:

(i) increase in debtors

(ii) increase in creditors

- Increase in inventories,
- A general decline in that particular enterprise combined with many failures
- Rapid change in key personnel
- Sudden/frequent changes in management or dominated by one man.
- Diversion of funds for purposes other than running the unit
- Any significant change in the shareholdings
- Low turnover of assets and accumulation of inventories

In 2002, RBI guideline on rehabilitation of sickness in the small enterprise has pointed early warning signals of the sickness of incipient sick SEs or symptoms of sickness in SEs as stated below:

- Incessant irregularities such as cash credit/overdraft accounts, such as maintaining the required margin on an ongoing basis or inability to withdraw back more than the sanctioned limit, the periodic interest remaining unrealistic debt.
- Outstanding balance in the bank account
- Failure to pay the principal amount with interest
- Regular complaint received from suppliers of raw materials, power water, and utility department.
- Non-submission or over delay in submission of correct stock.
- Attempts to remove sales income from the account of stock.
- The downward trend in credit summations
- The steep decline in production figure
- Downward trends in sales and fall in profits
- The rising level of inventories, which may include a large proportion of slow or non-moving items
- More abundant and longer outstanding in bill accounts

- The longer period of credit allowed on the sale document negotiated through the bank and frequent return by the customers of the same (Banerjee, 2017).

In 2007, RBI constituted the Chakraborty Committee (2007) to further reframed the criteria of sickness, the committee recommended for detection of sickness as follows:

- There is undue delay in commencement of commercial production of more than 6 months for reasons beyond the control of the promoters and entailing cost overrun, (Khanka, 2012).
- The unit incurs losses for two years and cash loss for one year, beyond the deadline framed on account of change in economic and fiscal policies affecting the working of MSMEs or otherwise,
- The capacity utilization is less than 50% of the estimated level in terms of quantity, or the sales are not more than 50% of the projected level in terms of value during the current year.
- The symptoms of sickness, therefore, should be carefully judged and monitored not only because of arresting of the sickness in MSMEs but also of quickening the process of rehabilitation of the sick viable MSMEs in due course of time, as prescribed by Government of India (Mathur et. al. 1993).

1.11 Effects of Industrial Sickness

The main consequences of industrial sickness on an economy have locked up the country's limited financial resources, loss of production, wastage of capital assets, reducing employment potential and centralizing industrial base. The different section, society, and the whole economy are directly or indirectly affected due to loss from the industrial sickness. Thus, the main consequences of industrial sickness can be summarized as follows:

1.11.1 Huge financial loss to the Institution: The problem of non-performing assets is the major problem arises due to sickness among the enterprise. Usually, when a unit is facing the problem of liquidity due to any reason, the loan repayments rescheduled are bounced. Profitability of banks is eroded by writing off interest and loan, revenue losses due to reduced interest rates and non-availability of funds. Thus, these all bear an adverse effect on the financial health of the banks and the financial institutions.

1.11.2 Loss of Employment/ Labour: MSMEs sector is the labour intensive sector. Sickness in the industry directly affect the production, the unit starts irregular production which leads to irregular or non-payment of the wages to labour. In the MSMEs sector, the labour force is mostly unskilled. Generally, their opportunity cost- is meager, due to the pressure of unemployment and due to lack of training or education or, both. Workers lose jobs on account of closure of sick units with the result that the economy bears regarding problem of the unemployed labour force.

1.11.3 Effect on Production: When the industrial unit became sick due to liquidity. The liquidity problem further affects the production plans and output. It is due to unavailability of raw materials or lack of funds to pay for wages or lack of marketing. Generally, sick unit has to reschedule its production which causes the lower capital utilization, lower turnover, and lower output.

1.11.4 Effect on the Customer: The MSMEs units are unable to compete with large enterprises. Due to this, they cater to a tiny segment of the markets. These units are rarely innovative, and the demand for their products is quite elastic. The units which produce consumer goods are small even compared to the local market needs. If these units are sick and reduce their production, the customers are severely affected as they have not many other sources to meet their requirements.

These units also produce intermediate products cater to the needs of large-scale or medium scale industries. The large scale industries are much dependent on the MSMEs for their intermediate goods. Thus, even if one of the units becomes sick and cannot meet the delivered schedules, the customers are severely affected.

1.11.5 Reduction of Export Earnings: There may be a reduction in earning of foreign exchange in the unit falling sick on account of the sale of its finished products abroad.

1.11.6 Emergence of Industrial Unrest: The closure of unusually large sick industrial units employing a large number of workers causes not only unemployment, but the trade unions of both sick and non-sick units oppose it and resort to widespread industrial strikes ultimately leads to industrial unrest.

1.11.7 Increase in Social Evil: Growing of industrial sickness indirectly increases in social crime among unemployed youths, e.g., hijacks, drug addiction, moral turpitudes, etc., from frustrations about life.

1.11.8 Wastage of Scarce Resources: In an underdeveloped country like India, the resources are already scarce. If these scarce resources are invested in sick industries, particularly in MSMEs enterprises, sick industries where substantial investment has been made in plant and machinery, it becomes the wastage of the scarce resources. Loss of production in sick units bears two adverse effects on the economy as a whole. Firstly, it results in a decline in production and secondly, it also blocks up valuable savings and capital equipment's which otherwise invested would have yielded substantial returns to the economy (Khanka, 1995).

1.11.9 Loss of Contribution to the Public Exchequer: When a large number of industrial units become sick, the possibilities for raising substantial contribution from the sick units by way of various levies and GST are greatly reduced. The shortage of revenue collection ultimately adversely affects the functioning of the economy as a whole.

1.11.10 Repercussion of the other Industries: When an industry is affected, there are adverse repercussions on the other industries which may be supplying raw materials or may be consuming the end-products of the sick industry.

1.11.11 Adverse Effects on Politics: Industrial sickness leads to the formation of pressure groups and parties for nourishing the sick industries and increase of foreign control of the country's administration and affairs, particularly in the formulation and implementation of industrial and commercial policies, financial administration, etc.

1.12 Causes of Industrial Sickness

There are several causes of sickness, and a unit could become sick due to one or in conjunction with other causes. The causes of sickness have differed from industry to industry, location to location, size to size, product to product of the industrial units. They are innumerable and may range from improper project planning and appraisal to internal disorders in the major functional areas of production, marketing, finance, personnel, and management. Some external forces which may be called as environmental factors like social, economic & political conditions and Government legislation & control is also responsible for causing sickness to industrial units. Sickness can be originated right from the

stage of the conception to the stage of canalization of the concept. Sickness in the firm not includes only the internal factors, but also external sources. The external causes are beyond the control of the management. External or environmental factors, on the other hand, are those on which the unit has no control and are crucial at the same time in pursuing down the unit into sickness. A good number of research studies have been conducted on this problem by various experts from time to time. Different experts on the subject have classified and reclassified the causes of industrial sickness in multiple ways according to the nature, scope, and purpose of their respective studies. Whatever the purpose of the study, the following internal and external factors can be taken in to account as some of the essential causes of industrial sickness.

The cause of sickness in MSMEs varies according to the size, geography, nature of business units. These causes can be divided into two groups.

1.12.1 Internal Causes

The internal factors for the industrial sickness arouse from with the industries, due to poor financial management, poor capacity utilization, unbalanced production and distribution, poor operation of plant and machinery. Industrial sickness is usually caused by internal factors which are mostly related to the mismanagement in various areas like operational, production, technical, marketing and others. However, the industrial sickness due to internal factors is discussed in as follows:

1.12.1.1 Poor Project Planning

The internal factor of sickness of an industrial unit may also arise which are as follows:

(a) Selection of Site: wrong selection of the site for the industrial unit can be the vital contributions of the factor failure. If the location does not take into account such as infrastructure facilities like power, railways, road transport system and other factors like near available on the market, availability of raw materials, etc., and the unit may experience the difficulties on the later stage.

(b) Defective Plant and Machinery: The small-scale industries could not seek the guidance of professionals. Therefore, these entrepreneurs installed old and defective plant and machinery. The production capacity of this machinery is low; production of goods from the use of this machinery is inferior and lost their demand. The imbalance in the assets will lead to sickness in the future.

(c) **Inadequate Maintenance:** Inadequate maintenance of plant and machinery can bring down the productivity of plants as a number of breakdowns goes resulting lower output.

(d) **Underestimation of Financial Requirement:** Most of the MSMEs are not involved professionally to estimate the cost for the production of the product. The higher input-cost ratio will lead to the sickness in the future.

1.12.1.2 Poor Project Implementation: The MSMEs generally have higher mortality rate than large-scale units due to improper project implementation. The delay in getting the license, inadequate mobilization of finance, dislocating suppliers of plant and machinery and replacement cost of order leads to sickness in the future.

1.12.1.3 Financial Problems: Shortage of finance has been identified a most important problem in micro small and medium size enterprise. The number of units faces acute financial problem right from the state of planning and construction for the state of implementation. Often small-scale units borrow from financial institution, including banks, but they were unable to pay back. The burden of unplayable debt accumulated and such industrial units were turned in to sick. The poorly managed units commit gross errors in the area of finance, which aggravate the problem of internal cash generation contributing to the determination in the liquidity position of a unit. The lack of working capital on continuous basis becomes major threats to the financial viability.

1.12.1.4 Poor Personnel Management: The internal cause of sickness due to malfunctioning in use of personnel system as below:

(a) **Inappropriate wage and salary administration:** if a unit pays wages and salaries less than demand and work, it may be lost to their experienced employees which affect the productivity of employees. On the other hand if the management pays higher remuneration to the employee, it might increase the production cost. Inappropriate wage and salary administration causes sickness in units.

(b) **Lockout problem:** Bad relation of employee and employers may result in the lockout problem in the unit; it may cause lower productivity, inadequately maintained plant and machinery, increase wastage causing the sickness of the units.

(c) **An absence of Manpower planning:** For the development of firms need to estimate the necessary manpower requirement. Manpower planning is concerned with forecasting needs of the organization specified personnel of different types

and different level. An absence of manpower planning sometimes leads to sickness.

1.12.1.5 Lack of Experience: Lack of experience of promoters, wrong selection of the project, false project planning generates sickness among MSMEs units. False appraisal consultancy sells their idea without proper investigation and sometimes misguided or over-enthusiastic entrepreneur also causes industrial sickness.

1.12.1.6 Incompetent Entrepreneurs: Many entrepreneurs of small units are incompetent; they do not have the managerial and technical knowledge to produce the quality of the product. They follow wrong price policy, defective accounting, and malpractice in marketing their products.

1.12.1.7 Lack of Marketing: Marketing is the primary concern for MSMEs, inaccurate demand, forecasts inappropriate and non-scientific product marketing leads the gap between supply and demand of the product. Poor marketing technique cannot understand the pulse of the market drives which leads to poor quality of the product, and non-compliance with the delivery schedule. Lack of sales promotion, lack of sufficient advertisement is another cause of sickness among the MSMEs.

1.12.1.8 Unbalanced Capital Structure: Many MSMEs have either over capitalization or undercapitalization. The unbalanced capital structure fractured the confidence of MSMEs units.

1.12.1.9 Neglect of Research & Development: Research & Development (R&D) is an all-pervasive shop floor exercise, rather than being limited to sparkling laboratories with huge budgets. Many times, original ideas about improvements in product design, cost reduction, production streamlining, improves product performance and innovation to beat the competition. Shop floor people are neither encouraged nor follow through further R&D effort. When the same idea or innovative technique followed by other units make more competitive, the negligent unit heads down the sickest road.

1.12.1.10 Improper Recruitment and Inadequate Training: Many units fall prey to the pressures during recruitment and end up hiring unsuitable persons, who neither have the aptitude nor expertise for the job for which they have been selected. The unit may thus gather a lot of dead wood. Also equally though attitudinally-oriented persons are selected, the training process is poorly administered; induction training, on-the-job training, classroom training is

conducted haphazardly, training manuals are either not prepared or are withheld from the trainees, regular refresher courses are skipped and job knowledge updates ignored. Improper recruitment and inadequate training both lead to the un-enthusiastic workforce; high absenteeism and such labour workforce finally lead towards the sickness.

1.12.2 External Cause: External causes are those which arise from the changes in the external environment and beyond the control of the management. These changes may be in the form of certain economic factors, political factors, social factors, international factors, natural factors, and taxation policy. As a result of these changes, an industrial unit may have to face constraint in various stages. The external factors are discussed into following heads:

1.12.2.1 Financial Constraints: Financial bottlenecks constraints affect the financial function adversely. The specific constraints may be as follows:

(a) Improper credit facilities: The changes in monetary policy by the bank sometimes restrain the credit to the industry. It may happen at a time when the unit may need urgent fund. Sometimes the strict credit policy disassociates small enterprise from the banking institution. There may be a delay in getting the fund on account of the rigidity of commercial banks and financial institution in providing additional credit, inadequate finance at a time when it is needed most, may cause industrial sickness.

(b) Delay in advancing of funds: Bank and financial institution while sanctioning loans may impose unrealistic conditions which promoters are not able to comply with, and this may result in the delay in the disbursement of the loan. It may adversely affect the liquidity and may causes industrial sickness.

(c) Input cost increase: Inflation and price rise in the cost of raw materials, fuels, spare parts, power, water, and other input, may increase the cost price of the units. It may be the cause of sickness in MSMEs.

1.12.2.2 Production Constraints: The environmental constraints which affect the production in an industrial unit also cause industrial sickness. The changes in government policies at the time, put a restriction on specific input for which unit may not be prepared, which may render it possible to develop substitutes due to constraints of time, expertise, financial and other resources, etc. which may lead the unit in difficulty.

1.12.2.3 Market Constraints

(a) Liberal licensing of a project: Due to incorrect estimation of demand, excess capacity utilization is set by the enterprises. When all the projects under that industry start putting their products in the market, it is suddenly observed that the demand is not enough to supply.

(b) Restriction to bulk purchase: There are specific industries where a large amount of the finished goods has been sold to consumers like specific departments. There may be when these departments curtail their purchase on account of certain economic and political factors.

(c) Change in an International market: International markets are governed by a lot of factors like variety, design, quality, price competitiveness, packaging, quickness compliance of order, exchange rate variation, etc. An industry which cannot keep pace with the change in the international market is likely to face problems and became sick.

(d) Market recession: A general recession and inflation can also lead to shortfall demand thereby resulting underutilization of installed capacity. The excessive shortfall in demand may also reduce the product price below the break-even point.

(e) Change in Market behavior: Markets are governed by the factors like product variety, design, quality, price, competition, packaging, delivery period, money availability, exchange rate variations etc. The sick unit is a unit that fails to respond positively to market behavior.

1.12.2.4 Personnel Problems: External 'personnel' environment also wields significant influence on the unit's overall health; although the sickness-inducing causes in personnel area are mostly restricted to the unit's geographical location.

(a) Non-availability of Appropriate Manpower*:* For a unit located in an industrially depressed region, the availability of skilled labour is a grave problem. Likewise, for a unit that inherently requires only primitive or intermediate technology, but is located in an industrially advanced area, obtaining unskilled labour may prove difficult. In both the instances, either the wage bill will be hefty, or the unit shall have to resort to increasing mechanization, resulting in higher production costs and eating into margins. The high-strung situation, if persists for more extended periods, shall weaken the unit.

(b) Wage Disparity in Similar Industry*:* Some units, through sheer habit, do not believe in adequately compensating their workers, while some are always on the lookout for luring away the workers trained by others through promises of better reward. It creates a wage disparity within the industry. If it is wide enough, experienced workers may desert the miser en-masse, thereby inflicting sickness through lowered productivity.

1.12.2.5 Infrastructure problems: Innumerable small-scale industries suffered from lack of infrastructure facilities like poor road connectivity, electricity failure, lack of water supply, the poor drainage system. In draught situation the number of states faces the problem of electricity failure due to high demand. The power failure reduces the industrial operation process and unit might be stopped.

1.12.2.6 Extraneous factors: Suddenly and untimely death/removal of the crucial key person, natural calamities like fire, flood, the cyclone may lead the unit to be sick. Other factors like political influence over the workers and patronage of unhealthy trade union practice, political situation, strikes and closure of production are also the cause of sickness among the MSMEs.

1.13 Prediction of Industrial Sickness

Prediction of sickness in enterprises is based on the symptoms of sickness, identified systematically and scientifically by related authorities. The symptom can give an indicator, but more specifically there is a need of a technique/model which could help promoters, researchers, bankers to predict the potential of business failure or initial detention of the sickness. As an enterprise, predicted to be sick (not-sick) in the future based on the performance of specific financial ratios, may be non-sick ultimately and thus, there may be a Type II error (Baneijee, 1999).

The need to predict the failure or distress of the business attracts the various researchers to develop the new model with different indicators to make more accurate and correct measure to predict the failure of the business entities.

1.14 Indicators for Prediction of Industrial Sickness

Financial ratios and other parameters are used to predict the health of an industrial unit. A financial ratio is a quotient of two variables, where both variables consist of financial statements items. Many financial ratios have been identified for predicting the financial health of an industrial unit. The ratios are being used individually or considered together for meaningful prediction.

In this context, various researchers were - W I. Beaver, E. I. Altman, and L. C. Gupta may be briefly enumerated hereunder. W. H. Beaver Model was among the first to focus on the ability of financial ratios to predict corporate failure (Koritkar, 1997). Beaver's Univariate Model emphasizes the predictive power of the trend or magnitude of individual ratios and concentrates on the individual signals of impending problems without any standard score. Beaver framed his model by applying 29 conventional financial ratios on 79 bankrupt enterprises (legally as sick) in comparison with 79 non-failed enterprises over five years before the bankruptcy. Out of the 29 financial ratios, Beaver selected five ratios — Cash Flow to Total Debt, Net Income to Total Asset, Total Debt to Total Asset, Working Capital to Total Asset and Current Assets to Current Liabilities.

Among the 5 ratios, the first one, Cash Flow to Total Debt is considered to be the most successful predictor of corporate sickness, while the profitability ratios, the leverage ratios, and solvency ratios are accounted for supportive ratios in this regard.

Later on Altman and his colleagues, Haldeman and Narayanan (1977), developed and updated in his 1968 study. They explicitly undertook capitalized lease obligations, large sample with more current financial data and smoothing technique in their derived model, ZETA. According to them, assuming multi-normal populations and a common covariance matrix, the optimal cutoff score (ZETA) will be as follows.

$$ZETA = n_1 (qic\ i/q_2 c\ n)$$

Where qb q2= prior probability of being bankrupt (qi) or non-bankrupt (q_2), and Ci, cn = costs of type I and type II errors, respectively.

Further, if anyone compares ZETA bankruptcy classification model with alternative strategies, the following cost function is appropriate for the expected cost of ZETA.

$$EC\ zeta = q_1 (M_{12}/N1)\ c, + q_2 (M_{21}/ N2)\ c„$$

Where M_{12}, M_{21} - observed type I and type II errors respectively, and N_1, N_2 = the number of observations in the bankrupt (N_1) and non-bankrupt (N_2) groups.

ZETA model ensured greater success rate in predicting sickness in the enterprise than Z score as the Type I error stood negligibly at 4% in the year, before one year from the occurrence of corporate sickness.

Model of L.C. Gupta (1979), a combined effort of both Univariate and Multivariate Model, is administered as the most promising, potential and flexible one for predicting sickness in Indian enterprises (Baneijee, 1999). In his approach, Gupta considered the concept of the marginal firm in three categories - intra-marginal, marginal and sub-marginal - based on their performances in the industries. He addressed that the strength of entrepreneurs initially would be tested in the unfavorable economic conditions (demand recession, tightening of credit, etc.). In this scenario, the marginal firm would have to face hardship in collecting finance at the reasonable cost and might fall in sickness.

Gupta undertook his study for 13 years (1962-1974) under the sponsorship of ICICI for 41 Textile (20 sick and 21 non-sick) enterprises and 39 non-Textile (18 sick and 21 non-sick) enterprises and selected 63 ratios for testing and predicting corporate sickness. The ratios chosen by him were classified into Profitability Ratios and Balance Sheet Ratios. According to him, the two best ratios about equal merit were Earning before Depreciation, Interest, and Tax to Sales (net of excise) and Operating Cash Flow to Sales (net of excise). The next best three ratios were earning before Depreciation, Interest, and Tax to Total Asset (gross), Operating Cash Flow to Total Asset (gross), Earning before Depreciation, Interest, with tax.

Gupta in his study specified and prepared Earning Before Depreciation, Interest and Tax in the place of Earning Before Interest and Tax with a view to avoid the inconsistent method (written down value and /or straight-line) and varied rate (separate for old and new assets) of calculation of depreciation on assets, as followed by Indian enterprises. He clarified the consideration of the fifth ratio, i.e. Earnings Before Depreciation, Interest, and Tax to (Interest + tax) in his model with due respect to judge the debt servicing capacity or the solvency position of enterprises, as a maximum number of enterprises in India would become sick due to the mounting pressure of debt. As per his specification, at the time of repayment of loan capital, enterprises should meet a particular portion of principal along with interest amount. So, to assess the solvency position of enterprises, a certain part of the debt along with the interest should be added in the denominator which ultimately framed the modern version of debt-service coverage ratio (Banerjee, 1999). In predicting sickness of enterprises appropriately, Gupta in his model preferred Cash Flow and the first two ratios, i.e. Earnings before Depreciation,

Interest, and Tax to Sales (net of excise) and Operating Cash Flow to Sales (net of excise).

1.15 Composition of Sick Micro, Small and Medium Industries in India

The aim of this section is to present sector-wise and industry-wise composition of sick and incipient sick small enterprises and their status of loan taken from banks/other Foreign Institutions in India. Before highlighting the sick MSMEs, the composition of sick and/or incipient sick MSMEs in India along with their stages of indebtedness and status of loan taken are discussed in Table 1.15.

Table: 1.15; Sick Micro, Small and Medium Enterprises in India

Enterprises	Sick		Incipient Sick		Sick/Incipient Sick	
	In Number	In %	In Number	In %	In Number	In %
Micro	54,363	93	57,709	95.18	95,777	94.25
Small	3,873	6.63	2,686	4.43	5,468	5.37
Medium	216	0.37	235	0.39	401	0.38
Total	58,452	100	60,630	100	101,616	100

Source: All India Fourth Census Report, 2006-07

According to the 4th All India census report 2006-07, 101,616 MSMEs out of all India total of 361 lakh units were become sick/incipient sick due to suffering from any one of the three main criteria of sickness (i) erosion of net worth by more than 50% or (ii) delay in repayment of institutional loan by more than 12 months or (iii) and decline in gross output over three consecutive years. Out of total sick unit, 95,777 units or 94.25% of sick/incipient sick units have been Micro, 5,468 units have been small, and 401 units (0.38%) have been Medium Enterprises. The report revealed that in total sick/Incipient sick 60,630 units belong to Incipient sick and 58,452 units are in the category of the sick enterprise. The maximum sick and incipient sick enterprises are under the category of micro enterprise.

Table: 1.15.1; Industry-wise Sick MSMEs in India

Sectors	Sick/Incipient Sick MSMEs (% of Sick/Incipient Sick MSMEs in India)
Food Products and Beverages	17.66
Wearing Apparel	10.24
Textile	9.09
Fabricated Metal Products	8.50
Furniture	5.52

Repair and Maintenance of Personal and Household Goods Retail Trade	5.46
Other Non-metallic Mineral Products	4.44
Chemical and Chemical Products	4.36
Machinery and Equipment NEC	4.14
Wood and Wood Products	3.92
Others	26.67
Total	100

Source: All India Fourth Census Report, 2006-07

Table 1.15.1 indicates that 73.33% of the total sick MSMEs has belonged to only ten above mentioned sectors and food products and Beverages sector have shown the highest (17.66%) of sick Incipient sick units, followed by wearing apparel, textile and others.

1.16 Industrial Sickness in Micro, Small and Medium Enterprises in India

Industrial sickness is a significant and stressful problem for many economies. The failure of a business is an event which brings a lot of tension or pain to entrepreneurs, managers, policy makers, government and others. The sickness which is a universal phenomenon and more so in growth in developing economies like ours where some inefficient and problematic enterprises have to go out of existence and new units have to come into existence. But when the problem of sickness becomes widespread and reaches to serious dimensions, then it is not a normal phenomenon, rather a severe economic problem which needs immediate attention. The industrial sickness in small scale industries in India is rampant and has reached serious dimensions. It has been notified from the table that there were 361.76 lakh total MSMEs units in 2006-07 and it has increased to 510 lakh units in 2014-15. The sick unit in MSMEs was 1.27 lakh in 2006-07 and roses to 5.35 lakh in 2014-15. The percentage of sick units among the MSMEs was 0.35% of total MSMEs in 2006-07, and it went up to 1.05% in 2014-15. The growths in sickness among the MSMEs are increasing continuously. On the other hand the total investment in MSME units was reported at Rs. 868,543.79 crore in 2006-07, out of which 0.57% of the investment made in sick MSMEs. The percentage of investment of sick units was revolving in the range of 2.41% in 2013-14 and marginally reduced to 2.26% in 2014-15. In absolute terms, the investment in sick

units increased year after year as there was an increase in investment in MSMEs unit.

Table: 1.16; Industrial Sickness in MSMEs in India

Year	Total MSMEs (Lakh)	Sick Units (Lakh)	Share (%)	Total Investment in Sick MSMEs (Crore)	Total Investment (Crore)	Share (%)
2006-07	361.76	1.27	0.35	4,981	868,543.79	0.57
2007-08	377.36	0.85	0.23	3,082	920,459.84	0.33
2008-09	393.7	1.04	0.26	3,619	977,114.72	0.37
2009-10	410.8	0.78	0.19	5,233	1,038,546.08	0.50
2010-11	428.73	0.90	0.21	8,934	1,105,934.09	0.81
2011-12	447.66	0.86	0.19	9,283	1,183,332.00	0.78
2012-13	467.56	2.20	0.47	16,640	1,269,338.02	1.31
2013-14	488.46	4.65	0.95	32,870	1,363,700.54	2.41
2014-15	510.57	5.35	1.05	33,378	1,471,912.94	2.27

Source: Micro Small and Medium Enterprise Annual Report 2015-16, RBI Handbook 2015-16

1.17 State Wise Sick Micro, Small and Medium Industries in India

Every state in the country varies from one another in terms of factorial endowments, historical legacies in entrepreneurship, infrastructural bounties, geographical features, political scenario, etc. States also differ about industrial policies and incentive packages. These regional differentiations have greatly influenced the growth and pattern of Industrialization in a different part of the country. There is a great disparity in the growth of industries and also in the magnitude of industrial sickness between different states as can be seen from Table 1.16. A cursory look into the table reveals that the sickness in micro small and medium scale industries is more prevalent in the states like, Assam, Orissa, Bihar, Andhra Pradesh, Maharashtra, Karnataka, West Bengal, Uttar Pradesh, Madhya Pradesh, Tamil Nadu, Kerala, Punjab, Delhi, Uttarakhand, Rajasthan, Jharkhand and Haryana.

As on March 2015, the sickness in these states together accounts for 96% of the total sickness in micro small and medium enterprises. Within this category of states, Uttar Pradesh (13.27%) and Maharashtra (10.42%) suffered from large-scale sickness in the micro small and medium scale sector. It can also be seen from the Table 1.17 that less industrially developed states like Andhra Pradesh, Bihar, Uttar Pradesh, Madhya Pradesh, Orissa, Rajasthan, and Kerala, have

witnessed four digit sicknesses. It may be stated here that the data pertaining to small industries sickness in the country is mostly incomplete. In India, as yet there has no census conducted by any agency for the data of industrial sickness in MSMEs. However, the number of units identified sick based upon the report by the banks/financial agencies or data collected or survey conducted by any agency in some parts of the country and not throughout the country. As yet there has been no detailed survey in the identification of sick small scale units in the state of Bihar by any agency whatsoever, the total sick units in 2015-16 the state are 34,055 units with total outstanding amount Rs. 1,200.19 crore.

Table: 1.17; State wise Sick MSMEs Status in India

State/Union Territory	2013		2014		2015		Sick MSMEs	Outstanding
	No. of Units	Amount O/S	No. of Units	Amount O/S	No. of Units	Amount O/S	Total No.	Total O/S
A&N Islands	68	1.59	98	6.48	111	35.54	277	43.61
Andhra Pradesh	12,461	1,268.73	42,618	2,437.29	43,437	24,29.05	98,516	6,135.07
Arunachal Pradesh	75	8.04	158	9.72	345	14.17	578	31.93
Assam	1,318	201.90	5,334	332.49	4,500	511.71	11,152	1,046.10
Bihar	5,705	395.41	16,156	371.17	12,194	433.61	34,055	1,200.19
Chandigarh	659	257.27	1,349	267.29	1,725	911.75	3,733	1,436.31
Chhattisgarh	3,002	89.7	4,814	159.47	6,191	229.84	1,4007	479.01
Dadra & Nagar Haveli	22	1.82	91	8.63	61	9.51	174	19.96
Daman & Diu	25	3.74	19	39.46	36	4.47	80	47.67
Delhi	2,845	1,047.38	4,658	2,040.68	6,066	2,905.52	13,569	5,993.58
Goa	194	30.63	1354	110.80	2329	200.43	3,877	341.86
Gujarat	20,615	8,36.56	48,304	1,790.38	49,003	2,601.02	117,922	5,227.96
Haryana	3,351	468.1	9,308	711.9	10,867	745.83	23,526	1,925.83
Himachal Pradesh	1,954	236.2	2,242	247.64	2075	189.45	6,271	673.29
Jammu & Kashmir	1,327	78.17	2,188	184.42	2,332	276.65	5,847	539.24
Jharkhand	5,031	201.47	8,234	527.68	11,095	595.1	24,360	1,324.25

Karnataka	15,846	939.84	34,212	1,294.96	38,438	1,256.69	88,496	3,491.49
Kerala	8,710	210.65	21,807	487.28	26,248	716.11	56,765	1,414.04
Lakshadweep	0	0	5	0.13	0	0	5	0.13
Madhya Pradesh	11,291	504.86	17,678	509.4	18,151	607.6	47,120	1,621.86
Maharashtra	32,388	3,137.91	43,411	4,598.99	50,006	4,837.61	125,805	12,574.51
Manipur	148	1.7	353	9.65	3,688	47.88	4,189	59.23
Meghalaya	69	2.07	158	7.01	152	7.8	379	16.88
Mizoram	159	5.44	48	5.58	25	2.65	232	13.67
Mizoram	147	11.13	455	22.4	468	15.71	1070	49.24
Orissa	11,775	436.03	18,337	748.88	18,866	914.62	48,978	2,099.53
Pondicherry	190	7.68	1913	115.14	1,635	59.66	3,738	182.48
Punjab	3,747	765.47	6,575	1,035.59	13,326	1,847.04	23,648	3,648.1
Rajasthan	20,343	289.08	27,791	557.58	23,226	553.48	71,360	1,400.14
Sikkim	63	4.09	215	31.59	66	2.6	344	38.28
Tamil Nadu	23,468	1,814.47	44,121	2,844.41	44,719	3,650.73	112,308	8,309.61
Tripura	16	0.15	2,166	44.85	5,196	259.07	7,378	304.07
Uttarakhand	4,572	179.69	15,810	1,848.16	3,446	195.96	23,828	2,223.81
Uttar Pradesh	19,104	1,570.86	63,355	6,847.38	7,7761	2,494.98	160,220	10,913.22
West Bengal	11,517	1,632.06	23,062	2,615.43	38,835	3,814.33	73,414	8,061.82
Total	222,204	16,639.89	468,397	32,869.9	516,619	33,378.2	1,207,221	82,887.97

Source: Micro Small and Medium Enterprise Annual Report 2015-16 Reserve Bank of India Handbook

1.18 Implications of Sickness

Industrial sickness has caused a number of severe socioeconomic implications. Sickness in small scale industries is not only the disadvantage of entrepreneurs, but to the whole economy. It creates huge losses to the state in the shape of employment, capital assets, production, revenues, etc. The disastrous consequences of industrial sickness are suffering from various internal as well as external stakeholders like shareholders, employees, financial institutions, suppliers, customers and society as a whole. It also reduces the loaning activity of the financial institutions as it reduces the velocity of circulation of funds. Sickness in industries is inviting sickness in banks and financial institutions by reducing their profitability considerably. The banks' non- performing assets in Bihar is increasing rapidly through outstanding amount not recovered by the bank.

The sickness in industries has not only caused economic losses to the state, but also has resulted in many socio-psychological crises to the individuals and their families. It has been found that the state of extreme poverty faced by the idle workers. The Idleness of workers and subsequent poverty caused due to industrial sickness is also causing school drop-outs and adding to the mental depression of entrepreneurs, etc. It is too eating up the precious time of the judiciary and banking officials as sickness results in litigations, thus forcing them to cut short their time on productive and more dangerous jobs. The sickness in small-scale industries, if not treated properly, would vitiate the entire socio-economic atmosphere of the state. So to usher in a healthy and self-sustaining small-scale industrial sector in the state, there is an immense need to evolve a broader probe into the problem of small industries sickness in the state which requires a comprehensive and holistic redress rather than inventing quick fixes. The endeavor in this direction has been made in the following chapters.

2. Review of Literature

2.1 Introduction

The purpose of this chapter is review the existing literature on micro, small and medium enterprises which provides the theoretical background of the present study. The study has been divided in to two parts namely studies on causes of industrial sickness and studies on the prediction of industrial sickness. The study includes international, national and regional level study.

2.2 Studies on Industrial Sickness

2.2.1 International Studies

The leading cause of the corporate failure of sickness can be classified in the economic, financial, administrative neglect, fraud or disaster and managerial neglect (Ch Zang & Ming Xu, 2008).

Hoque & Biswas (2013) the companies are operating under the influence of many external and internal factors, various combinations of external and internal factors were responsible for the industries to become sick. The study revealed the causes of sickness were varied industries to industries, area to area.

Kang (2012) the main factors for the failure of small and medium enterprises are technology, management, and others. The important components influenced every organization in various ways, and if the organization has to defeat these requirements, then it expertly finished their innovation advancement.

Kambwale et al., (2015) identified the important reason for the failure of SMEs in Namibia was ineffective planning, not have capital and finance, not exposed to the education of systems in the industry, etc. Further, the study has recommended that the government should take the initiative to set up SMEs financial institutions and training centers. SMEs owners and managers should ensure that they get all the training requirements to run SMEs effectively and efficiently.

Mohammad et al., (2013) investigate the factors are responsible for the failure of SMEs in Pakistan. The study has investigated both internal and external factors are responsible for industrial sickness in Pakistan. It found that the newly started companies need the essential competencies and skills of management to handle issues and challenges. Insufficiencies in bookkeeping and money related administration, promoting abilities and skill, the absence of good operational and manufacturing strategies and insufficient HR administration rehearses lead them

towards disappointment. The study was subjective, however found some failure of key variables like Money related administration and bookkeeping, manufacturing and operation administration, promoting administration and human asset administration are the primary driver of the majority of SMEs vanishings.

Blossom et al., (2014) SMEs, owners in Oman face many challenges related to the growth of this sector. The study even tried to find out whether the challenges faced by male and female entrepreneurs are different. The study has found that SME owners in Oman face challenges like policy and administrative issues followed by marketing and financial issues. Further, it was suggested that SME directorate should form a committee to frame rules and regulations to avoid complexities in carrying SMEs business.

Nongnit C. (2011) on the failure of SMEs in Thailand, stated that in rising nations like Thailand SMEs are the main important cause of employment. Despite their importance, SMEs in Thailand face many difficulties like financial problems, lack of access to institutional credit, economic causes, and social causes, etc. The main focus of this study was on to develop a model to predict failure of SMEs. The study also stated that there is the impact of the failure of SMEs on owners, shareholders, manager, employees, lenders, suppliers and even on government. Therefore it is essential to have a model that could be used as an early warning signal for SMEs. The study has covered the role of SMEs in Thailand. The study has also reviewed and discussed the previous literature on the success or failure of SMEs in various countries.

Smith & Watkins (2012) on the risk management practices of Small and Medium Enterprises in South Africa. The reason behind the failure of South Africa's SMEs is ignorance of owner-managers handle the risk of the business. The study has stated that owner-managers of SMEs to understand the value of risk management in business & even they should try to minimize the risk of failure. The study has concluded that SME risk management techniques are limited and therefore it is necessary that proprietor director ought to add to a danger technique to stay away from, diminish and react to potential danger.

Ramukumba (2013) the key purpose of this study is to explore the success factors of SMEs in South Africa, which face challenges in the competitive market. The study says that SMEs can survive in the competitive market by pulling in rehash clients and enhancing the execution of their items. The study has found

that SMEs in South Africa is facing many challenges like lack of management skills, lack of finance and difficulty in obtaining credit, lack of updated technology and lower production capacity, lack of support from the government. The study has recommended that SMEs in South Africa should concentrate more on attracting customers, improvement in the quality of products and generating more and more cash.

Mashenene & Rumanyika (2014) SMEs in Tanzania suffer from many business constraints which hamper their business. The study has found that SMEs in Tanzania face problems like inadequate training, insufficient capital, poor access to credit, anti-entrepreneurial culture. Further, it was suggested that serious measures should be taken by policymakers and other business practitioners to address these constraints. The author was recommended that proper training must be provided to SMEs to face competition, to use the multiple sources of financing business. He also suggested that further studies can be done in the same areas but by primary data.

Jahur & Quadir, (2012) analyzed that most important cause of financial distress in SMEs of Bangladesh by using both financial and statistical techniques. The primary reason for this study was to examine & reveal the causes of financial distress of Small and Medium Enterprise in Bangladesh. The findings revealed that SMEs of Bangladesh faces financial problems like poor funds management, poor accounting system, poor financial control, indebtedness, etc. Few important suggestions on policies and strategies have been provided by this study to the Government of Bangladesh for the improvement of the SMEs of the economy.

Ping (2013) on financing difficulties seen by small and medium enterprises in China has found that SMEs are playing a very crucial role in China for the development of the economy. The Focus of this study was to find out the causes of financial difficulties of Chinese SMEs (Small and Medium Enterprises) and to provide solutions to overcome this. The study has also tried to analyze some of the SMEs own problems and revealed that SMEs do not get enough funds due to lack of effective mortgage. Not only has that lack of managerial experience, but lack of knowledge of financial management, the uncertainty of technology and market also hampered the growth of SMEs. These causes increased the high bank cost of supervising SMEs.

Further, the study has suggested that the Chinese government should formulate relevant policies to motivate Commercial banks to help SMEs. Even new financial institutions should be set up to support SMEs in China. The Chinese government should revise interest rate formation mechanism. Even tax reduction is the most effective policy the government should employ to encourage more and more SMEs. The government should strive to develop a corporate bond market to provide the financing opportunities for SMEs.

Gulani & Usman (2012) the challenges faced by SMEs in Gombe state in Nigeria. The main aim of this study was to identify the difficulties faced by SMEs in accessing finance from financial Institutions and banks. The study has collected data through primary and other sources of information. The study has concluded that finance is essential for the growth and development of SMEs in Gombe State. SMEs face the main problem from where to source capital for the development. Further, the study has suggested that the State Government should start funds programs to reduce poverty and grow economy. Gombe Government should start more and more awareness programs about the activities of MFIs.

Hande (2015) it was stated that 99.9% of enterprises in Turkey fall in the category of the SME sector. The study has reported that in Turkey inadequate levels of equity finance and not having easy access to outside financial agencies are the major funding difficulties for SMEs. The primary aim of the study was to examine the significant role of management of finance and to recognize their challenges and practices which impact the growth of enterprises in Turkey. The study is divided into three parts, i.e., Growth of SMEs, the importance and challenges of Turkey's SMEs, the relationship among practices of strategic financial management. The study has stated a few common problems of SMEs of Turkey such as lack of advanced technologies, be short of training in the trades, lack of administrative capacities, a large rate of assessments, etc. The study has revealed that strategic financial management practices such as strategic financial reporting, strategic fixed asset management, strategic working capital management; strategic financial planning would lead to better performance of SMEs.

Ajuwon et. al.(2017) The study evaluate the relationship between firm size and job creation in Nigerian economy. The study employed the dataset of 444 enterprises across including all sectors like 110 micro enterprises, 218 small enterprises and

116 medium enterprises. The dataset was sourced from the 2014 World Bank Enterprise survey on Nigeria. The policy implication of this study is that any targeted intervention to reduce unemployment should focus MSMEs, as this study as confirmed that small businesses are actually a net creator of jobs. Furthermore, MSMEs development centers should be encouraged so as to stimulate MSMEs growth.

Rehman et.al (2019) study first analyzes the entire possible obstacle for SMEs in western Balkan countries and applied the factor analysis to obtain with large samples and panel data. The result observed that show variability for different countries access to finance, tax rates, tax administration, corruption, inadequately educated labor force, competition in informal sector and political instability appear to be some of the main obstacles that are negatively affecting LP of SMEs in WBC.

2.2.2 National Study

Bidhani & Mitra (1986) had identified internal and external both are the cause of sickness of the industries. The causes were classified on a functional basis. It is considered that internal cause can be prevented, but external reasons are not under the control of management.

Bedbak, (1984), Samson M. & R. Jena (1985), Aggarwal (1987) Sivaraman & Chander (1989), Honda (1992), and Prakash et.al (2017) revealed that sick small scale units have inherited inability of economic operations due lo faulty project planning; wrong choice of location; and inadequate market analysis, wrong choice of products; the underestimation of capital input costs,- lack of entrepreneurial experience and skills, long gestation period and lack of sufficient capital. These researchers have revealed that most of the small entrepreneurs choose their business area without proper knowledge. Mishra & Karan (1990) stated that internal factors which are mostly related to mismanagement in various areas like technical, financial, operational and marketing.

Jain (1991), the dishonest and ill-motive entrepreneurs leave smaller units in sick condition from its inception as their main aim mainly is to pocket the subsidies and other incentives and became willful defaulters. But, Rao (1988) Vice President of All India Sick Small Scale Industries Association observed that sickness in small scale industries also creeps-in due to the lack of understanding of the narcotics involved into the working of smaller scale industry.

Bedbak (1984), Aggarwal (1987), Yadav (1988), Katiyar (1993), Deolankar (1985), Sandesara (1988),.Tilak (1988), and Singh (1987), have identified that the small scale units also achieve sickness due to adverse effect of internal factors, like, lack of managerial skills, low equity base, diversion of funds, poor quality output, obsolete technology unplanned capital expenditures, and reduced labour relations. The other internal factors, according to Tilak (1988) Sandesara (1988), Singh (1987), and Dvasenpathy (1980), the most severe internal factors are miss-management, lack of proper organizational behavior and managerial skills know how to manage the organization. According to Kuchal (1988) starting a small scale industrial unit to be a simple job and do not care about the expertise and competence required for running the unit in this competitive business world.

Kumar & Rajendra (2015) SMEs in India are facing many problems like financial, operational and managerial which have resulted in the failure of SMEs or poor growth of SMEs. The main aim of this study was to analyze the major reasons for the failure of SMEs in India and to identify the symptoms of failure in advance.

Gugloth & Kumar (2011), the primary purpose of this study, was to identify sickness reasons of MSMEs and the remedial measures MSMEs can take to overcome sickness. The main internal and external causes of sickness are mismanagement, cost of capital, overestimation of demand, poor financial, production, and marketing and personnel policies. Some of the external causes of failure of MSMEs in India are changes in industrial policies of the government, unavailability of raw materials, lack of skilled labour, lack of demand for products, etc. Further, the study has stated that it is necessary to detect industrial sickness.

Pachouri, & Sankalp (2016) in their working paper list out that availability of cheap labour, credit flow, lack of information, market constraints, and inadequate infrastructure are major key barriers for the innovation and growth of small and medium enterprises in India.

Technology and innovation are the most critical factors of the sickness in small scale industries. Singh (1987) observed that various studies had ignored the role of technology could be caused by sickness in small scale industries. The vast and rapid technological changes with which the small firms have failed to keep a pace and poor maintenance of machines by them, resulting in reduced product quality and production inefficiencies, thereby reduces the marketability of their

products and finally health of the units. However, Meena (1989) and Gupta (1987) contradicted with the above finding and reported that the technology and poor maintenance of machines have a very insignificant role in the sickness on the plea that technology is not that important in small scale industries.

Finance is the essential resource in small scale industries, and the small entrepreneurs do not have easy access to the funds thus, calling for more financial discipline by the small scale units. Srichand (1989), the economic time's research came out with the finding that internal financial factors, like inadequate provisions for depreciation and bad debts, unwise distribution policy and high debt position belong to the category of factors responsible for sickness. The problem of investment-cash flow sensitivity was explored by Fazzari et al. (1988). MSMEs in general face difficulties in raising capital because of the unwillingness of banks to provide finance (Berger & Udell, 2004)

Kuchal (1989) observed that many traditional industries which have been in operation for an extended period, such as, sugar and textile mills, others have also become the victims of shortsighted financial, depreciation and bad debt provisions policies which are reflected in the inability of the entrepreneur to replace worn-out machines. However, Singh (1987) in his study entitled ‘found that 45% of small scale industries were becoming sick due to inadequate working capital accounting. Tilak (1988) came with a different exposure that financial problems were arises due to low equity base and lack of access to market capital. Small scale industrial sector is a protected sector. A large number of products have exclusively been reserved for small scale industries so that they are protected from the competition from large industrial.

Shrivasan (1990) and Desai (1987) in their study of industrial sickness in small scale industries in India came out with the revelation that the stiff competition arising from the entry of large industrial houses into the lines reserved for the exclusive exploitation by small scale industries has also contributed to the small industries sickness in India. Honda (1992) who tried to identify the relationship between follow-up for detecting sickness at an early stage and the sickness revealed that the inadequate post sanction follow-up and failure of concerned agencies to guide and help derailing entrepreneurs aggravated the problem of sickness in India.

The external problems were created by external factors and are beyond the control of the management (Desai, 2006). Industrial sickness may be due to change in government policy, poor management, the absence of control of borrowing, poor reporting, dishonest practices on the part of management, inability to respond and others. The reason of sickness may vary from unit to units. External factors usually affect all industrial units, and internal factors affect only the concern industries. According to Singh (1987), Moharana & Jena (1985), Deolandar (1985), Aggarwal (1987), Desia (1987), Yadav (1988), Meena (1989) and. Khan (1989), external factors are equally responsible for sickness in small scale industries. Almost all the above investigators have found that the external factors like power shortages, the inadequacy of raw-materials, problem of skilled labour and lack of sufficient finances and working capital forced sickness into the small scale industries. Over and above these external factors, Aggarwal, Bedbak H.K., Singh, and Desai had found that there is a fair degree of influence on the incidence of the sickness of unrealistic Government policies; towards prices, distribution, etc., decline in public sector investments and recession in demand. The role failure by the Government has also been identified by Sunil (1992) who had remarked that the ineffective role by different Government agencies engaged in the development of small scale industries and the lack of co-ordination among the various agencies have made the life of the small scale units more difficult. Kuchal (1984) the sickness of industries due to major cause poor implementation in cost and time overruns.

Ghana (1985) found that a deficiency in internal forces like finance, production, marketing, and personal leads towards the industries became sick. Krishna (2003) viewed that the financial collaboration on technological transfer leads too much burden on the small scale enterprise and lead towards the sickness. Srinivas (2005), Baksi (2010) gives importance to finance and technology to the most important cause of sickness of small scale industries. Sankar (2009) discussed that the SMEs in India face challenges due to lack of access to capital market and alternative financial institution to promote this sector.

Sood (1987) in his study discussed the magnitudes and dimension of the problem of industrial sickness in all the states. He also explained the role of the

Reserve Bank and other financial institution in overcoming the sickness and also discussed the government policy for rehabilitation of sick industries.

Marketing is one of the important and blood of the organization, the failure and success of the entrepreneurship highly depended upon better strategic marketing skill. Khan (1989), Benerjee (1992) and Saikia (1992) have identified that the unscientific and primitive marketing practices, lack of any full-fledged marketing effort, lack of orders and marketability have a higher degree of influence on the health of small scale units. The same view was expressed by Panda & Kishore (1989) and have elaborated that the marketing problems finally cause or aggravate the difficulty of working capital, the most referred cause of sickness in small scale industries because such units fail to recycle funds quickly.

Bhunia et al., (2011) in his study discussed the prediction of the financial distress of Indian Companies. The ability to detect potential financial problems at an entry level is essential because it helps to ensure ensuring the sustainability of business, financial, economic and political environment. Goyal et al., (2012), Muthu (2015) in their study focused on the cause and remedies in sickness in micro, small scale industries in India. The incidence of industrial is a continuous process. Continuous sickness leads to closer, hence to avoid the closure of industrial unit entrepreneur to act a preventive measure before the closure of industries. Dutta (2013) in his study addressing the core issues of probability a company becomes sick. The industries classified into two groups such as good performance and bad performance companies. Choudhary (2012) presented in his paper on industrial sickness in Jammu and Kashmir Industries Ltd. The empirical study was to find out the cause and casualties in industrial sickness. The author identified many reasons that led to becoming sick, and the reason includes corporate planning failure, a production problem, financial barriers, managerial inability, obsolete technology, and marketing related problems. The most crucial reason found by the author was the financial reason and managerial skill.

Nayak & Nayak (2016) described the major core issues of the sickness of industries includes mismanagement in all the sectors including production, poor labor input out, poor resource management, lack of professionalism. The author seems to agree with the other, also cause such as underutilization capacity, technology obsolesce, low motivational skill, the absence of planning and indiscipline organization

2.2.3 Regional Studies

Each region/states have different social-culture, geographical features, economic aspects, political gambles and other factor endowments which have important factors in the industries to survive in the state. The disparities among the states have different causes of sickness among states to states or region to region. Because of this fact, it was unwise to conclude about the problem from the studies conducted at the national level. Such a study is expected to give a general view of the problem, but not an insight into the fundamental forces that are behind the factors that cause sickness. The serious study to find out the causes of sickness in small studies should conduct a micro level study at region and state wise. The state and region wise various studies are mentioned below.

Sarma & Barooah (1984) had attempted to identify the factors that have caused industrial sickness in small scale industries in the backward North Eastern Region of India and came up with the findings that lack of managerial skills and inadequacy of financial resources are the major causes of sickness in NERI. The small entrepreneurs of the region have lack of managerial aptitude, skills, motivational factors, zeal and most of the entrepreneurs have start entrepreneurship, not by choice. The managerial deficiencies had resulted in large scale labour turnover, financial instability, and improper accounting systems. Further, the smallness of markets in NERI, absence of an organized marketing in the small scale units and inadequate marketing support by the Government agencies, obsolete technology, difficulty in getting raw materials, faulty project planning, power shortages, more transportation costs and insufficient social overheads have also contributed to the sickness in the region.

Banik & Bauah (2002) in his unpublished thesis disclosed the industrial sickness in Assam through the cost accounting approach. The author discussed the effective cost management approach to reduce the sickness of the industries. However, need for cost and management approach to enhance the efficiency of management, but also increase the efficiency of employees. The study was based on the primary survey conducted in various districts of Assam.

Nixon et al., (2010) were conducted a study during 2005-2010 in northeastern state Manipur. The result has shown the sickness of industries due to internal, external and government policies. The inner course includes financial collapse, external causes include reducing in demand, and delay in disbursement

in payment of debt and government cause includes red-tapism of government officials. Goswami et al., (2012) used a mathematical model to find out the stages and symptom on a few small scale units in North East states of Assam. The study evaluated industrial sickness by considering four different stages related to eight distinct symptom and signs. The model used to generate a few industrial sickness stages of certain small scale units of Assam. The generated stages compare well with financial data obtained from field studies.

Hemanta (2012) study said that in a country like India, where labor-intensive technology may be a better strategy for small scale industries to increase employment in an economy. The study has found that the productivity of labour is low as compared to capital. There was a lack of modern technology, lack of training facility for the labour and infrastructural facilities are below the standard. The study has concluded that government should frame proper policies to correct the imbalance in Assam and should provide a better environment for the growth of Small Scale industries in Assam.

However, in Bihar, Suresh (1989) found that only lack of entrepreneurial skills, the absence of financial discipline, and political instability are responsible for sickness in small units. Contrary to his finding, the IFCI (1951) Advisory Committee argues that apart from power shortages; managerial inefficiencies were the most significant problems in Bihar which have caused much damage to the industrial health. The Editor 'Indian Nation' Patna (1985) in his editorial has come up with a different observation that absence of long term industrial policy in Bihar and instability in Industrial policy as every new Government is coming up with a new policy which has resulted in many industrial quotas. The Editor of Times of India' Patna (2013) quoted that MSMEs are in Bihar faces huge funding problems. Gupta and Sharma (1984) in their article (Indian Nation; Patna) accused banks of large scale red-tapism and non-cooperation and different concerned Government agencies of inadequate industrial infrastructure, and marketing, raw-material and electricity problems which had added to the problems of small units and finally caused sickness. Singh (I985) in his thesis attempted to study the incentives and assistance provided by the government and need to develop infrastructure facilities in Bihar. A brief account of the potentialities and prospects of SSI in Bihar was also given. Mishra, (1991) has conducted a study on "Industrial sickness' Role of entrepreneurs." The purpose of the study was to highlight the problems of small

scale industries in Bihar, leading to their sickness. The findings of the study state that the labour problem, machinery shortage and lack of technical know-how were dominant problems faced by unhealthy units. The study suggests that the development of entrepreneurship can be a practical solution to the problem of industrial sickness in a small sector.

Sharma (2003) in his study examines industrial financing by national level financial institutions. The study also discussed the role of state financial institutions in financing industries of Bihar. Narayanas (2008) in his research was dealing with the financing the industries in Bihar by the various development banks. The study discussed the role of multiple agencies to promote, finance to small scale industries in Bihar on the grass root level. The editor of business standard Patna (2013) in editorial observed the 15% of the industrial units are either missing or dead. According to the author, the banks did not interest to provide or facilitate the entrepreneurs in providing the loans that lead to entrepreneurs to closes their shops. Prakash, B. (2019) examines the growth and performance of MSMEs in the state of Bihar, India. The study investigates the comparative analysis of the performance of the MSMEs in Bihar Vis India. The result revealed that the positive growth in the units but employment growth is not as per the unit of the MSMEs.

In Andhra Pradesh, Nag & Mazumdar (1977) a study made by Indian Institute of Economics, revealed that tight procedure of credit, delay in supplies of raw materials, transportation bottlenecks, lack of good quality raw materials, lack of financial management and finance are the important causes of sickness. Bhandari (1980) and Murali (1991) revealed that sickness is mostly due to the shortage of raw-materials, shooting cost of production caused by high prices of raw materials, more labour costs and inflation, lack finances and marketing problems. Sickness had also been caused by poor marketing strategies adopted by the entrepreneurs. In the state Rao (l992) Naidu & Padmavathi (1987) have reported that lack of finance and marketing failures are the leading causes, constituting about 64 percent the total sickness, raw-material problems account for 18% and lack of skilled and miss-management for 10% each. They also lamented the role failure of different Government agencies which has also caused some sickness in the districts — further observed that the industries requiring more working capital have turned mainly sick. Srinivas & Rao (2012) had primarily focused on the causes of sickness in co-operative sugar factories in Andhra Pradesh through the use of L.C

Gupta Model ratios. The study identified the mismanagement, shortage of raw materials; low capacity utilization and high input cost lead to industry became sick. Gampala (2018) examines the various factors influenced the performance of MSEs, he examined that finance and credit are two major factors which influenced the performance of MSEs in Telengana. The author concluded that most of the loans used for the working capital management among selected MSEs in Telangana state. Therefore, it is suggested that the state and central governments has to focus more on the implementation and optimum utilization of loans and credit schemes rather than introducing new schemes.

In Tamil Nadu, Bhandari (1980), Srinivasan (1991) and Bhabalosh (1992) revealed that the most serious problem being faced by the small scale units in the state is lack of finances, which has caused most of the sickness. It was also reported that the scarcity of raw materials is also plaguing many units. However, Rao (1992), studied the relationship of labour factor with the sickness in the state and observed that poor industrial relations contribute to the sickness in small scale industries in the State. Bhandari (1980) contends in his study that the power and raw-material shortages were major challenges.

Maharashtra, the financial nerve of the country and the most industrially developed state has the other face. Ramakant. (1989) claimed that a shortage of raw materials, their price rise, labour unrest, and financial difficulties are pivotal contemporaries in the sickness in small scale industries, Sharma, (1987), Kaveri,(1991), Tande (1989), Gupta (1989) and Singh (1990) had found that managerial deficiency is not responsible for sickness in the state. However, the survey conducted in Vidarbha, Nagpur pointed out that faulty project planning, miss-management, marketing constraints, and raw-material difficulties cause failures in the area. Mudholkar (2016) study revealed that in Nanded the shortage of raw materials, raw materials, high price, poor infrastructure, lack of skilled manpower, and the high cost of the advertisement cost leads to the industries became sick.

Joshi (1990) had conducted a study to identify the major causes of sickness in small scale industries in Rajasthan in a preview of the Rajasthan Financial Corporation (RFC) and raised the question why the small units became sick? The study concludes with the primary cause was the improper project formulation, over-investment, low equity, and unplanned capital structure. The author also

emphasizes the inefficient marketing and managerial strategies and entrepreneurial skill lead to industry became sick. , Sharma (1985), Reddy (1989), Joshi (1980) and Arvind (1980) reported that financial problems, low-equity base, and diversion of funds are significant causes of sickness in the state. Contrary to their findings, A. K. Majumdar & Nath (1985) revealed that sickness in industries in the state is mostly born, due to indigenous and exogenous factors. They also argued that the ill motive of entrepreneurs is also a major concern for the closure of the companies in the state. The observation is also being supported by Joshi (1990) and Reddy. (1991).

Orissa has a shallow industrial base on the one hand and poor industrial performance on the other. Despite different Government policy initiatives, industrial sickness, particularly in small scale sector, has retarded the industrial growth and development largely. Roughly 61.85% of the registered units were reported to have gone sick. Such a high degree of sickness had prompted the researchers and different agencies to search for the causes of sickness in the state. Panda and Meher (1992) conducted a detailed investigation into the causes of sickness in Jagatpur industrial estate, Cuttak, Orissa and have come up with the findings that the sickness of an industrial unit was not caused by a single factor but is the result of a host of factors, either inter-related or inter-dependent with one another. Lack of orders and marketability arising due to faulty initial planning and inadequate market analysis has a higher degree of influence of sickness, followed by marketing problems; mismanagement; faculty planning; shortage of raw materials, and infrastructural bottlenecks in the state.

On the other hand, Shetty (1990), Vaidya (1987) and Roa (1989) have revealed that the inadequacy of finances and working capital is a major cause of sickness in the state. Aggarwal (1989) confirms the finding of Panda that competition from large scale industries and ill-motive of entrepreneurs has also attributed to the sickness in many units. However, all these studies are revealed that labour problem is not responsible for sickness in the small scale industries in the state. Nayak & Mishra (2006) in his study sickness in small scale industrial units and revival discussed the special reference of the Orissa State Finance Corporation (OSFC) and procedure of revival of the industrial units. The study concluded with the cause like delay in supply in raw materials, delay in banker's payment settlement and poor selection of entrepreneurs are the major cause.

A study conducted by the Orissa state financial corporation (1977) revealed that inadequate working capital, inordinate delay by the commercial banks in the sanctioning of working capital funds, lack of market, fierce competition from outside the state, management deficiencies (mainly among the first generation entrepreneur) and long gestation period, etc. were the major reason of industrial sickness.

In West Bengal, according to Bhandari (1980), the position on the ground is not the one as highlighted by the Government statistics. The small scale industries in the state are suffering from the problem of sickness which has been mainly caused due to the inadequacy of finance, wrong location, severe competition from the large sector and lack of infrastructural facilities. Banerjee (1989), Basu (1991) and Chatterjee (1991) has come up with the finding that labour problem is causing much trouble followed by marketing problems and inadequacies of working capital. No study in West Bengal has attributed sickness to power shortage. However, more regulations and paperwork in the state has been found to have caused some ill health in the small scale sector (Bandhari, 1980), (Chandor, 1988) and (Banerjee, 1989).

In spite of locational disadvantage, the state of Punjab has witnessed steady growth in small scale industries. The network of small scale industries covers almost all industrial activities; the most important were included, agricultural implements, machine tools, sports goods, cycle and cycle parts, cotton textiles, woolens, hosiery goods, and sewing machines. However, small scale industries in the state are not free from sickness. The incidence of sickness is not large when compared to other states. Bhandari (1980) and Singh (1990) reported that mainly shortages of raw-material, furnace oil and power are responsible for sickness while studying the entrepreneurship development.

Choudry (1991) pointed out that most of the entrepreneurs of the state lack managerial skills and competence which over the time gets reflected in lousy health of small scale units. However, shortages of skilled labour and occasional credit squeeze by the banks have also been found to have caused sickness in the state. While studying the role of Government agencies in the development of small scale industries in the state, Lai & Sharma (1991) reported that the role failure of the different concerned Government agencies has also contributed to the sickness in the two states. Stiff competition within and with the large scale industries is

assuming the significant role in turning the small units into sick condition (Aggarwal, 1990). Such an observation has been confirmed by other researchers both at the national level, regional level, and industry level.

In Himachal Pradesh Bhandari (1980) has conducted a study into the causes of sickness in small scale industries in different states revealed that 56.5% of the units were sick mostly due to marketing problems. Financial and raw-material difficulties contributed to the extent of 36% and 30% respectively. Technical issues account for 14% of the sickness in the state. Bushan has supported the cause of the sickness proposed by Bushan.(1990), Koul (1992) and Sriram. (1991). in further Bushan (1990) reported that Himachal docs did not suffer from labour shortages; hence there can be no role of labour problems in the sickness. Mishra (1989) revealed that Miss-management also has a role in the sickness though insignificantly. In 1987 under the Chairmanship of Dr. Sharma pointed out that the majority of small industries were facing the problems of high rent premises, shortage of raw materials and lack of competent staff. In the same year 1987, a survey conducted by the commercial band in the district of Sirmour has pointed out that lack of working capital is a significant chunk for the sickness in small scale industries.

Sharma (1989) conducted a study of 120 industrial units (40 each in district Solan, Sirmour, and Una) to investigate the extent and causes of sickness and to suggest the remedial measures to check the industrial sickness in the state of Himachal Pradesh. He concluded that major causes of sickness related to finance, technology, market, and labour. He observed that the promoters are not utilizing working capital funds properly. The incidence of sickness was found highest in district Sirmour 42.5%, followed by Solan 27.5% and lowest in Una 20%. The total sickness was estimated at 30%. The highest sickness was witnessed in mineral based industries 55%, followed by manufacturing industries at 36.3%. However, no sickness was found in forest-based industry, minor sickness 8.31% was found in the steel industry. Mehta and Kondle (1991) pointed out that Himachal Pradesh does not have adequate liquidity, which shows the inadequacy of working capital. As a result shortage of raw material, marketing problems and mismanagement of funds problems emerged. It was further stressed that the debt content is comparatively high and the owner's venture capital in total capitalization is not adequate as per general financial norms; it was concluded that it is because of

special incentives which were given to the entrepreneurs in the backward industrial state.

Patel (1975) study in Gujarat attempted to find out the relationship between age and experience of entrepreneurs with the success of small industrial units and has revealed that higher the age and experience, the greater the probability of achieving success. Industrial Financial Institution experiences have shown that 12 % of its assisted units, most of them established by the new entrepreneurs were adversely affected. Dave (1987) study was devoted to sickness in a Textile Company in Gujarat. He describes the factors were responsible for the sickness such as historical factors, government policies, technological development, changes in demand and power shortage. He stated that management is not able to identify the sickness at an early stage. Aggrawal & Upadhaya (2014) discussed the sickness among MSMEs in Gujarat. They argued that the stiff competition in the Indian market is the main reason for the industrial sickness. The external reasons like under finance by banks, changing government policies, the improper supply of raw materials and power supply, availability of financing sources was the main reason for industrial sickness in Gujarat.

2.3 Reviews on Prediction of Sickness

The various attempts to taken to predict the failure of the corporation. Patrick (1932) started to analyze the financial profile of companies with the risk of the business. Beaver (1966) the failure of the firm is defined as the inability to pay the debt. The primary concern is not with predictors of failure; the financial ratios worked as the predictors to predict the failure of the companies. Altman (1968) the prediction of corporate bankruptcy by using the set of financial ratio analysis and economic ratio investigate a sickness prediction through Multivariate Discriminate Analysis. Wilcox (1970) considers the prediction of financial stress through financial ratios. Meyer & Pifer (1970) analyzed the prediction of bank failure through Multiple Discriminate analysis. Prediction of failure, whatever the cause reduces the length of time losses was incurred and misallocation of resources.

Milman & Durrant, (1999) defined failure as a registered company which is bankrupt, under liquidation or has been liquidated. The principal method for determining solvency before 1985 was the cash flow test. Keige (1991) did a study of business prediction, failure using Multivariate Discriminate Analysis. The type of ratio used to predict the corporate failure was best discriminate failing companies.

In Kenya current ratio, fixed charge coverage, return on earning from assets prediction before dismantling of the corporate. The study revised the model of Altman to predict corporate failure. Kiragu (1993) surveyed to build a model to predict the corporate failure using accounting data at an adjusted price level. The general price level index was used to improve the historical accounting data. The ratio was used as Times interest cover, fixed charge coverage, quick ratio, current ratio, equity to total assets, working capital to total debt, retained earnings to total assets, change in monetary liabilities, total debt to total assets and inventory turnover.

Narayana (1997) every study contrasts the profile of failed firm with that of the healthier firm to conclude coincidence factors of failure. All these studies based on the Multiple Discriminate Analysis (MDA), Logistic regression, Probit model was the effective tools to predict the failure of the company. The various statistical techniques used to predict the distress of the corporate and predict the sickness of industries. Beaver was the first to develop a technique to predict corporate failure (Horne, 2002).

Since 1966 various research studies conducted to predict corporate failures such as Charitou (2004) develop a failure prediction model of the United Kingdom (UK) public industrial firm. Neural networks and logit methodology were employed to a dataset of fifty-one matched pairs of failed and non-failed UK public industrial firms over the period 1988– 97. The results indicate that a parsimonious model that includes three financial variables, a cash flow, profitability, and a financial leverage variable, yielded an overall correct classification accuracy of 83% one year before the failure. The 1970s and early 1980s brought modifications of MDA-techniques (Gupta, 1983; Bhattacharya, 1982), which were eventually outmoded by multiple regression models in a qualitative response framework (Chattopadhyay, 1995; Anant et al., 1992). Karels et al., (1987) have evolved a multivariate technique to forecast bankruptcy. The study related to predicting corporate failure, such as Australia (Izan, 1984), Japan (Xu and Zhang, 2008). Pervan et al., (2011) study of predicting the corporate failure in Croatia. Chung et al., (2008) prediction model used to analyse the firm industry of NewZeland, Italy (Altman et al., 1993). Altar (2009) used various techniques to predict the distress the firms in Romania.

The author, like Ohlson's (1980) The O-Score model was selected nine ratios or terms which he was used to predict the bankruptcy; the logit analysis was also used to predict the financial distress of the companies. Martin (1977) applied a logistic regression model to a sample of 23 bankrupt banks during the period 1975-76. Other accounting-based models developed were by Taffler (1983, 1984) Bhatia (1988) and Sahoo, et al**.,** (1996) applied the multiple discriminant analysis techniques on a sample of sick and non-sick companies using accounting ratios. Several other studies used financial statement analysis for predicting default.

Zamijewski (1984) applied a probit model to predict the failure of the companies. Some authors like Lennox (1999) and Menard (1995) implied both the model's logit and probit to predict the distress of the companies. Abdullah et al., (2008) compare three methodologies to identify the distress of financial companies in Malaysia**.** Lennox (1999) concluded from their study that profitability, leverage, and cash flow; all three components were deportment on the probability of bankruptcy on a sample of 90 bankruptcy firms. Further studies were conducted by Shumway (2001), Altman (2002) and Wang (2004) and all these studies emphasized the maximum use of financial ratios for predicting corporate failure. Grunert et al., (2005) was found through empirical evidence in his research that the combined use of financial and non-financial ratios can provide greater accuracy in default prediction as compared to a single factor.

The study Jayadev (2006) gave importance of financial risk factors to predict the default companies. The significant variables of default companies were a current ratio, debt-equity ratio, operating margin, working capital to total assets, earnings before interest, and tax to total assets, net worth of debt, and assets turnover ratio. Bandyopadhyay (2006) compared three Z score models. Agarwal & Taffler (2007) emphasized the predictive ability of Taffler's Z score model in the assessment of distress risk spanning over 25 years. Baninoe (2010) evaluated two types of bankruptcy models; a logistic model and an option pricing method and concluded from his research that distressed stocks generated high returns. Kumar & Kumar (2012) conducted empirical analysis on three types of bankruptcy models for Texmo industry: (i) the Altman Z-score; (ii) Ohlson's model; and (iii) Zmijewski's models to predict the probability that a firm will go bankrupt in two years Charalambakis (2007) in his study examined the prediction of financial distress for United Kingdom firms. The hazards model that combined both accounting and

market information provides a more accurate prediction of the probability of financial stress than accounting ratio on Z score model and a model based on market information, to predict the financial distress both accounting and market information to take.

Campbell. et al., (2010) the studied, discussed corporate failure due to the financial crisis. The study had found that distressed stocks have highly variable returns and high market betas and those they tended to underperform safe stocks by more at times of high market volatility and risk aversion. However, investors in high risk stocks have not been rewarded for bearing these risks. Hoque & Biswas (2014) computed industrial sickness with the help of the ratio analysis method. The main components were cash flow ratio, net income profitability ratio, debt ratio, current ratio, turnover ratio, and others. Celli (2015) study ascertains that if the Z score model could correctly predict the failure of industries in Italy. The study analyzes the theoretical and practical characterized of the original Z score model and revealed their shortcomings. The study found that Z score works effectively and perform well to predict the failure of industries in Italian firms. This study involves a critical study of Altman (1968) and Springate (1978) Z score model to predict the financial stress in IT companies in South Africa. Both models developed in different economic condition, industry, and country. Testing these models in the South African context is essential to determine the practical applicability and relevance of the models. The study analyzed financial statements and examined the Z scores of sample companies to test the estimated potential of models in bankruptcy. Gupta (2014) developed an accounting based prediction model using discriminatory analysis and logit regression and compared the estimated potential of these models. The research findings establish the superiority of the logit model on discriminatory analysis and display the importance of accounting ratios to predict the distress.

Laksrisakul & Evans (2005) study argued that it is desirable to have systems that can improve reliability to identify a firm to become financially distressed. The study applies the technique of multivariate discriminant analysis (MDA) to predict the bankruptcies of listed companies in Thailand. A study by Ramaratnam & Jayaraman (2010) analyzed and predicted the financial health of five selected companies in the Indian industries by using Altman's Z score model. The study revealed that all the five companies were in safe stage and financially

sounds during the study period. Another study by Bhatt (2012) investigated the ability of three versions of the model for distress prediction in the Indian markets. The study was conducted on four selected companies, belonging to various sectors. The results proved that the models have remarkable degrees of accuracy in distress prediction. Sulphey & Nisa (2013) investigate the analytical implication of Altman model to analyses of BSE small capital companies. The result has depicted that only few companies were in the safe zone.

Prakash & Rajput (2018), the study argued the financial distress hampered the hospitality industry in India.

The many researchers have used traditional financial ratio such as an accrual ratio (Panigarh & Mishra 1993; Sharma & Rao 1976; Altman 1968; Khatri, 2016).Some study related to cash flow ratio (Bever, 1966; Deakin.1972; Blum, 1974; Norton & Smith, 1979**;** Hoque, 2011) useful to predict the failure through the cash flow ration.

2.4 Research Gap

1. On the basis of literature review it can easily be concluded that a large number of studies have conducted in India on industrial sickness although cover many states, but none of them attempted to study the causes of industrial sickness in Bihar.
2. In Bihar, some professionals, researchers and scholars in this field have written several articles of exploratory nature on problem of small scale industries, financial help for industries, effective use of working capital management measures of small scale industries which are mostly narrative in nature; but no one dealt with the empirical evidence of industrial sickness in micro small and medium enterprise in Bihar.
3. The previous studies did not focus on prediction of magnitude of sickness in small and medium enterprises, especially companies those are not listed on the stock exchanges.

3. Research Methodology

3.1 Statement of the Problem

The growing sickness in Micro small and medium enterprises is major concern for developing countries like India. The growing sickness in MSMEs acts as a great hurdle for economic growth of the country. The growth of industrial sickness in micro, small and medium enterprises hamper the economic growth and increase regional disparities. There were 361.76 lakh MSMEs were operating in 2006-07 and it increased to 633.88 lakh units in 2015-16. The percentage of sick unit among MSMEs was 0.35% in 2006-07 and roses to 1.05% in 2014-15. The growth in sickness among the MSMEs is increasing continuously. On the other hand the total investment in MSMEs units was reported Rs. 868,543.79 crore in 2006-07, out of which investment incurred in sick units has been worked out to 0.57%. The percentage of investment of sick units was revolving in the range of 2.41% in 2013-14 and marginally reduced to 2.26% in 2014-15. In absolute terms, investment in sick units increased year after year as there was increase in investment in MSMEs unit. The industrial sickness caused number of adverse effects on the economy such as unemployment, low productivity of MSMEs capacity, infant mortality of MSMEs, and decrease in export etc.

3.2 Need for the Study

The smooth development of any areas depends on the persistent growth of micro, small and medium scale industries. The operation of MSMEs can never be a smooth process and have to face numerous problems on every stage in changing environment. These problems vary from region to region depending upon the stage and level of economic development. Micro & small industrial units have attracted the attention and interest of researchers and policy makers to find out the real problems through primary sources of information. Most of the economic enquiries have examined the problems of small industry in general. Some of studies focused on the cause of sickness in MSMEs in various states such as Orissa, Andhra Pradesh, Uttar Pradesh, West Bengal, North East States, Punjab and others. Though the government is offering a wide range of incentives and adopting favorable policies and programs to promote MSMEs, the growth of

this sector has been relatively slow and not encouraging. Most of the MSMEs are operating under certain technical and economic handicaps. Among the various types of small industries, some are income generating and others are employment generating and a few are both. The study is mainly designed to analyze the growth pattern, location aspects, government policies or incentives to promote entrepreneurial evolution, structure of manpower, working capital and problems of micro, small and medium enterprises in the context of Bihar.

The study also attempts to analyze the issues of industrial sickness, socio economic condition of sick units, cause and remedies of sickness and others. It is expected that our research investigation on prediction of sickness in MSMEs might add a new dimension in the literature of sickness in MSMEs.

3.3 Objectives of the Study

The study has designed with following objectives:

1. To examine the performance of MSMEs in Bihar vis-à-vis India.
2. To predict the magnitude of industrial sickness MSMEs in Bihar.
3. To explore the factors responsible for Industrial sickness of MSMEs in Bihar.
4. To suggest remedial measure to overcome from industrial sickness of MSMEs in Bihar.

3.4 Hypotheses of the Study

The following are null hypotheses of the study (which will be tested at level of significance of 0.05):

1. The performance of MSMEs in Bihar is less than satisfactory.
2. Men, materials, machines, market, infrastructure, finance, competition natural disasters are major problems for MSMEs in Bihar.

3.5 Research Methodology

The specified objectives for the study and the hypothesis have demarcated the scope of the study and the research methodology to be followed to test the hypothesis. The research objectives and three hypotheses are worked to direct data analysis, and identified several condition of the study. In addition, the study of relevant literature related to the study established the background of support for the study. Most of these variables / individualities have been studied extensively, but not from the same respondents. This research effort is a way to check the relationships between these variables that have not been done so far. The purpose of this section is to describe the method used in this research effort. The

section contains details of study settings, research design, study sample, and data collection methods, procedures, and analysis efforts.

3.6 Study Setting

In its broadest framework, this study addressed population of the MSMEs in Bihar. However, the vast diversity in geographical location as well socio economic status is induced different types of MSMEs. Therefore, setting was delimited for sampling of the study.

The settings of this study all MSMEs in to ten settings. These ten settings are covered all type of enterprises working within the state. The ten group in the study are; Agro and allied based enterprises, Non- metallic & mineral based enterprises, Engineering based enterprises, Paper & printing based enterprises, Forest based enterprises, Repairs & Service based enterprises, and Textile based enterprises, Hotel and hospitality enterprises, Electronics & Electric based enterprises, and Miscellaneous units.

The 10 setting was chosen to provide for a sample of all type of enterprises in MSMEs with confined all geographical and socio economic status attributes of Bihar.

3.7 Research Design

A Research design is a master plan or model for the conducting of formal investigation and survey. It is a specification of methods and procedures to obtain the information needed to solve this problem. It decides the sources of information and methods to collect data. Schedule and other forms are used for the collection of data.

The proposed study employs an ex post facto research design as described by Kerlinger (1973):

> *"Ex post facto research is systematic empirical Inquiry in which the scientist does not have direct control of variables. Inferences about relationships among variables are made from any determined variations between the studied variables" (p. 344).*

However, the study method involved the gathering of information about entrepreneurs in MSMEs in Bihar in two different study setting. No manipulation of the variables/attributes by the researcher has been made; instead any determined

differences are ex post facto in nature in that they stem from differences in results in the measurement efforts according to age, study setting, entrepreneurial stage, and other variables/attributes.

3.8 Population and Sampling Method

All the enterprises of Bihar which falls in any of Micro, Small and Medium Enterprises' definition as defined in the 'Official Operating Definition of MSMEs' section constitute population for this study.

Multi-stage sampling technique was taken study. The first stage stratified sampling, second and third stage random sampling was used. Enterprises were representative of whole state in dimensions of official divisions. There are 38 districts in Bihar. These districts are divided in-to 9 official divisions and these divisions were considered as strata in the first stage of sampling for this study. In second stage of sampling, it was randomly selected on districts from each division. For all divisions, one district was selected randomly. So in total 9 districts was selected in the second stage of sampling. In the last stage of sampling 50 entrepreneurs was selected randomly from the unitary data of 4^{th} all India census of MSMEs 2006-07. In total 450 entrepreneurs in MSMEs from 9 districts representing the whole state was selected for data collection.

Obtaining data from 450 MSMEs as described in the previous paragraph resulted in a good cross section of subjects in terms of gender and type of enterprise, category of entrepreneur etc. In addition, the normal variations in variables/attributes among at least 450 MSMEs enable in statistical/mathematical comparisons for the study's hypotheses that provides new information about different dimensions of MSMEs in Bihar.

3.9 Data Gathering Method

3.9.1 Secondary Data

Besides that secondary data from authentic sources has been used in this study. Reference books, reports and survey publications of Governments and its agencies were used to supplement primary data.

3.9.2 Primary Data

Field survey was done to collect the data. A schedule that also asks subjects like their location of enterprise, gender, type of enterprise etc. was delivered to respondent in each setting who was agreed to respond. Prior to their distribution conversation with MSMEs was made asking for their cooperation. The

schedule also described the research and its importance and the support of the researcher. In case of difficulty or doubt in interpreting the meaning of schedule respondents was assisted by the researcher in order to minimize response error.

3.9.3 Pilot Testing

A pilot survey with 10% of the sample size had been conducted to ascertain and reduce the ambiguities, and removed poorly and relevant question from the questionnaire. From the responses, remarks and comments received on pilot survey entire questionnaire was refined and improved to take acre of respondents. After the pilot-testing required changes in the data collection plan was carried out.

3.9.4 Period of Field Survey

The primary survey was carried out from August 2017 to August 2018.

3.10 Data Analysis

The data collected from both sources primary and secondary have been edited, coded, categorized and transcript and thereafter summarized and arranged in logical order. In the process, certain errors and omissions were detected and subsequently corrected. The content analysis also has been made for inferring characteristics, causes and to draw a comparative analysis of various levels of communication through a process of conversion of recorded ‘raw’ phenomenon into data. Tabulation was done both manually and mechanically. The statistical analysis of data has been done also with the help of ‘SPSS’ through a computer.

A different analysis was made to achieve different objectives in order to solve the purpose of the study. First, in order to provide a description of the sample from which data was collected, descriptive information on year of starting of enterprise gender, type of enterprise category of entrepreneur etc. was described. Mean, range, and standard deviations for the variables are used. Second, to determine, any differences in responses according to the moderating effects of gender, type of enterprise category of entrepreneur etc., Chi square tests are used. To test hypothesis for interval scale data t-tests is used. Lastly, F-tests & analysis of variance (ANOVA) and factor analysis have also been used to examine for any significant differences among the responses of various groups regarding dimension under study.

3.11 The Model to Predict Industrial Sickness

For predicting the sickness in MSME unit's financial ratios and Multiple Discriminant Analysis applied. Altman (1968) used Multivariate Discriminant Analysis (MDA) to examine the corporate failure.

Altman Z score model used 22 financial ratios in various combinations as predictor of failure. The ratios, which were included, and the weights given were determined by the significance of the contribution they made to the predictive ability of the model. The final set of ratios was determined by F-tests and computed analyzing the possible alternatives. The following five ratios did the best job in discriminating between failed and non-failed firms.

$$\mathbf{Z=1.2*X_1+1.4*X_2+3.3*X_3+0.6*X_4+0.99*X_5}$$

Here Z = Overall index,

X_1 = Working capital / Total assets (Liquidity measure)

X_2= Retained earnings/Total assets (a measure of reinvested earnings)

X_3= Earning before Interests and Taxes/Total Assets (Profitability measure)

X_4= Market value of equity/ Book value of debt (measure for firms capital structure)

X_5= Sales/ Total assets (measure for sales generating ability of firm's assets)

The value Altman's Z score which can be used to classify firms as either financially sound if score above 2.99, headed towards bankruptcy a score below 2.99 and above 1.81 called as Grey zones and those with a score below 1.81 are classified under distress zone. The lower the score, the greater is the likelihood of bankruptcy and vise-versa. Based on the scores Altman divided the study units into Zones of "Safe", "Grey", and "Distress" zones.

3.12 Significance of the Study

This research being an empirical study for various dimensions of sickness would fill the gaps between theory and practice of industrial sickness. The research may be beneficial to all concerns especially researcher, academicians and policy makers to understand relationships between variables/attributes related to industrial sickness in MSMEs in Bihar.

4. Economic Resources and Performance of Micro, Small and Medium Enterprises in Bihar

4.1 The State Overview

Bihar is known as the land of Nirvana and situated in the eastern part of the country. The capital of the State is Patna situated on the banks of holy river Ganga. The state has located in the lower Himalayan region in the fertility of the Gangetic plains. The geographical and climatic condition makes the state distinct from the other states. The economy of the state much dependent upon agriculture makes a state an underdeveloped state. Bihar is the third most populated State and 12th position in the area in India.

4.2 Geographical Location

Bihar is located 24 ° -20'-10 "N ~ 27 ° -31'-15" N longitude and 82 ° -19'-50 "E ~ 88 ° -17" -40 "latitude in the eastern part of the country and captured 94,163 square Kilometers. The state is a completely land-locked state in the sub-tropical region of the temperate zone. The state is surrounded by Jharkhand in the south, Nepal in the north, Uttar Pradesh in the west and West Bengal in the east. Bihar plain is divided into two sections (North Bihar and South Bihar) from the Ganges River, which flows from mid to east. The state has situated at average height is 173 feet from the sea level.

4.3 Administration and Demographic Profile

Bihar is distributed in 09 divisions, i.e. Patna, Magadha, Saran, Tirhut, Darbhanga, Koshi, Purnea, Bhagalpur and Munger. Further, Bihar has divided into 38 districts for administrative purpose i.e. Arwal, Patna, Nalanda, Rohtas, Bhabhua, Bhojpur, Buxar, Gaya, Jehanabad, Nawada, Siwan, Gopalganj, Sitamarhi, Muzaffarpur, Shivahar, West-Champaran, East-Champaran, Vaishali, Darbhanga, Madhubani, Samastipur, Saharsa, Supaul, Madhepura, Purnia, Araria, Kishanganj, Katihar, Banka, Bhagalpur, Munger, Lakhisarai, Aurangabad, Saran, Shekhpura, Jamui, Khagaria and Begusarai. The state has 101 subdivisions, 534 blocks and 8,463 Panchayat and 45,103 villages.

The total population of the state as per 2011 census is 103,804,637, which is about 8.6 % country's total population. The density of population in Bihar (1,106 persons per sq.km) is nearly three times higher than India (382).The decadal growth rate of population in the district was 25.07%. Another disadvantage of state

to urbanization in state which is nearly 11.3%, compare to India (31.2%). The Scheduled Castes (S.C) population is 16,567,325 lakh, and Scheduled Tribes (S.T) population is 10 lakh forming 16% and 1.03% of the total population respectively. The 80% of the population is dependent upon agriculture for their livelihood. The literacy rate in the state is 63.82% of the total population.

4.4 Economy of State

The economy of the state is presently on the continuous growth path. According to new series of data on Gross State Domestic Product (GSDP), the growth rate of the state was 11.3% in 2017-18 which increased from 9.9% in 2016-17.During the same period the national growth was 7%. In 2016-17, the highest growth rate was recorded by tertiary sector (12.8%), followed by primary sector (9.8%) and secondary sector (4.2%).

4.5 Climate

The state's atmosphere is sub-tropical. There are four seasons in the state. They are - spring cover January and February in which the average temperature ranges from 15^0C to $16½^0$C. The summer season is average from $27½^0$C to 30^0C from March to May. Rainfall falls during the rainy season from June to September, in which 1250 mm to 1400 mm winter season occurs from October to December, in which average temperature ranges from 8^0C to 15^0C

4.6 Water Resources

The state is endowed with rich ground and surface water resources. The Ganges is the most important river in Bihar. The other rivers of the State are Kosi, and Gandak flows in the North Bihar and Sone, Punpun, Sakari, Chanan flows in the South Bihar contribute towards availability of water in the state for agriculture and non-agriculture purpose.

4.7 Soils

The soil is one of the most important resources of a country. It is the gift of nature, having numerous values. The soil is the essential part of the economic activities of the country. This soil is the backbone of agricultural and industrial development. In Bihar, there is a thick alluvial covering of drift origin, which flows in most parts. The land is mainly revived every year by the continuous accumulation of the odor, soil and sand brought to the young streams by various streams. This soil is deficient in phosphoric acid, nitrogen and humidity, but potash and lime are

usually present in sufficient quantities. There are three types of soil in the state, namely swamp soil usually found in the northwestern part of West Champaran district, terai soil found in the northern part of the state along Nepal border and the Gangetic alluvium soil found in the rest of the state.

4.8 Rainfall

The state is substantially dependent rain water, the variability in rainfall on monthly basis are important determinates of performance of agriculture and non-agriculture sectors. The trends of season-wise annual rainfall in the state for the period of 2013-17 are presented in Table 4.8.

Table: 4.8; Season-wise Annual Rainfall in Bihar

(Rainfall in mm)

Year	Winter Rain (Jan-Feb)	Summer Rain (March-May)	Southwest Monsoon (June-Sept)	Northwest Monsoon (Oct-Dec)	Total
2013	17.1	73.8	518.4	164.3	773.6
2014	33.3	96.1	788.3	41.9	959.6
2015	11.7	89.3	690.7	4.3	796
2016	7.5	72.6	936.9	54.5	1071.6
2017	0.4	103.1	843.2	47.6	994.4
Average (2013-17)	14	86.9	755.5	62.5	919

Source: Directorate of Economics and Statistics, Government of Bihar

4.9 Resources in Bihar

4.9.1 Human Resources

The population of the State as per 2011 census is 104,099,452 persons. Bihar is the 3rd most populous State of the country with 54,278,157 males & 49,821,951 females. The density of the population in the state works out to 1106 persons per sq. Km. as against 382 for all India. The Sex ratio in the state is 918 females per thousand males against the 943 for all India. The Literacy rate is 61.80 % is also below the national average of 74.04%.

4.9.2 Agriculture

Agriculture is a major component sector of the economy of the state. This sector helps to stimulating growth, employment generation, and poverty reduction in the overall economy. After the division of the state, there are no natural resources and huge industries are in the present state. Therefore, the growth of

the agricultural sector is considered to be very important for the overall development of Bihar's economy. The land of the state is much more abundant water resources and minerals. These are a patch of aquatic soil, sandy soil, clay soil and any two mixing, which is very suitable for particular types of crops. The different soil varieties are found in different agro-climatic zones. The farmers of the state produced varieties of the crops. Apart from food grains (cereals and pulses), the state also produces oilseeds, fibre crops, sugarcane, fruits, vegetables and other crops. Recently, there has been a diversification in production, as floriculture has caught the imagination of the farmers because of the increasing demand for flowers.

4.9.2.1 Cropping Pattern & Production

The state is endowed with high biodiversity. Bihar is the third largest producer of vegetables and the fourth largest producer of fruits. The state is the largest producer of litchi, makhana, and guava. The important principal crops produced in the state are rice, wheat, gram, barley, Sugarcane, maize, oil, seeds, masoor, Khesari, Arhar, Tobacco, Potatoes, and Chilies. Through the various initiatives of Government, the production in the agriculture sector has been increased in the state in comparison to the past. Table 4.9.2.1 depicts the cropping pattern in Bihar has been shown for the period 2012-13 to 2017-18.

Table: 4.9.2.1; Cropping pattern in Bihar

Crops	Percentage of area					
	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Food grains	93.02	92.89	93.25	93.09	93.60	93.72
Cereals	85.9	85.8	86.16	86.09	86.69	86.94
Pulses	7.11	7.08	7.09	7.15	6.90	6.77
Oilseeds	1.59	1.74	1.63	1.64	1.53	1.46
Fibre Crops	1.94	1.71	1.56	1.62	1.53	1.50
Sugarcane	3.46	3.66	3.51	3.50	3.35	3.33
Total	100	100	100	100	100	100

Source: Department of Agriculture, Government of Bihar

4.9.2.2 Crop Production

Fertility of soil and abundant groundwater resources enable the farmers of Bihar to produce both food and non-food crops. In addition to the major cereals and pulses, farmers of Bihar also produce oilseeds, fibre, fruits and vegetables. In

the long run, farmers have taken an interest in growing flowers, both in terms of increasing demand for both domestic and external. The below Table 4.9.2.2 shows the production of cereals, rice and pulses in the state from 2013-14 to 2017-18.

Table: 4.9.2.2; Crop Production

(Production in '000 tones)

Crops	2013-14	2014-15	2015-16	2016-17	2017-18	CAGR (%)
Food grains	16,238.32	14,750.04	14,508.03	18,560.78	18,560.78	4.22
Cereals	15,716.3	14,321.11	14,087.25	18,099.11	17,348.61	4.41
Rice	6,649.59	8,241.62	6,802.22	8,238.77	8,093.16	4.00
Wheat	6,134.68	3,570.21	4,736.45	5,985.84	6,104.3	5.20
Maize	2,904.24	2,478.75	2,517.1	3,845.7	3,120.77	6.00
Coarse Cereals	2,932.03	2,509.28	2,548.58	3,874.5	3,151.15	5.96
Pulses	522.02	428.93	420.78	461.67	454.17	-2.03
Oilseeds	157.18	127.01	126.52	125.86	124.24	-4.68
Fibre Crops	1,745.08	1,637.12	1,630.6	1,571	1,280	-6.40
Sugarcane	17,938.65	21,117.43	18,175.59	18,239.9	17610.12	-1.82

Source: Directorate of Economics and Statistics, GOB, Researcher's own calculation

4.9.3 Animal Husbandry

Bihar is an agrarian economy lead to promote the farmers to adopt animal husband as an occupation. Apart from agriculture, animal husbandry is one of the key sectors which play an essential role in employment and income opportunities for the rural people of Bihar. This area contributes about one-fifth of the total agricultural income and generates a large scale of employment for rural women and marginalized labour. Apart from this, since many families are landless or landless in rural Bihar, this area supplements their low income from the agricultural business. As per the livestock census of 2012, the total livestock population was 32.93 million.

Table: 4.9.3; Livestock Wealth

Livestock and Poultry	2003	2007	2012	CAGR (%)
Cattle	10470	12408	12232	5.32
Buffalo	5766	6690	7567	9.48
Sheep	346	218	232	-12.47
Goats	9606	10167	12154	8.16
Pigs	627	632	650	1.21

Horses and Ponies	115	51	45	-26.86
Others	0	0	55	NA
Total Livestock	26957	30167	32939	6.91
Total Poultry	13968	11420	12748	-3.0

Source: Ministry of Animal Husbandry (GOB)

4.9.4 Forest

After the bifurcation of the state, only 621.43 hectares of the geographical area comes under the forest zone. The area under forests has remained at just 6.6% of the total geographical area of state. Only districts of the state have a substantial forest area, As Bihar is deficient in forest area having much lower coverage of the forest than the national average, and there is a need of rapid afforestation to maintain environmental balance.

4.9.5 Mining and Quarrying

The state is very poor natural resources and minerals. The state is holding 95% of the pyrites of the country. The state has a good resource of bauxite in Jamui district, cement mortar in Bhabua, Mica in Muzaffarpur, Nawada, Jamui, Gaya and Chota Nagpur Plate. In the state, there are small minerals like soil, sand and stone and the major minerals of the state include granite, bauxite, quartzite, pyrite, mica and limestone. Petroleum reserves are also likely to be located in West-Champaran, Purnia, Saharsa and Supaul districts. The revenue received by the state from 2014-15 to 2017-18 are detailed in Table 4.9.5.

Table: 4.9.5; Revenues from Minerals in Bihar

(Rs. Lakh)

Sources	2014-15	2015-16	2016-17	2017-18
1. Major Minerals	107.3	99.1	57.5	152.85
Minor Minerals				
(i) Bricks	2,659.1	4,295.6	3,639.9	3,934.47
(ii) Sand	50,542.1	42,806.3	45,765.2	41,066.77
(iii)Stone +Crusher	7,516.9	11,097.9	11,140.6	12,784.91
(iv) Morum	0.5	56.4	0.0	0
(v) Soil	270.3	271.4	833.4	485.42
(vi) Works Deptt	24,074.5	36,413.5	35,999.8	41,893.12
(vii) Transit Pass	42.4	40.7	25.2	1039.12
(viii) Others	278.7	626.2	1564.9	1636.48
3. Arrears	443.3	1392.9	383.7	172.82
Total	85,935.0	97,100.0	99,410.2	108,265.96

Source: Department of Mines and Geology, GOB

4.10 Infrastructure

Infrastructure is vital to point for the economic development of the country. Availability of adequate infrastructure not only promotes the rapid industrialization, but also improves the quality of life of the people. Therefore, the state government is very much focused on the development of high-quality infrastructure in the state. The development of infrastructure faces various obstacles like delay in obtaining approval, land acquisition and environmental clearance. The state policymaker must take necessary steps to remove these barriers. The delay in the implementation of the projects usually leads to an increase in the project cost, proper maintenance of infrastructure is equally important because of its increase the utility and life span. The infrastructure includes the full spectrum of essential services such as roads, railways, civil aviation, telecommunications, postal facilities, energy sector and urban development.

4.10.1 Roads

Road network is the important and critical component of the physical infrastructure in any region, particular in underdeveloped state like Bihar. The road network is essential for the economy helping in various activities, such as agriculture, industrialization and service delivered. Transport is one of the primary factors that promote networking development. On the one hand, the extensive road network integrates the rural economy with relatively prosperous urban, on the other hand, it improves access to facilities like people, schools, hospitals and markets. Therefore, Public investment in roads and bridges has increased substantially in recent years. However, in the case of road length of every lakh population per state, the state continues to be behind other states. In 2012-13, only 190 kilometers of road were constructed in the state; the average is very low to national average to 358 kilometers.

Table: 4.10.1; Length of Roads in Bihar

Type of Road	2001	2005	2010	2015
National Highway (NH)	3,410	3,629	3,734	4,595
State Highway (SH)	2,383	2,177	3,787	4,253
Major District Road (MDR)	7,739	8,891	8,965	10,634

Source: Departments of Road Construction, GOB

The table 4.8.1 indicates that the National Highways (NH), State Highways (SH) and Major District Roads (MDR) construction during 2001-2015. The total

length of NH constructed in 3,410 kilometers in 2001 and increased to 4,595 kilometers in 2015. The SH entire length increased from 2,383 kilometers to 4,253 kilometers in the same period.

4.10.2 Road Transport

Road transport is the most preferred way of transportation compared to rail and air transport for both goods and passengers. It plays an essential role in promoting the state's economic development and social integration. During the last five years (2013-14 to 2017-18), the number of motor vehicles registered in the state has increased rapidly at an annual rate of 12.2%. The major growth drivers of registered vehicles were truck (15.9%), car (16.8%), two-wheeler (17.21%), and trailer (11.84%).

Table: 4.10.2.; Number of Registered Vehicles

(No. in '000)

Year	Truck	Bus	Car	Taxi	Jeep	Auto	Two Wheeler	Tractor	Trailer	Others	Total
2013-14	11	2	23	12	9	35	420	31	8	2	553
2014-15	13	2	28	7	9	31	477	34	12	2	615
2015-16	6	1	11	3	4	12	228	14	7	1	287
2016-17	20	3	34	5	9	42	593	38	20	1	764
2017-18	23	3	50	6	13	37	929	33	14	11	1118
CAGR	15.9	8.4	16.8	-12.1	7.63	1.12	17.21	1.26	11.84	40.63	12.2

Source: Department of Transport, GOB

4.10.3 Railways

The large rail networks are connecting the major cities, heavy industries, and large markets. The railways also provide a less costly mode of transport for both goods and passengers. The share of rail transport in Bihar's Gross State Domestic Product (GSDP) has gone up from 2.1% (2005-06) to 1.2% (2014-15). As on March, 2016, there were a total of 6,870 kms of rail track and 3,731 kms of rail route in state. The share of rail route in Bihar was 5.6 % of the national figure. The density of rail route in Bihar was 39.6 kms per 1000 sq. km of area. However, Bihar had only 4.9 kms of rail route available for per lakh of population.

4.10.4 Airways

As a basic infrastructure segment, airways play an important role in facilitating the development of economy. With a significant multiplier effect on the development of the economy, a strong civil aviation set-up is required to the

uninterrupted flow of investment, trade and tourism. The number of aircraft movement increased from 9,900 in 2014-15 to 11,054 in 2014-15. In these two years, the number of passengers increased from Rs. 10.5 lakh to Rs. 12.0 lakh, and freight traffic increased from 4,849 tons to 518 tons.

4.11 Power

Economic growth of the state depends on the availability of adequate, reliable and quality of power at an economic rate. Electricity has now become necessary for all facets of life, and it has been recognized as the basic human need. Bihar's economy is fast growing; however, due to lack of power, there is a possibility of stability in the growth. Per capita, electricity consumption in Bihar is 122.11 kilowatt still behind 778.71 kilowatts in India.

4.11.1 Availability of Power

There has been substantial improvement in peak demand met in Bihar from 3150 MW in 2013-14 to 4535 MW in 2017-18, implying a growth of around 165% in five years (Table 4.9.1). As is apparent from the table, the peak deficit in power has been around 25.9% till 2013-14 by 2017-18, this deficit had reduced to around 9%. The availability of power has increased from an average of 6-8 hours to 18-20 hours in rural areas and from 10-12 hours to 22-24 hours in urban areas (Ministry of Energy, 2017-18). The per capita consumption in the state has risen from 160 kWh in 2013-14 to 280 kWh in 2017-18, implying a growth of more than 100% in five years.

Table: 4.11.1; Power Scenario

Characteristic	2013-14	2014-15	2015-16	2016-17	2017-18
Peak Demand (Megawatt)	3,150	3,500	4,112	4,405	4965
Peak Met (Megawatt)	2,335	2,831	3,459	3,769	4,535
Deficit/ Surplus	-815	-669	-653	-636	-430
Peak Deficit/ Surplus (%)	-25.9	-19.11	-15.6	-14.4	-9.4
Energy Requirement	18,212	22,226	25,550	28,245	30,095
Energy Availability	15,045	18,731	21,679	23,978	26,788
Energy Deficit/ Surplus	-3,464	-3,495	-3,871	-4,267	-5,296
Energy Deficit/ Surplus (%)	-19.0	-15.7	-15.2 -	-15.10	-12.34
Per Capita Consumption	160	203	258	272	280

Source: Department of Energy, GOB

4.12 Banking

Banking is considered essential assistance for modern economic development. The bank is the most important institutional agent to provide credit to agriculture, manufacturing and service sectors. In March 2015, 58% of total commercial banks are working in the rural area, as comparison to 61% in 2013-14. During 2013-14, after the record 638 branches, only 389 new branches were seen next year, 178 branches (46%) in rural areas, 96 branches (25%) in semi-urban areas, and 115 branches in urban areas (29%) opened. In 2014-15, the number of banks increased by 6.6%, compared to 12.1% in 2013-14, which was the highest in the last six years.

4.12.1 Cooperative Banks

The performance of cooperative banks across the country increased by 82% in 2013, but there was a drop of 22% in 2014. Similarly, in Bihar, along with both the State Co-operative Banks, District Central Cooperative Banks experienced contraction in 2014; their number is decreasing from 12% to 11% in absolute term from 311 to 277.

4.12.2 Regional Rural Banks (RRB)

With the launch of Regional Rural Banks (RRB) Act of 1976, Regional Rural Bank came into being to the related equity holdings by the Central Government, state government and sponsoring bank with the ratio of 50:15:35. At the end of September 2015, Bihar had 2058 RRB branches; In September 2014, the number was 1,889. The RRBs namely, Uttar Bihar Kshetriya Gramin Bank alone has 50% of the total RRB branches in the state.

4.12.3 Deposits and Credits

According to the figures released by the State Level Bankers Committee (SLBC), the credit-deposit (CD) ratio in Bihar has been presented in the table. In 2015 September the total deposit of all banks in the state were Rs. 220,667 crore against credit Rs. 104,004 crore. The CD ratio was 47.1% in 2015 against 36.7% in 2011-12. Although there has been some improvement in the CD ratio in recent years, its low level has been suffering from the banking scenario in Bihar.

Table: 4.12.3; Credit-Deposit (CD) Ratio

Year	Deposit (Rs. Crore)	Credit (Rs. Crore)	CD Ratio
2011-12	138,163	50,704	36.70
2012-13	161,036	65,364	40.59

2013-14	183,458	85,334	46.51
2014-15	211,302	100,261	47.45
2015-16	220,667	104,004	47.13

Source: State Level Bankers' Committee

4.13 Industrial Structure

Located in India's eastern part, Bihar, the third largest state in the country in terms of population and 12th largest in the area, is surrounded by Nepal in the north, West Bengal in the east, Uttar Pradesh in the west and Jharkhand in the south. The state enjoys a significant geographical advantage of its proximity to the big markets in eastern and northern India, access to ports such as Kolkata and Haldia, raw material sources and mineral reserves in the neighboring states, and has proximity to South-East Asian markets too.

Bihar is one of the strongest states in agriculture, which provide employment and livelihood to about 80% of its people. It is the largest producer of vegetables and the second largest producer of fruits in India. Food processing, dairy, sugar, manufacturing and healthcare are among the fastest -growing industries in the state.

Industrialization is one of the important areas of growth and development of economic activities, alleviation of poverty, employment generation, removal of regional imbalances and others. In the purview of the state the economic activity is much dependent on the agriculture and small sectors. The government of Bihar is promoting agriculture and allied industries to protect the demand of the state.

In 2014-15, the industrial sector in Bihar has increased by 9.30%, which was marginally lower than the GSDP growth rate of 9.45%. The slow growth in the industrial sector in 2014-15 is due to the slow growth of the manufacturing sector, which has increased slightly by 5%. It is a reflection of the slow growth of the manufacturing industry in the entire national economy. The growth rate for construction, electricity/water supply/gas was also increased by 10.45%. With the improvement in electricity availability in the state, it is expected that in the coming years, its industrial sector will grow at a high rate.

4.14 District Industries Centres (DICs)

The District Industries Centres (DICs) were started at Bihar in 1978. The primary objective of center to providing a focal point to promote micro, small and medium enterprises at the district level and give all possible help and guidance for

the establishment of the firm. It helps the rural entrepreneurs in rural areas to start industries, besides rendering active assistance and the service support required of them under one roof. The important activities are an economic investigation, providing raw materials, helping to procure machinery and equipment, providing training, providing credit facilities and helping in marketing the product. The DIC is also involved in the implementation of Prime Minister Employment Generation Program (PMEGP) in the districts.

4.15. Prospects of Industrial Development: Thrust Areas

Bihar is one of the industrially backward states of India. The economy of the state is predominantly agriculture-based, and about 70-80% of its population is engaged in agriculture and allied activities. In a few parts of the state, agriculture is well developed due to the availability of better irrigation facilities and the remaining portions of the state depend on non-agricultural and marginal agriculture activities. The Bihar is also endowed with rich livestock resources, and this constitutes one of the essential resources of the state. There is an excellent scope to tap this resource for industrial purposes in the state. It is noticed that agricultural, and livestock resources facilitate growth of a variety of industries, which are suggested as follows:

4.15.1 Agro-based Industries

In India, agro-based industries, especially food processing, considered as the sunrise industry due to its vast potential of uplifting the agrarian economy through formation of more food processing enterprises, food chain facilities. This sector helps to create the most substantial employment opportunities. In the case of the production of fruit and vegetables, Bihar is the seventh largest state in the country, and as a result, there are relatively better opportunities for agricultural based industries. Tea and dairy industries have also started expanding in the state. Bihar produces huge quantities of fruits and vegetables. In 2013-14, the total area under fruits in the state was 290 thousand hectares and 778 thousand hectares under vegetables. Fruits like banana, mango, guava and litchi are important in the state of production. Floriculture has also started on the commercial basis in the state, in which 793 hectare area is covered.

4.15.2 Food Processing Industry

A food processing industry is not only be fitted to the commercialization of agriculture, but also work as the safeguard the interest of farmers or lower income

group. In State up to December 2013, a total of 191 projects have cleared with the project cost Rs. 2,606 crore. This industry works like the backbone for the farmers and generates additional 15,181 employments in the state.

4.15.3 Sugar Industry

The sugar industry is largest of agro-based industry in the state, providing employment directly in the producing enterprises and indirectly through its ancillaries and various related activities. The total cultivable land in the state is around 53 lakh hectares, out of which approx. 3 lakh hectares are under sugarcane cultivation. Because of its extensive farming, the government has decided to promote sugarcane industries, which will also strengthen the state's rural economy. For the benefit of sugar mills, various concessions and exemptions have been made by the state government, in which there is a reduction of taxes on ethanol and denatured sentiment from 12.5 to 4.0% and eradication of literary fees on ethanol and alcohol. Of the 28 old sugar mills in the state, 18 are sick and closed, and only 10 are working in the private sector.

4.15.4 Makhana (Gorgon Nut)

Makhana (Gorgon nut) is unique crop and only produced in the state Bihar accounts 85% of total makhana of the country. Makhana is considered as much superior to other dry fruits and have contained of protein and ascorbic acid. It has a big market, local as well as outside. But the technology adopted is old and labour intensive.

4.16 Non-Agro-Based Industry

4.16.1 Handloom

In recent decades, there has been a gradual decline in the handloom sector in the state. Despite the various schemes of the state government, production in the handloom sector has declined steadily. However, the fact is that over 1.32 lakh weavers are utterly dependent for their livelihood in this area. There are 1,089 primary handloom weavers in the state under which approximately 34 thousand handlooms are underway. Bihar State Handloom Cooperative Union, Patna and Bihar State Wool and Sheep Union, Patna are two top-level marketing organizations. The 13 centers are the main market for the handloom in Bihar.

Table: 4 .16.1; Handloom Concentrated Districts in Bihar

District	Products
Bhagalpur	Silk, Cotton, finished cloth, Chadar, mummery Silk and cotton
Banka	Taser Silk,
Gaya	Ornamental Curtain, Bed Cover, Interior decoration material and exportable ornamented fabric
Nawada	Taser Silk and ladies dress material
Darbhanga, Madhubani, Sitamarhi	Fine Cotton long cloth, dhoti, shirting
Aurangabad, Rohtas	Woollen Blanket, Woolen Carpet and Sari
Kaimur	Woolen Carpet, Banarasi Sari
Patna, Siwan	Cotton cloth and Furnishing Cloth
Purnea, Katihar	Jute bags, Jute-blended material, Interior decorative material

Source: Department of Industries, Handloom, GOB

4.16.2 Sericulture

Bihar has excellent potential for sericulture. To employ in the rural areas, the Chief Minister Tassar Development Yojna has launched in 2012-13 with the amount 170.90 crore. The development of Tasar silk is permuted too few districts such as Banka, Mongeyr, Nawada, Bhagalpur, and Gaya.

4.16.3 Jute

Bihar has great potential for the jute industry. There is need of certain promotion like the establishment of Jute Park, modernization of looms, establishment of processing and design center, establishment of a nodal center for design and product development, the establishment of a raw material bank for jute is required.

4.16.4 Leather Industries

Bihar is rich in the bovine population, which is about 8% of the country's total bovine population. The goat population in Bihar is about 12.1% of the country's total goat population. In goat population state ranked the third position in the country, followed to West Bengal and Rajasthan. The state is known for best quality goat skins, cow skins and buffalo's calf skins. Goat skins are smaller in size and the best material for the production of finished kid leather products, which are mostly exported.

4.17 Large Scale Industries in the State

On November 15, 2000, the division of Bihar had, with few significant industries. However, the introduction of a new Industrial Policy in 2006 and its revision in 2011 result increased investments in the state. In 2011-12, there were 12 large scale industrialists working in the state which rose to 16 in 2012-13. The Bihar Investment Promotion Board (BIPB) was approved 3 more large scale enterprises in 2013-14 and 2 more projects in 2014-15 to promote by local entrepreneurs. The total investment by the large scale industries are Rs. 1,245 crore and generate 4,300 employments.

4.18 Micro, Small and Medium Enterprises Scenario in Bihar

The expansion of the industrial sector in Bihar, the state government, encourages entrepreneurs to establish the MSMEs. The smaller enterprises are being the foundation for the large enterprises in the state. According to the Department of Industries report mentioned in Table 4.18 that in 2015-16 total medium enterprises were 86, small enterprises were 2,150, and almost 2 lakh enterprises were micro. During 2010-11 to 2015-16 in 6 years, the growth was medium enterprises (437%), small enterprises (36%) and micro enterprises (9%). This higher growth of medium enterprises, compared to small and micro enterprises, is a positive trend in the industrial scenario in Bihar.

Table: 4.18; Status of MSMEs

Year	Medium	Small	Micro	Total
Up to 2006-07		1,433	162,063	163,496
2007-08	4	42	7,156	7,202
2008-09	7	25	6,122	6,154
2009-10	2	41	5,048	5,091
2010-11	3	33	4,799	4,835
2011-12	2	56	3,904	3,962
2012-13	3	53	3,681	3,737
2013-14	11	131	2,991	3,133
2014-15	22	150	1,879	2,051
2015-16	32	186	2,652	2,770
Total	86	2,150	200,295	202,531

Source: Department of Industry, Government of Bihar 2016-17

4.19 Growth and Performance of MSMEs in Bihar

4.19.1 Growth Structure

One of the significant indicators of industrial growth in an economy is the number of working industrial enterprises in the state. In general, an increase in industrial enterprises implies an increase in investment, employment, output and contribution in exports. The Micro, Small and Medium Enterprises in Bihar have increased at a compound growth rate of 2.25%. In 2006-07 there were 163,496 MSMEs, which were raised to 202,531 MSMEs in 2015-16 nearly 22% higher than 2006-07. This data shows that the number of enterprises increased positively, but steady rate. The annual increase rate in 2007-08 was 4.41 percentages, but the unit's registration decreased continuously and reached at the level of 1.04%.

Table: 4.19.1; Growth of Micro, Small and Medium Enterprises

Year	No of Enterprises	Index	Annual Increase	% change in Annual Increase
2006-07	163,496	100.0	-	-
2007-08	170,698	104.40	7,202	4.41
2008-09	176,852	108.16	6,154	3.61
2009-10	181,943	111.28	5,091	2.88
2010-11	186,778	114.24	4,835	2.66
2011-12	190,740	116.66	3,962	2.12
2012-13	194,477	118.94	3,737	1.96
2013-14	197,610	120.86	3,133	1.61
2014-15	199,661	122.12	2,051	1.04
2015-16	202,531	123.88	2,870	1.43
CAGR (%)	2.16			

Sources: Micro Small and Medium Enterprise annual report 2016-17

4.19.2 Occupational Structure

The primary aim of enterprises is in generating employment. Micro, Small and Medium enterprise which dovetails well with the Indian economic imperatives have created high employment in the country. The level of employment in the MSMEs in Bihar has increased at a compound growth rate of 2.61. In 2006-07, the number of workers employed in this sector was 536,290 persons whereas in 2015-16 this number became 698,250, which shows an average increase of 2-3% in 10 years. The new technologies, sophisticated modem machines and equipment used to maximize the output have resulted in slow growth in employment.

Table: 4.19.2; Occupation Structure

Year	Employment	Index	Annual Increase	% change in Annual Increase
Up to 2006-07	536,890	100		
2007-08	556,853	103.71	19,963	3.72
2008-09	574,327	106.71	17,474	3.14
2009-10	590,338	109.95	16,011	2.79
2010-11	607,703	113.19	17,365	2.94
2011-12	623,782	116.18	16,079	2.65
2012-13	634,676	118.21	10,894	1.75
2013-14	651,969	121.43	17,293	2.72
2014-15	676,034	125.92	24,065	3.69
2015-16	698,250	130.05	22,216	3.28
CAGR (%)	2.66			

Sources: Micro Small and Medium Enterprise annual report 2016-17.

4.19.3 Investment Structure

The establishment of industrial enterprises tends to increase in the investment of state; the investment serves the purpose of producing Among the Micro, Small and Medium enterprise enterprises established, some may stand closed; some may be bogus and some dormant. As such, the growth rate in some enterprises cannot be the real indicator of industrial progress. A look into the trends in industrial production will surface the industrial advancements made so far more candidly. The investment in fixed assets of these enterprises in the state has increased at a compound growth rate of 22.95%. The amount of investment in fixed assets in 2006-07 was Rs. 801.15 crore, and it rose to Rs. 6,322 crore in 2015-16. The net annual increase of investment in fixed assets has been very impressive and was 12 to 30% during this period with the exception of 2014-15. It is clear that MSMEs enterprises have made more investment in fixed assets by adapting modem technology resulting in lower employment.

Table: 4.19.3; The Investment pattern in MSMEs in Bihar (In crore)

Year	Investment	Index	Annual Increase	% change in Annual Increase
Up to 2006-07	801.15	100	-	-
2007-08	935.98	116.83	134.83	16.83
2008-09	1,054.84	131.67	118.86	12.70

2009-10	1,183.48	147.72	128.64	12.20
2010-11	1,369.05	170.89	185.57	15.68
2011-12	1,754.69	219.02	385.64	28.17
2012-13	2,008.54	250.71	253.85	14.47
2013-14	2,324.13	290.10	315.59	15.71
2014-15	5,163.42	644.50	2839.29	122.17
2015-16	6,322.85	789.32	1159.43	22.45
CAGR (%)	22.95			

Sources: Micro Small and Medium Enterprise annual report 2015-16.

4.20 Industry-Wise Analysis

To study the overall status of MSMEs in the state need to study the detail picture of the growth and performance of different types of Industries in the state. The industry wise growth, employment and investment are mentioned in Table 4.20.

Table: 4.20; Industries wise MSMEs in Bihar

Type of Industries	No	Investment	Employment	Investment per unit	Employment per unit
Agro, food & allied based enterprises	56,526	278,639	238,461	4.93	4.22
Non- metallic & mineral based enterprises	17,701	51,055	81,430	2.88	4.60
Engineering based enterprises	27,866	71,044	89,637	2.55	3.22
Paper & printing based enterprises	2,169	3,515	10,830	1.62	4.99
Forest-based enterprises	20,247	55,888	65,041	2.76	3.21
Repairs & Service based enterprises	23,559	46,944	62,884	1.99	2.67
Textile based enterprises	14,704	48,447	44,785	3.29	3.05
Hotel and hospitality sector	3,465	13,561	9,675	3.91	2.79
Electronics & Electric based enterprises	7,318	19,454	19,200	2.66	2.62
Miscellaneous enterprises	28,975	43,718	76,308	1.51	2.63
Total	202,531	632,262	698,250		

Sources: Micro Small and Medium Enterprise annual report 2015-16(Consolidated)

Table 4.20 presents the detailed status of presently registered working MSMEs enterprises in the state during 2015-16. The Table 4.20 reveals that out of

the 202,531 registered enterprises. Out of the 202,531 enterprises, 27.91% enterprises are engaged in agro and allied based works, 13.76% enterprises are involved in the engineering based sector 11.63% enterprise is working repair based industries. While the percentages for paper, forest, textiles, non-metallic and mineral, electrical and electronics, hotel and hospitality and miscellaneous enterprises were 1.07%, 10%, 7.26%, 8.74%, 3.61%, 1.71%, and 14.31% respectively.

It is observed from the table that the aggregate fixed investment incurred on the MSMEs was Rs. 632,262 lakh in 2015-16. Out of fixed investment incurred in 2015-16 as much as 44.10% was utilized for agro-based enterprises, whereas engineering based enterprises account for 11.20%. The percentage of investment made on Forest-based enterprises was accounted for 8.90%, repairs & service based enterprises 7.47%, electronics & electric based enterprises 3.08%, hotel and hospitality enterprises 2.17% and paper & printing based enterprises for 0.56%. The share of remaining categories was miscellaneous enterprises 6.92%, per unit investment highest in agro and allied based enterprises was 4.98%.

It is observed from the Table 4.20 that the aggregate employment provided by the MSMEs was 698,250 persons in 2015-16. Out of 698,250 persons, 34.13% are employed in agro and allied based enterprises and 12.83% in engineering based enterprises. These two categories have employed 46.96% of total employment in MSMEs. It is also observed that 11.66% persons employed in non-metallic & mineral based enterprises, 9.31% in forest-based, 9.01% in repairs & service based enterprises. The reaming 30% employment is generated through other sectors. The per unit employment highest in paper and printing based enterprises 5.72 person per enterprises.

The review of the above data leads to the conclusion that the major growth of enterprises, investment and employment was observed in agro and allied based enterprises.

4.21 Incentives Schemes

The Government of Bihar with collaboration with the Ministry of Micro, Small and Medium enterprises, the Department of Industries Bihar has announced the new industrial policy 2016 to promote the micro small and medium enterprises in Bihar.

Table: 4.21; Incentive Schemes to MSMEs in Bihar

Incentive	Quantum of subsidy/incentives
Reimbursement Stamp Duty/ Registration	100% reimbursement of stamp duty/registration fees to new enterprises after the commencement of the production.
Land Conversion Fees	100 % reimbursement of land conversion fees
Interest Subsidy	(a) The rate of interest for interest subsidy will be 11% or actual rate of interest on the term loan, whichever is lower. For micro and small enterprises, the interest subsidy would be 13%. (b) If the unit established by SC/ ST entrepreneur, women, differently abled persons, war widows, acid attack victims and third gender entrepreneurs the rate of interest for interest subsidy would be 11.5%. In the case of micro and small enterprises the interest subsidy is 13.5%. (c) The subsidy limit for priority sector enterprises would be 30% of the approved project cost. The subsidy limit for non-priority sector enterprises would receive 15% of the approved project cost. In case of SC/ST women, differently abled persons, war widows, acid attack victims and third gender entrepreneurs overall limit of this subsidy will be 34.5% of approved project cost (for priority sector projects) / 17.25% of approved project cost (for non-priority sector projects).
Tax-related incentive	(a) All new enterprises can avail tax relief with a maximum limit as defined below: i. Non-priority sector:70% of project cost ii. Priority sector: 100% project cost (b) In case of SC/ST, women, differently abled persons, war widows, acid attack victims and third gender entrepreneur's entrepreneur can avail tax-related benefits with a maximum limit as defined below. i. Non-priority sector:80.5% of project cost Priority sector: 115% project cost ii. All new units would be eligible for the 100% subsidy on electricity duty for maximum of five years if power supplied

5. Prediction of Industrial Sickness in Micro, Small and Medium Enterprises

5.1 Introduction

Industrial Sickness is not a new phenomenon its spread throughout in the developed countries as well developing countries, the efficiency of sickness might be low in developed nation compared to the under developed nations where industrial economy has low capital base and low level of technological and managerial skill, has not been an exhilarating experience. In particular India, has suffered from this disease during the last few decade. The industrial sickness has assumed unmanageable dimensions and there is no sign of abatement. Sickness among industries undertaking was regarded as a matter of concern for the countries it not only the matter of production but also the matter of social conflict.

Financial distress or sickness is a generic term which denotes deteriorating or debilitating the financial condition of the industrial entity includes all segment of entity (Micro, Small, and Medium). In India the rapid growth in magnitude of industrial sickness hampered not only the current economy but also cause concern for future. It is not only blocked the crore of rupees but also affected the economic scenario of the country. The industrial sickness also increase the unemployment, reduced the production and rising the prices of the products. Shareholders lost their hard earned savings, creditors lost their cash and the prospect of future of business became completely dark. The industrial sickness directly or indirectly affects the all stakeholders like shareholders, financial institution, employees, suppliers, creditors, and whole economy. Growing industrial sickness in the country is causing great concern to the government and financial institutions as it is slowly suckling the industry's blood and reducing economic lifestyle and thus harassing all the useful programs of economic development. In fact, industrial sickness has spread all around and is creating a serious problem in different areas of the economy. Sickness in an industry is like the disease in the human body. It is a biological process in the life of industrial units and hence the disease is not developed in single day. The process may take many years, but in the life cycle of an industrial unit, seeds of sickness can be seen in very early stages. It usually passes through various stages before being distress and it’s became chronic. The entire process of the illness shows the different phases of the normal unit from general to sick. "If the sickness persists for a long time, it can be chronic." In the

initial stage, if no treatment is initiated, it can go beyond an advanced stage beyond control, and as a result, the destruction of an organization / death in the case of the closure of a human illness or unit will cause industrial illness

5.2 Process of Industrial Sickness

Industrial sickness does not occur all of a sudden in the life history of an industrial unit. In fact, it is a gradual process with distinct stages taking from 5 to 7 years to corrode the health of a unit. Sickness does not develop at once except due to accidents, natural catastrophes or other external factors causing heavy irrecoverable loss to the industry. In most of the cases, sickness is bred within the unit itself.

According to NCAER, "Sickness is defined in terms of financial viability consisting of three independent elements of equal emphasis and weight, viz., profitability, liquidity and solvency represented by cash profit or loss; net working capital; and net worth respectively. When these entire parameters shown positive figures, the unit's financial viability likely to be sound and normal. Where one of them shows a negative figure, the enterprise could be regarded as tending towards sickness; where two of them show negative figures, it would be a case of incipient sickness; where all of them show negative figures the enterprise may be termed as sick" (NCAER; 1986).The event of sickness may have origin followed by several stages i.e., healthy stage to sickness stages. The sickness process is as illustrated below Table: 5.2.

Table: 5.2; Organic Process of Industrial Sickness

Healthy Unit Criteria	Tending towards sickness Criteria	Incipient of Sickness	Sick	Total Sickness
1. Cash Profit + 2. Net working Capital +	1. Cash Profit/Loss-- 2. Net Working Capital + 3. Net Worth	One or more Negative	All negative	Increasing Sickness Or closure

Source: Srivastava, S.S. and Yadav, R.A (1986)

It is clear from the Table 5.2 that the healthy unit has shown good cash profit, positive net value and positive net working capital. Since it leads to sickness, the first cash profit became negative, but the entity is still continue to pay its installments to the financial institutions or creditors. As soon as the sickness grows more and more through another phase, two or more financial parameters can be negative. A negative value indicates sickness or financial distress, hence

careful monitoring required at the early stage. On the tending towards sickness stages, the financial analyst or funding agency should review the overall situation, and appropriate corrective measures should be taken to prevent the unit from becoming sick. If the above trend is not asserted, it would stop the total failure or closure of the unit. For such a purpose, a predecessor system which indicates the possible sickness of industrial concerns before any losses on the respective sides has proven to be a great relief. This would give all concerned parties a reconsideration of their status and warnings to take immediate and appropriate action.

It is a well-established fact that the earlier the trouble is detected, it would more easily and economically prevent from the sickness. Early identification of the sickness may possible for management to take timely remedial action to avoid the crisis. If there is a preceding system that helps in predicting corporate sickness, then there can be a focus on those diseases which are bending towards disease.

Companies do not go burst "overnight" as many people think. The process of sickness can take years and thus the seeds of sickness may be discernible very early in the story of a company's rise and decline. The forewarning system would help in reducing, if not completely eliminating, the irreparable loss to the interested parties caused by corporate collapse. The importance of such a forewarning system can be described in the word of Level more clearly as "An early warning signal or probable failure would enable both management and investors to take preventive measures, operating policy changes, reorganization of financial structure, and even voluntary liquidation will usually shorten the length of time, losses are incurred and thereby improve both private and social resource allocation" (Srivastava & Yadav, 1986).

An understanding of the process of sickness can help in its timely detection and corrective action. Any delay treatment at early stages can lead to the unit becoming gravely sick. In such a stage, the treatment may be far more costly and time consuming. So it can be said that, if the problem is detected at an early stage, corrective measures can be taken easily and effectively. This would help in tackling the grave consequences.

5.3 Stages of Sickness

It is very essential that in order to come out of sickness, timely preventive measures are taken. For that purpose various symptoms of sickness, as suggested earlier, should be carefully considered and proper time. Hence it would be very useful if the stages of sickness could be identified and analyzed. It would then help in taking up .preventive measures in early stages itself. It is seen many cases that efforts for revival of a sick industrial unit are made at a later stage when there is no scope for it. Timely action is required for identification of sickness. For this we need to analyze the symptoms which would help us identify the sickness of the unit. This can be traced from the signals that get displayed by the sick units. The signal may be in the form of financial distress starting with short term liquidity problems, revenue losses, operating losses and moving in the direction of over use of external credit until it reaches a stage where it is overburdened with debt and not being able to generate sufficient funds to meet its obligations

In this respect it is worth mentioning that various studies had been conducted to identify the stages of sickness in other industries. Weitzel and Jonson (&) had developed a model showing various stages an industrial unit passes through before it ultimately closes its business. According to them five stages are associated with in sickness of an industrial unit and the corresponding organizational action.

Table: 5.3; Weitzel & Jonson Model of Stages of Industrial Sickness

Stages of Sickness	Organizational Action
Blinded	Failure to anticipate or detect pressure toward entropy; decline begins
Inaction	Failure to decide on corrective action; decline becomes noticeable
Faulty Action	Faulty decisions; faulty implementation of decisions.
Crisis	Given faulty-action stage, and unforgiving environment, last chance for reversal. Given forgiving environment, slow erosion
Dissolution	Given crisis stage and unforgiving environment, rapid demise. Given forgiving environment, slow demise

Source: William Weitzel and Ellen Jonson (1989)

According to the Bidani and Mitra had also developed a model, showing various stages of sickness in an industrial unit before it finally closes down. They

have identified four stages of sickness before its ultimate closure, viz, healthy unit, tending towards sickness, incipient sickness, and death or closure of the unit.

5.3.1 Stage I (Normal/Healthy)

According to Bidani & Mitra, "A unit is called normal when all its functional area likes production, marking, finance and personnel are functioning efficiently". In early stage, a healthy unit has positive cash profit, net worth and working capital. In this stage the unit is working accordingly below:

(a) All functional department viz, production, marketing, finance and personnel department are functioning normally and efficiently.

(b) Positive cash profit.

(c) Positive value of net working capital or current ratio being more than one.

(d) Positive value of net worth and

(e) Satisfactory debt equity ratio.

5.3.2 Stage II (Tending Towards Sickness)

At this stage a unit shows certain initial abnormality in any of its functional department. In other words, the unit faces some environmental constraints. At this time, the unit is move towards the sickness. The main features of this stage are decline in profit in the current year compared to the previous financial year and loss estimated in the future year. Although, the unit may have positive net working capital and net worth and may not have listed as defaulter in the records of banks and financial institution, this stage conveys first warning signal which should be taken cautiously for preventive measures with close monitoring and follow up actions to be launched promptly by the management and the other associated agencies. In sum this stage may have the following features:

(a) Decline in profit during current year.

(b) Estimation of loss in next year.

5.3.3 Stage III (Incipient Sickness)

As sickness is going continuously the units enters into incipient stage of sickness for a very short period. Incipient stage of sickness comes when an industrial unit incurs cash loss but financial structure may or may not imbalance. In other words, two or more financial indicators may become negative. At this stage, major department and other external agencies such as banks, promoters along with the management should collectively review the overall performance and with

joint concentration should take suitable remedial measures to prevent the unit from becoming sick. This stage may have following features:

(a) Continuation in cash losses in current year

(b) Current equity ratio is very poor or deterioration.

(c) Deterioration anticipated in debt equity ratio in current year.

5.3.4 Stage IV (Final Stage)

When proper remedial measures are not adequately taken at the incipient stage of sickness the adverse effect on the various department continuously affected. All the department such as production, finance, marketing, sales and personal department finally became sick. At this stage all the financial indicators, such as cash profit/loss, net working capital and net worth depict negative results. The production unit may work below 20% of their installed capacity utilization and work below the breakeven point. A unit is categorized actually sick on the basis of the following criteria:

(a) Erosion of net worth more than 50%.

(b) Units closed more than 6 month

(c) Defaulter in bank or financial institution.

That unit is in the fourth stage of sickness, the unit will require effective comprehensive rehabilitation program or intensive care for certain period to revive from the sickness. It is generally, observed that the remedial measures are taken too late. Consequently, it becomes an expensive affair to bring the sick unit back to a healthy state. If the sickness is not arrested timely, incidence of sickness leads to incidence of closure ultimately.

Table: 5.3.4; Stages & Symptom of Industrial Sickness

Sickness States	Production x1	Profit x2	Working Capital x3	Loss x4	Marketing x5	Personnel x6	Net worth rise x7	Net worth declinex8
Normal (N)	↑	↑	↑	Nil	↑	↑	↑	Nil
Tending to Sickness (TS)	↑	↓	NC	↑	NC	NC	NC	↑
Incipient Sickness (IS)	↓	↓	↓	↑	↓	↓	↓	↑
Close (C)	↓	↓	↓	↑	Nil	Nil	Nil	↑

Source: Bidani and Mitra (2010)

5.4 Causes of Sickness

The nature and causes of sickness in industries are differing from industry to industry, area to area, size to size in micro, small, medium and because of a host of other factors. Sickness of an industry, generally, starts with the gradual degradation or erosion of cash liquidity on continuing basis, there by erosion in debt equity ratio and current working capital ratio. The major root cause for the inception or tending towards sickness is poor management of financial position of the enterprises. The poor liquidity condition and deteriorating standards of maintenance accelerated the wear and tear of existing assets, in which unit is taken operational stage. The unit is then considered as sick. If this process is allowed to continue, then it can take the unit to the final death, i.e. bankruptcy and liquidation. A successful entrepreneur has to keep his eye open on the entire field of the unit operation so there is not small explosion in the tumor. However, if it's spread entirely the nation it became epidemic nature became threat to economic health of the country. Broadly speaking, as per nature of sick unit, it can be categorized under three groups viz., Born Sick, Become Sick and Made Sick.

5.4.1 Born Sick

Sickness is not always a post-implementation feature. Some industries are born sick from their inception or unmotivated planning, bad planning and poor appraisal, wrong choice of location and product selection, inadequate market surveys, wrong investment in fixed and working capital decisions and one customer – one product, type situation etc. Mostly the units established by the government under social welfare scheme come in this category.

5.4.2 Become Sick

Some industrial units may become sick due to internal causes. The poor management appraisals, labour disputes, diversion of the funds, wrong human resources technique, faulty management policies , outdated technology, low financial base are also responsible for the sickness in middle stage of the industries.

5.4.3 Made Sick

In this category, the industries became sick due external factors those are not under the control of management, exogenous factors such as sudden change in the macro policy, technological changes, labour laws, government policies,

taxation policies or any socio economic problems. These external environment changes put pressure on the demand and supply of industrial product.

On the above reason the several units led to sickness from healthy stage to inception of the sickness, from inception of the sickness to distress and from distress to become closer. There are number of reason to become industries in to sick. The reasons are divided in two segments such as internal and external reason. Under Internal cause: locational disadvantage, poor technology, outdated production technique, high production input cost, too much emphasis on fixed assets, ineffective use of working capital, poor control practice, high wastage, labour unrest, high wastage, liberal dividend policy, inadequate financial utilization, excessive manpower, poor sales realization, lack of market research, lack of timely diversification, dependence on the single customer, excessive investment of R&D. The external factors include irregular supply of raw materials, chronic power shortage, transport bottleneck, non-availability of adequate finance, government financial control, fiscal policies, environmental law, recession, fall in foreign demand, war, natural calamities, labour union, fear of nationalism, strikes and others.

5.5 Prediction of Sickness in MSMEs

According to MSMEs report 2015-16 census more than 2 lakh working registered enterprises in Bihar. Out of the total registered units 98% of units under the categories of micro scale enterprise and they do not have a proper book keeping record. All small and medium enterprises (registered) enterprises are classified according to their business activities. Companies are randomly selected on the basis of availability of financial statement of five consecutive years from 2012-13 to 2016-17, from official website of Ministry of Corporate Affairs (MCA). The randomly selected enterprises are given in Table.5.5.

Table: 5.5; List of Companies with coding

Product specification	Enterprises/Companies
Agro, food & allied based enterprises	1. Himalayan Agro Pvt Ltd.(C1) 2. Consam Agro Pvt. Ltd.(C2) 3. Amro Feeds Private Limited (C3) 4. Adarsh Flour And Rice Processors Private Limited(C5) 5. Sita Flour mills Enterprise Ltd (C8)

	6. Maurya Foods Private Limited(C9) 7. Mahalaxmi agro Oil Mil Pvt Ltd (C10) 8. Shivsagar Rice Mill Private Limited (C11) 9. Satayam Roller Flour Mills Private Limited(C17)
Non- metallic & mineral based enterprises	1. Jaiswal Soap & Chemical Private Limited(C4) 2. Aman Coke Plant (P) Ltd (C13) 3. Bhagwati Coke Industries Private Limited(C19)
Engineering based enterprises	1. Khublal Agro Chemicals Private Limited(C16) 2. Bontex Impex Private Limited(C20) 3. Kanishka Carbons Private Limited(C28)
Paper & printing based enterprises	1. Jagdamba Bhawani Enterprises Private Limited(C6) 2. Upendra Paper Mills Private Limited (C30)
Forest based enterprises	1. Jyoti Moulders Private Limited (C24)
Repairs & Service based enterprises	1. S C I Service Pvt Ltd (C14) 2. Vikramshila Automobiles Private Limited(C22) 3. Maa Mundeshawari Cycle Udyog (C23)
Textile based enterprises	1. Sunrise Polypack Private Limited (C12) 2. Rastogi Vastralaya Private Limited (C15) 3. Sri Hans Industries Private Limited(C26) 4. Prakash Spinning & Textiles Mills Private Limited(C27)
Hotel and hospitality enterprises	1. Koshi Hotel Pvt Ltd (C7) 2. Sujata Hotel (C25)
Electronics & Electric based enterprises	1. Essell Lubricants and Chemicals Private Limited(C21)
Miscellaneous enterprises	1. Soh Kishan Cold Storage Limited(C18) 2. Maruti Meditech Private Limited(C29)

Source: Researcher classification

5.6 Altman Z score Model

Financial failure may take method of bankruptcy or insolvency. Financial insolvency refers to the firms is not able to pay its obligations to creditors in others words when total liabilities are exceed from total assets. About 50 years back Edward I Altman; a financial economist at New York University Graduate school of

Business developed a model to forecast of insolvency by using five specific ratios that predicts the financial distress of the companies as known as Z score Model. This model was built up under the Multiple Discriminant Analysis (MDA).This model has itself as leading multivariate predictor model of corporate failure and it has been the subjects of numerous test around the world. Z score is the output from a credit strength test that gauges the likelihood of bankruptcy. Z score is used to predict the corporate failure through multiple corporate profit and loss accounts and balance sheet to measure the financial health of the company.

Altman (1968) used 22 ratios in the procedure of producing the Z score model and finalized five ratios which predict the financial distress. Altman's result suggest that the Z score is an accurate predictor of bankruptcy up to two year prior to distress and that accuracy diminishing the substantially as lead time increases.

Altman established a guideline Z score which can be used to classify firms as either financially sound a score above 2.99 or headed towards bankruptcy a score below 2.99 and above 1.81 other wise called as Grey zones and those with a score below 1.81 are classified under distress zone. The lower the score, the greater is the likelihood of bankruptcy and vise-versa. Based on the Scores Altman divided the study units into Zones of "SAFE", "GREY", and 'DISTRESS" zones. From around 1985 onwards, the Z-scores gained wide acceptance by auditors, management accountants, courts, and database systems used for loan evaluation (Eidleman, 1995). The formula's approach has been used in a variety of contexts and countries, although it was designed originally for publicly held manufacturing companies with assets of more than $1 million. Later, variations by Altman (2002) were designed to be applicable to privately held companies (the Altman Z' Score) and non-manufacturing companies (the Altman Z" Score).

The overall Z score Model is mentioned below

$$\mathbf{Z=1.2*X_1+1.4*X_2+3.3*X_3+0.6*X_4+0.99*X_5}$$

The final Discriminant function i.e., Z'-Score Model (Private not listed Firm) is given below.

$$\mathbf{Z' = 0.717*X_1+0.847*X_2+3.107*X_3+0.42*X_4+0.998*X_5}$$

Where:

X_1 = Working Capital (WC)/Total Assets (TA), (Stand for liquidity measure)

X_2 = Retained Earnings (RE)/Total Assets (TA) (Measure of reinvested earning)

X_3 = (EBIT)/Total Assets (TA) (profitability measure)

X_4 = Book Value Equity (MVE)/ Total Liabilities (TL) (leverage measure)

X_5 = Sales/Total Assets, (Stand for sales generating ability)

Z' = Overall Index Score

The above five components help to compute Z' score for private firm in order to financial viability. The zones of discrimination as categorized based on Z' score by Altman are:

Table: 5.6; Z' score Values by the Altman

Financial ratio in Altman model	Coefficient of ratio by Altman
Net Working Capital/Total Assets(X_1)	0.717
Retained Earnings/Total Assets(X_2)	0.847
Earnings before Interest and Taxes(X_3)	3.107
Market value of equity/Total Liabilities(X_4)	0.42
Net Sales/Total Assets (X_5)	0.998

Source: Altman (2002)

The discriminant zones for the model are differing than the first Altman (1968) model.

Table 5.6.1: Z' score Measurement scale

Recommended Score	Interpretation (Sickness predicted)
Value more than 2.99	Safe and Financially Sound
value 1.23 to 2.99	Grey and alert for future
Below 1.23	Distress/Sick enterprise need immediate rehabilitation

Source: Altman (1968) Revised Altman (2002).

5.7 Financial Component of Altman Z' score model

In this study Altman model has been used for solvency test of sampled units. In the Altman model m various components of financial statement are required. So researcher has been also drawn required components from the financial statement of sampled units. The name of components is given below heads.

5.7.1 Current Assets (CA)

In practice, a firm has also to employ short term assets and short run sources of financing. The management of such assets, described as working capital management or current assets management is one of the most important aspect of the overall financial management. Technically, working capital management is an integral part of the overall financial management. To that extent it is similar to the long term decision making process because both entail an

analysis of the effect or risk and profitability. If the size of such assets is large, the liquidity position would improve, but profitability would be adversely affected as fund will remain idle, conversely, if the holdings of such assets are relatively small, the overall profitability will no doubt increase, but it will have an adverse effect on liquidity position and make the firm more risky. Therefore, aim at striking a balance such that there is an optimum amount of short- term assets.

5.7.2 Total Assets (TA)

In financial accounting, an asset is an economic resource. The balance sheet of company records the monetary value of the assets owned by the company. It is money and other valuables belonging to an individual or business. In simple word, assets represent value of ownership that can be converted into cash although cash itself is also considered an asset. There are two major assets: (1) tangible assets (2) intangible assets. Anything tangible or intangible that is capable of being owned or controlled to produce value and that is held to have positive economic value is considered an asset. Tangible assets contain various subclasses, including current assets and fixed assets. Current assets include inventory, while fixed assets include such items as buildings and equipment

5.7.3 Net Sales (NS)

For manufacturing companies during the main course of activity is generate the revenue in the form of sales and paid out to cost. The difference between sales and cost called operating profit. So profit aspect of the firms is mostly depending on revenue generation of sales. The sales are highly affected from many internal and external factors. The higher sale is a positive sign or strength for the units.

5.7.4 Interest/Finance cost

The interest expenses of the firm directly associated with pattern of financing. In capital structure higher portion of debt finance lead to more fixed interest expenses. However, debt is cheapest debt lead to leverage situation or risky for the firm. The management of interest burden has challenges for finance manager for maintaining market liability.

5.7.5 Total Liability (TL)

The total liability, fixed capital play important role for doing financial management. It means the capital which is meant for meeting the permanent or long terms need of business. The fix capital is the fund required for the acquisition of those assets that are to be used over and over for long period. Management of

total liability is concern with the raising of required fixed capital of minimum cost and its effective utilization.

5.7.6 Current Liability (CL)

Management of current liability is as much important as management of current assets of course, there is basic difference between the approach to be adopted by the financial manager in the two cases, whereas the underlying objective in case of account receivable is too maximize the acceleration of collection process, the objective in case of account of current liability is to slow down the payment process as much as possible. But is should be noted the delay in payment of accounts of current liability may result in saving of some interest costs but can prove very costly to the firm in the form of loss of credit in the market. The finance manager has, therefore to ensure that the payment towards current liability are made at stipulated time period after obtaining the best credit term possible.

5.7.7 Book Value of Equity (BVE) /Market Value of Equity (MVE)

The value of capital refers to financial structure and financial plan the composition of long term source of funds. As proportion of different long – term sources of funds to the total capitalization of the firm, it is also called leverage. The capital structure is said to be optimum when the marginal real cost of each available source of financing is identical with an optimum debt and equity mix the cost of capital is minimum and the market price per share or total value of firm or capital is maximum. The use of debt in capital structure of financial leverage has both benefits as well as costs. While the principle attraction of debt is the tax benefit, its cost is financial distress and reduced commercial profitability.

5.7.8 Earnings before interest and taxes (EBIT)

Apart from creditors, both long term and short term, also interested in the financial soundness of a firm are the owners and management or the firm itself. The management of the firm is naturally eager to measure the operating efficiency of the firm. Similarly, the owners invest their funds in the expectation of reasonable return. The operating efficiency of a firm and its ability to ensure adequate return to its shareholders depends ultimately on the profits earned by it. The crucial importance of profits of a firm cannot be over-stressed. Profitability is a measure of efficiency and the search for it provides an incentive to achieve efficiency. Profitability also indicates public acceptance of the product and show that the firm

can produce competitively. Moreover, a profit provides the money for repaying the debt incurred to finance the project and the resources for the internal financing of expansion. The profitability of a firm can be measured by its profitability ratios. This measure will depict the correct trend of performance where there is erective fluctuation in operating policy from year to year.

5.7.9 Retained Earnings (RE)

In accounting, retained earnings refers to the portion of net income of a firm that is retained by the firm rather than distributed to shareholders as dividend. The amount is recorded in the retained earning account, which is reported in the stock holder‘s balance sheet. The retained earnings are probably invested in assets that are also reported in the balance sheet. The amount of retained earnings is clearly reported as the part of stockholder‘s equity, but the amount is usually invested in assets or used to reduce liabilities. Rarely the retained earnings would be entirely transfers in the form of cash. The retained earnings need to be invested in income producing assets or in the reduction of liability in order to earn a return for the stockholders who have opted to reinvest their earnings in the corporation.

5.8 Z’ Score Ingredients

The *Z*’ score is calculated by multiplying the following accounting ratios, which is effectively efficient to predict the corporate distress and financial disability**.**

5.8.1 X_1= Working Capital /Total Asset (Liquidity Measure)

The working capital/total assets ratio, frequently found in studies of corporate problems, is a measure of the net liquid assets of the firm relative to the total capitalization. Working capital is defined as the difference between current assets and current liabilities. Liquidity and size characteristics are explicitly considered. Ordinarily, a firm experiencing consistent operating losses will have shrinking current assets in relation to total assets. These were found to be less helpful and subject to perverse trends for some failing firms. This ratio helps to measure the company’s ability to cover short-term obligation. An increasing ratio is a positive sign of improvement in the company liquidity over a period, whereas decreasing ratio is negative sign indicating that company is not having enough working capital to meet total liabilities. Distress and insolvent firm generally negative working capital that shows the greater danger because firm has not ability to pay short term liberties.

5.8.2 X_2 = Retained Earnings/Total Assets (Reinvesting earning Measure)

Retained earnings are the term used to describe the account that reports the total amount of reinvested earnings and/or losses of a firm over its entire life. The account is also referred to as earned surplus. It is conceivable that a bias would be created by a substantial reorganization or stock dividend and appropriate readjustments should, in the event of this happening, be made to the accounts. This measure of cumulative profitability over time is what was referred to earlier as a "new" ratio, the age of a firm and its use of leverage be implicitly considered in this ratio. For example, a relatively young firm will probably show a low retained earnings/total assets (RE/TA) ratio because it has not had time to build up its cumulative profits. Therefore, it may be argued that the young firm is somewhat discriminated against in this analysis and its chance of being classified as bankrupt is relatively higher than that of another older firm. In addition, the RE/TA ratio measures the leverage of a firm. Those firms with high RE, relative to TA, have financed their assets through retention of profits and have not utilized as much debt. The retained earnings of a company is protecting firms gains losses but usually firms will not have protection because they have accumulated loss.

5.8.3 X_3= EBIT/Total Assets (Profitability Measure)

This ratio is a measure of the true productivity of the firm's assets, independent of any tax or leverage factors. Since a firm's ultimate existence is based on the earning power of its assets, this ratio appears to be particularly appropriate for studies dealing with credit risk. This ratio is the indicator of how effectively the company is able to generate the earnings by utilizing its assets before the obligation are paid off.

5.8.4 X_4 = BVE/ Total Liabilities (Leverage Measure)

Equity is measured by the combined market value of all shares of stock, preferred and common, while liabilities include both current and long term. The measure shows how much the firm's assets can decline in value (measured by book value of equity plus debt) before the liabilities exceed the assets and the firm becomes insolvent. This ratio adds a market value dimension that most other failure studies did not consider. This ratio show how much assets of an enterprise can decline in value of an enterprise can decline in value before the liabilities exceed the assets.

5.8.5 X_5 = Total Sales/Total Assets (Stand for sales generating ability)

The capital-turnover ratio is a standard financial ratio illustrating the sales generating ability of the firm's assets. It is one measure of management's capacity in dealing with competitive conditions. This final ratio is unique because it is the least significant ratio on an individual basis and on a Univariate statistical significance test, it would not have appeared at all. However, because of its relationship to other variables in the model, the sales/total assets ratio ranks high in its contribution to the overall discriminating ability of the model. In addition to this, it will reveal the sales generating capacity of the company assets and also measure of management's capacity to deals with competitive world.

5.9 Calculation of products of variables with co-efficient

5.9.1 Agriculture, food and Allied based Enterprises

In this group includes the enterprises those are engaged in flour milling, rice milling, ground nut oil extracting, oil crushing, mango pulp making, lichi pulp, makhana and fruit canning, rice hulling, tamarind decorticating and making starch packed drinking water, decorticating dal, milling, ground nut oils cakes etc.

Ingredients of Agriculture, food and Allied based Enterprises: The ingredients which have been used for the computation of the Z' score of agriculture, food and allied based enterprises are mentioned in the table.

Table: 5.9.1; Z' score Ingredients of Agro, food and Allied based Enterprises

Year	Enterprise	WC	TA	RE	NS	BVE	EBIT	TL
2012-13	C1	85,68,148	5,87,11,082	7,80,196	2,63,92,891	11,755,543	3,631,396	46,955,538
	C2	224,446	242,873	-75,523	Nil	-255,726	-75,523	498,599
	C3	1,570,525	80,169,958	4,626,227	11,523,772	20,010,961	6,700,624	60,158,997
	C5	10,422	223,520	Nil	Nil	2,203,520	Nil	120,000
	C8	-1,578,356	43,800,967	-751,618	2,045,397	12,941,453	-751,618	30,859,513
	C9	3,423,036	53,311,367	506,437	18,276,425	12,805,000	4,280,058	38,556,367
	C10	244,958	130,270,704	2,268,793	589,689,177	22,005,756	2,412,942	108,264,946
	C11	-135,479	43,866,174	5,601,986	8,581,575	8,607,063	754	35,259,111
	C17	-662	4,445,278	101,908	Nil	-6,320,615	-96,908	9,995,893
2013-14	C1	8,803,094	58,711,082	780,196	66,421,535	11,755,543	4,433,744	50,362,608
	C2	1,410,089	242,873	-75,523	Nil	-255,726	-134,014	1,428,807
	C3	4,777,636	80,169,958	4,626,227	431,601,962	20,010,961	7,219,464	46,381,811
	C5	790,334	223,520	Nil	Nil	2,203,520	Nil	120,000
	C8	2,398,766	43,800,967	-751,618	490,653,183	12,941,453	14,766,762	24,359,811
	C9	-26,770,741	53,311,367	613,283	24,050,260	72,586,000	4,894,735	49,534,661
	C10	-153,493,909	130,270,704	2,303,433	727,499,678	24,309,190	17,358,663	153,493,909

	C11	4,286,358	43,866,174	-1,627,334	40,142,542	6,979,729	2,906,584	38,184,156
	C17	-139,455	4,445,278	50,089	Nil	11,594,705	50,089	8,327,919
2014-15	C1	9,174,289	51,134,582	410,912	71,226,495	12,965,450	4,081,854	38,169,129
	C2	383,468	30,033,313	-544,577	29,000	19,991,682	-544,577	10,041,630
	C3	99,59,125	7,14,83,269	31,18,809	28,75,44,763	2,87,24,167	3,31,46,234	6,75,53,408
	C5	796,557	2,336,243	6,223	Nil	2,209,743	6,223	126,500
	C8	1,579,858	47,794,925	1,543,628	515,405,962	18,202,575	5,636,311	24,091,050
	C9	-9,486,706	117,335,635	-7,269,229	14,500,000	77,718,137	-3,826,287	20,464,966
	C10	-14,745,756	198,518,714	1,453,345	734,062,010	37,137,535	19,041,213	161,381,178
	C11	-13,304,117	43,119,261	-3,534,718	9,129,937	3,445,211	-1,852,978	39,674,050
	C17	55,250	155,341	22,102	Nil	11,616,807	22,102	4,008,148
2015-16	C1	4,860,774	77,002,570	1,107,733	114,404,599	14,073,184	4,754,198	62,929,085
	C2	-1,412,474	73,503,733	3,365,704	50,496,750	23,367,387	4,569,094	50,136,346
	C3	14,985,114	110,330,184	933,532	290,054,637	29,657,699	4,225,680	80,672,484
	C5	525,469	4,593,984	4,463	Nil	2,214,206	9,442	2,379,778
	C8	12,412,578	59,430,810	1,352,470	556,714,852	26,805,046	6,395,973	32,625,764
	C9	-10,242,782	105,823,082	367,642	21,973,160	65,709,866	3,193,718	17,579,472
	C10	26,552,543	285,321,219	2,292,202	919,098,914	63,275,238	21,573,417	222,045,980
	C11	-965,137	26,208,301	-10,352,191	6,973,055	-6,906,979	-10,302,125	31,603,281
	C17	30,250	133,618	-26,723	Nil	11,643,530	-26,723	4,013,148
2016-17	C1	5,955,846	86,845,103	488,116	105,254,043	14,561,360	4,300,281	72,283,802

	C2	12,864,535	94,149,774	429,680	193,468,001	23,797,067	6,398,547	70,352,707
	C3	16,008,181	98,007,924	1,092,820	146,695,648	30,750,519	2,455,534	67,257,404
	C5	-1,664,476	5,605,639	8,055	10,950,000	2,222,261	11,655	3,383,378
	C8	41,395,592	92,428,333	3,411,759	522,857,353	54,997,089	6,810,909	37,431,243
	C9	-13,395,270	109,329,990	577,365	22,256,474	65,924,664	3,879,763	43,405,324
	C10	2,13,65,733	17,51,24,631	35,76,698	4325,44,634	24,770,601	1,19,43,931	150,3,54,030
	C11	-69,30,160	2,24,54,791	-37,63,550	-	-1,06,70,529	-37,63,550	3,31,25,281
	C17	9,049	1,07,204	-22,613	-	1,16,66,143	22,613	40,09,348

Source: Computed Data

Table; 5.9.2; WC/TA of the Agro, food and Allied Based Enterprises

Enterprise /Year	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C1	0.15	0.14	0.18	0.06	0.07	0.12
C2	0.92	0.06	0.01	-0.02	0.14	0.22
C3	0.07	0.07	0.07	0.07	0.07	0.07
C5	0.05	0.34	0.34	0.11	-0.30	0.11
C8	-0.04	0.06	0.03	0.21	0.45	0.14
C9	0.06	-0.22	-0.08	-0.10	-0.12	-0.09
C10	0.01	-0.86	-0.07	0.09	0.12	-0.14
C11	-0.00	0.10	-0.31	-0.04	-0.31	-0.11
C17	-0.00	-0.03	0.36	0.23	0.08	0.13

Source: Researcher's own calculation

Table No 5.9.2 measures the liquidity position of 9 selected enterprises from agriculture and allied Industry in Bihar. The analysis shows that only C1 (0.12), C2 (0.22), C3 (0.07), C5 (0.11), C8 (0.14), and C17 (0.13) depict unsatisfactory condition of working capital as a percentage of total capitalization. The condition of C9 (-0.09), C10 (-0.14) and C11 (-0.11) have shown negative working capital which is really a serious problem for the enterprise as it is a threat to the liquid position of the enterprise. This ratio is help to maintain the balance amount of investment in current assets without disturbing liquidity position of enterprises.

Table: 5.9.3; RE/TA of the Agro, food and Allied Based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C1	0.01	0.01	0.01	0.01	0.01	0.01
C2	-0.31	-0.01	-0.02	0.05	0.01	-0.06
C3	0.06	0.07	0.04	0.01	0.01	0.04
C5	NA	NA	0.01	0.01	0.01	0.01
C8	-0.02	0.07	0.03	0.02	0.04	0.03
C9	0.01	0.01	-0.06	0.01	0.01	-0.01
C10	0.02	0.01	0.01	0.01	0.02	0.01
C11	- 0.13	-0.04	-0.08	-0.39	-0.17	-0.16
C17	-0.02	0.01	0.14	-0.20	-0.21	-0.06

Source: Researcher's own calculation

The second major variable to depict financial health under Z' score model is ratio of retained earnings to total assets means the reinvested capacity of the firm.

Looking at the position of companies taken as sample in this study for the period of 5 years, it is found out from Table 5.9.3 that percentage of retained earnings in financing long term assets of 9 companies in the study period is like this: C1 (0.01), C2 (-0.06), C3 (0.04), C5 (0.01), C8 (0.03), C9 (-0.01) C10 (0.01), C11 (-0.16) and C12 (-0.06). The negative values of retained earnings during the study period indicate that unsustainable growth of these enterprises and the situation of the companies' bankruptcy with low profitability.

Table: 5.9.4; EBIT/TA of the Agro, food and Allied Based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C1	0.06	0.07	0.08	0.06	0.05	0.06
C2	-0.31	-0.01	-0.02	0.06	0.07	-0.04
C3	0.75	0.65	0.87	0.73	0.69	0.74
C5	NA	NA	0.00	0.01	0.01	0.01
C8	-0.02	0.36	0.12	0.11	0.07	0.13
C9	0.08	0.04	-0.03	0.03	0.04	0.03
C10	0.02	0.10	0.10	0.08	0.07	0.07
C11	0.01	0.07	-0.04	-0.39	-0.17	-0.11
C17	-0.02	0.01	0.14	-0.20	-0.21	-0.06

Source: Researcher's own calculation

The EBIT/TA ratio is measure of the true productivity of firm's assets independent of any tax or leverage factors the ratio measures efficiency of firm's assets. Table 5.9.4 shows that enterprises like C2 (-0.4), C11 (-0.11), C17 (-0.16) have negative operative performance. Enterprises C1 (0.06), C5 (0.01), C8 (0.13), C9 (0.03), and C10 (0.07) have shown very low operating performance and company like C3 (0.74) has demonstrated slightly higher performance than previous companies.

Table: 5.9.5; BVE/TL of the Agro, food and Allied Based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C1	3.24	2.83	3.18	2.96	3.39	3.12
C2	-30.35	14.37	17.85	0.51	1.94	0.86
C3	0.33	0.54	0.43	0.37	0.46	0.42
C5	18.36	18.36	17.47	0.93	0.66	11.16
C8	0.42	0.44	0.76	0.82	1.47	0.78
C9	0.33	1.47	3.80	3.74	1.52	2.17

C10	0.20	0.16	0.23	0.28	0.16	0.21
C11	0.24	0.18	0.09	-0.22	-0.32	-0.01
C17	-0.63	1.39	2.90	2.90	2.91	1.89

Source: Researcher's own calculation

The BVE/TL ratios are played an important role in defining long term financial policies of the company. It is a well-known fact that too much of debt may cause financial overburden and can turn a firm insolvent. If debt funds are more than equity funds in the debt equity ratio it would reduce profit of the company despite showing increase profitability of the shareholders. From Table 5.9.5 it is observed that the equity portion of enterprises C11 (-0.01) is in negative, C2 (0.86), C3 (0.42), C8 (0.78) and C10 (0.21) which is quite low as compared to other enterprises. Enterprises C1 (3.12), C5 (11.16) and C17 (1.86) depict that there is proper combination of debt and equity mix in the capital structure of the enterprises during study period. On analyzing above cases it is evident that enterprises C1, C5 and C17 are excellent in their capital structure as they are able to provide a margin of safety to their creditors in the times of bankruptcy.

Table: 5.9.6; Sales /TA of the Agro, food and Allied Based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C1	0.45	1.06	1.39	1.49	1.21	1.12
C2	0.01	0.01	0.01	0.69	2.05	0.55
C3	0.14	6.04	3.71	2.63	1.50	2.80
C5	0.01	0.01	0.01	0.01	1.95	0.39
C8	0.05	11.95	10.78	17.06	13.97	10.76
C9	0.34	0.20	0.12	0.21	0.20	0.21
C10	4.53	4.09	3.70	3.22	2.47	3.60
C11	0.20	0.93	0.21	0.27	0.01	0.32
C17	0.00	0.00	0.00	0.00	0.00	0.00

Source: Researcher's own calculation

Business success cannot be imagined without excellent sales revenue. Sales revenue is the backbone of business survival and performance. Sales to total assets means total assets turnover ratio. Higher ratio depicts effective utilization of assets in generating sales of the companies whereas low ratio indicates underutilization of assets of the companies and indicates towards poor financial management practices in the optimum utilization of resources in generating sales of the company. From the 6 the value of total sales turnover ratio

shows that the enterprise C8 (10.76) has best performance. It is utilizing its assets in generating sales in much better manner as compared to other enterprises in the same period and lowest performance is that of C11(0.21). The enterprise C17 (0) indicate that the enterprise is not sales their products in the particular period. It is evident from the ratio value that these companies are not utilizing full capacity of their assets in boosting up their sales. It is suggested that these companies must use their assets up-to optimum level in order to generate maximum sales and thereby increasing revenue for the company concern.

Table: 5.9.7; Z' score Agro, food and Allied Based Enterprises

Year/ Enterprise	C1	C2	C3	C5	C8	C9	C10	C11	C17
2012-13	2.11	-13.31	2.71	7.75	0.13	0.78	4.66	0.19	-0.35
2013-14	2.57	6.06	8.36	7.96	13.30	0.78	3.83	1.25	0.61
2014-15	3.10	7.44	6.66	7.59	11.46	1.51	4.03	-0.18	2.03
2015-16	2.97	1.11	5.10	0.48	17.83	1.80	3.63	-1.41	0.59
2016-17	2.84	3.17	3.87	2.01	15.10	0.87	2.84	-1.02	0.45
Average	2.72	0.89	5.34	5.16	11.56	1.15	3.80	-0.23	0.67
Inference	Grey	Distress	Safe	Safe	Safe	Distress	Safe	Distress	Distress

Source: Researcher's own calculation

Z' score Result

It is observed that 4 out of 9 units under study were already sick, i.e., in the distress zone , 1 unit are bordering sickness – falling under the grey zone and 4 units are under the safe zone i.e. the enterprises are financially too healthy position. Its further observed that enterprise C2 was initially too weak but later on the Z' score reached to 7.44 in 2014-15 but again declined at 3.17 in 2016-17.This observation says that enterprise is facing initially symptoms of financial distress but later on preventive measure had been taken. In case on C1 the enterprise position is on grey zone means enterprise may go bankruptcy within two year if no action or remedial measure is to be taken.C9, C11, C17 are in distress zone show no recovery from financial distress.

5.10 Non Metallic and Mineral Based Enterprise: Enterprise engaged in granite cutting and polishing, making cement, ceramics poles, Fly ash Bricks, Polarizers of Barytes, Slab cutting, Polishing powder, Solids Hollow, Burnt line, Granite cutting,

Table molded bricks, Road metal, Polishing Slabs, Mosaic Tiles, Ceramic tiles, Metal crushing and Mineral pulverizes are clubbed under this category.

Ingredients of Non Metallic and Mineral Enterprise: The ingredients which have been used for the computation of the Z' score of agro and allied based industries are mentioned in the table 5.10.

Table: 5.10; Z' score Ingredients of Non Metallic and Mineral Enterprises

Year	Enterprise	WC	TA	RE	NS	BVE	EBIT	TL
2012-13	C4	-1,213,304	2,318,362	-44,056	0	315,561	-7,642	1,985,800
	C13	6,162,281	8,604,749	-50,478	245,998	2,617,195	-50,478	5,442,555
	C19	9,820,366	37,763,571	172,774	10,256,262	12,238,759	282,265	25,524,812
2013-14	C4	-1,242,069	2,269,634	-43,493	0	272,068	-43,493	1,997,565
	C13	2,322,362	8,516,700	67,550	251,332	3,959,745	83,451	4,556,956
	C19	4,409,853	39,630,200	438,049	51,967,942	12,676,808	3,979,741	26,953,391
2014-15	C4	-1,254,449	2,198,579	-15,948	0	178,033	-15,948	2,020,545
	C13	2,388,924	4,130,123	66,562	0	4,026,307	82,331	103,817
	C19	10,721,359	43,045,936	255,511	50,670,677	12,932,319	3,798,078	47,818,613
2015-16	C4	-1,264,029	2,189,629	-16,930	0	161,103	-16,929	2,028,525
	C13	2,452,172	4,268,792	63,248	0	4,089,555	78,567	179,238
	C19	10,299,407	46,253,889	-144,389	55,043,289	12,787,929	4,309,500	33,465,959
2016-17	C4	-1,278,339	2,173,026	-20,962	0	140,140	-20,962	2,032,885
	C13	2,515,682	4,332,362	63,510	0	4,153,065	97,358	179,298
	C19	9,702,448	41,121,709	-1,724,978	48,735,497	11,062,952	-1,189,832	30,058,757

Source: Researcher's own calculation

Table: 5.10.1; WC/TA of the Non Metallic and Mineral Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C4	-0.52	-0.55	-0.57	-0.58	-0.59	-0.56
C13	0.72	0.27	0.58	0.57	0.58	0.54
C19	0.26	0.11	0.25	0.22	0.24	0.22

Source: Researcher's own calculation

Table No 5.10.1 depicts average/mean value of 5 years net liquid assets (Working Capital) to total assets i.e. X_1 for 3 enterprises from non-metallic and mineral enterprise. The analysis shows that only C13 (0.54) having the satisfactory working capital condition and C19 (0.22) depict unsatisfactory condition of working capital as a percentage of total capitalization. The condition of C4 (-0.56) has shown negative working capital which is really a serious problem for the company as it is a threat to the liquid position of the company.

Table: 5.10.2; RE/TA of the Non Metallic and Mineral Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C4	-0.02	-0.02	-0.01	-0.01	-0.01	-0.01
C13	-0.01	0.01	0.02	0.01	0.01	0.01
C19	0.01	0.01	0.01	-0.01	-0.04	-0.01

Source: Researcher's own calculation

The retained earning terms used to describe the account to reports that the total amount reinvested by company over the period. The terms referred the surplus amount for the company. Looking at the position of enterprise taken as sample in this study for the period of 5 years, it is found from Table 5.10.2 that percentage of retained earnings in financing long term assets of 3 enterprise in the study period is like this: C4 (-0.01), C13 (0.01), C19 (0.00).The negative trends of retained earnings during the study period indicate that unsustainable growth of these enterprise and the situation of the enterprise bankruptcy at low profitability.

Table: 5.10.3; EBIT/TA of the Non Metallic and Mineral Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C4	0.85	0.88	0.92	0.93	0.94	0.90
C13	-0.01	0.01	0.02	0.02	0.02	0.01
C19	0.01	0.10	0.09	0.09	-0.03	0.05

Source: Researcher's own calculation

The EBIT/TA ratio is measure of the true productivity of firm's assets independent of any tax or leverage factors the ratio measures efficiency of firm's

assets. Table 5.10.3 shown that enterprises C13 (0.01) and C19 (0.05) have very low operating performance and enterprise like C4 (0.90) has demonstrated higher performance than previous enterprises.

Table: 5.10.4; BVE/TL of the Non Metallic and Mineral Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C4	0.15	0.14	0.09	0.08	0.07	0.10
C13	0.48	0.87	38.78	22.82	23.16	17.22
C19	0.48	0.47	0.27	0.38	0.37	0.39

Source: Researcher's own calculation

The BVE/TL ratios are played an important role in defining long term financial policies of the enterprise. From Table 5.10.4 it is observed that the equity portion of enterprise C4 (0.10), C19 (0.39) which is quite low. The enterprise C13 (17.22) depict that there is proper combination of debt and equity mix in the capital structure of the companies during study period. By analyzing above cases it is evident that enterprise C13 has excellent in their capital structure as they are able to provide a margin of safety to their creditors in the times of bankruptcy.

Table: 5.10.5; Sales/TA of the Non Metallic and Mineral Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C4	0.00	0.00	0.00	0.00	0.00	0.00
C13	0.03	0.03	0.00	0.00	0.00	0.01
C19	0.27	1.31	1.18	1.19	1.19	1.03

Source: Researcher's own calculation

From the Table 5.10.5 the value of total sales turnover ratio shows that the enterprise C19 (1.03) has best performance. It is utilizing its assets in generating sales in much better manner as compared to other enterprises in the said period and lowest performance is that of C13 (0.00). The enterprise C4 (0.00) indicate that enterprise is not sales their products in the particular period. It is evident from the ratio value that these enterprises are not utilizing full capacity of their assets in boosting up their sales. It is suggested that these enterprises must use their assets up-to optimum level in order to generate maximum sales and thereby increasing revenue for the company concern.

Table: 5.10.6; Z' score results (Non Metallic and Mineral Enterprise)

Year/ Enterprise	C4	C13	C19
2012-13	2.32	0.72	0.69
2013-14	2.38	0.63	1.90
2014-15	2.48	16.78	1.74
2015-16	2.49	10.06	1.79
2016-17	2.5	10.23	1.38
Average	2.42	7.05	1.53
Inference	Grey	Safe	Grey

Source: Researcher's own calculation

Z' score Result

The results obtained from the financial statements mirror the actual scenario of non-metallic and mineral enterprise in the State. The Table 5.10.6 state that 2 enterprises are in grey area and 1 enterprise financial position is sound and healthier. C13 enterprise Z score was initially low 0.72 in 2012-13 but its gradually improved to the level of 10.23 in 2016-17.The enterprise improves their financial management over a period and working towards the improvement. In case on C4 and C19 the enterprise position is on grey zone means company may go bankruptcy within two year if no action or remedial measure is to be taken.

5.11 Engineering based Enterprise

Fabrication works, steel furniture, Fabrication of decorticators, general engineering works, gates and grills, iron making, computer parts repairs, nut and bolts making, making aluminum vessels, , Steal rerolling's, are included in this category. The ingredients which have been used for the computation of the Z' score of engineering based enterprises are mentioned in the table.

Table: 5.11; Z' score Ingredients of Engineering based Enterprise

Year	Enterprise	WC	TA	RE	NS	BE	EBIT	TL
2012-13	C16	-8,367,802	25,332,782	1273	9,440,960	-517,192	1,273	25,849,974
	C20	-368,124	28,745,338	542,241	45,113,079	23,618,937	542,241	5,126,401
	C28	21,956,691	146,462,930	2,223,303	197,840,027	39,898,810	10,692,608	106,564,120
2013-14	C16	-7,558,622	20,080,266	-426	9,865,980	-517,618	-426	20,598,884
	C20	-1,381,130	25,780,367	671,462	1,682,802	24,290,399	1,191,777	1,489,968
	C28	24,176,397	115,939,817	3,365,166	163,833,685	43,301,804	15,354,726	27,052,084
2014-15	C16	-2,487,468	15,223,687	261279	34,697,301	4,243,662	322,785	15,223,687
	C20	5,612,903	25,885,939	790,241	1,265,327	25,071,610	1,174,662	814,329
	C28	12,347,024	134,040,577	-9,051,140	60,734,148	34,250,663	1,056,597	99,789,914
2015-16	C16	-3,229,807	24,506,694	232,634	29,968,258	4,476,296	302,577	20,012,899
	C20	3,066,363	34,500,000	1,032,284	15,995,853	25,503,604	1,901,296	901,584
	C28	6,031,121	130,901,475	72,546	136,919,219	34,323,209	8,740,182	19,820,488
2016-17	C16	-2,119,233	30,288,594	221011	37,796,573	4,697,308	278,001	25,591,286
	C20	3,649,515	28,538,375	1,380,365	21,519,012	27,484,260	2,357,814	1,054,115
	C28	9,099,967	135,192,902	1,084,228	248,797,120	35,407,438	10,127,398	21,683,746

Source: Researcher's own calculation

Table: 5.11.1; WC/TA of the Engineering Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C16	-0.33	-0.38	-0.16	-0.16	-0.07	-0.22
C20	-0.01	-0.05	0.22	0.09	0.13	0.07
C28	0.15	0.21	0.09	0.05	0.07	0.11

Source: Researcher's own calculation

Table No 5.11.1 depicts average/mean value of 5 years net liquid assets (Working Capital) to total assets i.e. X_1 for 3 enterprises from engineering units. The analysis shows that only C20 (0.07) and C28 (0.11) having the satisfactory working capital condition as a percentage of total capitalization. The condition of C16 (-0.22) has shown negative working capital which is really a serious problem for the enterprise as it is a threat to the liquidity position of the company.

Table: 5.11.2; RE/TA of the Engineering Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C16	0.00	0.00	0.02	0.02	0.01	0.01
C20	0.02	0.03	0.03	0.03	0.05	0.03
C28	0.02	0.03	0.07	0.00	0.01	0.02

Source: Researcher's own calculation

The retained earning terms used to describe the account to reports that the total amount reinvested by enterprise over the period. The terms referred the surplus amount for the enterprise. Looking at the position of enterprises taken as sample in this study for the period of 5 years, it is found out from Table 5.11.2 that percentage of retained earnings in financing long term assets of 3 enterprises in the study period is like this: C16 (0.01), C20 (0.03), C28 (0.02).The positive trends of retained earnings during the study period indicate that sustainable growth of these enterprises.

Table: 5.11.3; EBIT/TA of the Engineering Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C16	0.01	-0.01	0.02	0.02	0.01	0.01
C20	0.02	0.05	0.05	0.06	0.08	0.05
C28	0.07	0.13	0.01	0.07	0.07	0.07

Source: Researcher's own calculation

The Table 5.11.3 depicts that operating performance and productivity of the assets of companies C16 (0.01), C19 (0.05) and C28 (0.07) have very low operating performance.

Table: 5.11.4; BVE /TL of the Engineering Enterprise

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C16	-0.02	-0.03	0.28	0.28	0.18	0.14
C20	4.61	16.30	30.79	28.29	26.07	21.21
C28	0.37	1.60	0.34	1.73	1.63	1.14

Source: Researcher's own calculation

The BVE/TL ratios are played an important role in defining long term financial policies of the enterprise. From Table 5.11.4 it is observed that the equity portion of enterprise C16 (0.14), which is quite low. The enterprise C20 (21.21) and C28 (1.14) depict that there is proper combination of debt and equity mix in the capital structure of the companies during study period. On analyzing above cases it is evident that enterprise C20 has excellent in their capital structure as they are able to provide a margin of safety to their creditors in the times of bankruptcy.

Table: 5.11.5; Sales/TA of the Engineering Enterprise

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C16	0.37	0.49	2.28	2.28	1.25	1.33
C20	1.57	0.07	0.05	0.46	0.75	0.58
C28	1.35	1.41	0.45	1.05	1.84	1.22

Source: Researcher's own calculation

From the Table 5.11.5 the value of total sales turnover ratio shows that the enterprises C16 (1.33) and C28 (1.22) have best performance. These enterprises are utilizing its assets in generating sales in much better manner as compared to other enterprise in the period and lowest performance is that of C20 (0.58). It is evident from the ratio value that this enterprise is not utilizing full capacity of their assets in boosting up their sales. It is suggested that these enterprise must use their assets up-to optimum level in order to generate maximum sales and thereby increasing revenue for the enterprise concern.

Table: 5.11.6; Z' Score Result Engineering based Enterprise

Year/Enterprises	C16	C20	C28
2012-13	0.13	0.72	0.69
2013-14	0.21	0.63	1.90
2014-15	2.35	16.78	1.74
2015-16	1.26	10.06	1.79

2016-17	1.30	10.23	1.38
Average	1.05	7.68	1.50
Inference	Distress	Safe	Grey

Source: Researcher's own calculation

Z' Score Result

The results obtained from the financial statements mirror the actual scenario of engineering based enterprises in the State. The Table 5.11.6 state that, 1 enterprise is in distress, 1 enterprise in grey and 1 is in safe zone. C20 enterprise Z' score was initially low 0.72 in 2012-13 but it's gradually improved to the level of 10.23 in 2016-17. The enterprise improves their financial management over a period and working towards the improvement. C28 is in grey zone hence management should take active step to control the financial situation. Enterprise C16 is in distress zone show no recovery from financial distress.

5.12 Repair based Enterprise: Automobile services, motor vehicle repair, web designing, computer assembling servicing etc. The ingredients which have been used for the computation of the Z' score of repair based enterprises are mentioned in the table.

Table: 5.12; Z score Ingredients of Repair based Enterprises

Year	Enterprise	WC	TA	RE	NS	BVE	EBIT	TL
2012-13	C14	40,663,489	241,613,332	1,870,517	185,877,811	173,168,556	5,078,040	53,194,776
	C22	15,987,724	116,799,327	1,951,138	443,116,964	25,350,719	13,320,011	91,448,608
	C23	32,987,076	86,641,407	0	0	4,540,000	0	82,101,407
2013-14	C14	24,078,209	441,153,298	2,609,667	17,795,792	217,326,723	2,092,032	223,826,576
	C22	16,100,838	135,371,263	1,397,176	393,115,082	27,217,896	14,363,192	108,153,368
	C23	-48,586,767	127,277,231	-6,229,051	14,054,980	17,234,948	-3,811,059	110,042,283
2014-15	C14	-17,691,940	736,534,796	1,331,055	468,081,678	239,657,778	5,748,378	496,877,018
	C22	10,991,050	141,913,543	5,743,991	264,528,205	21,473,904	19,235,913	120,439,639
	C23	-6,718,620	116,074,017	17,463,979	46,916,580	-229,031	-12,988,403	116,303,048
2015-16	C14	-24,402,515	808,054,483	11,507,451	23,596,154	223,731,023	8,981,480	584,323,460
	C22	11,645,404	118,910,555	759,064	215,429,144	22,232,968	12,212,328	96,677,588
	C23	14,692,001	100,710,654	-3,766,556	32,121,105	-3,994,557	-8,562,229	104,705,202
2016-17	C14	81,211,047	703,929,392	-59,211,698	124,025,254	121,584,897	-12,251,958	582,343,495
	C22	NA	NA	NA	NA	NA	NA	NA
	C23	10,631,708	86,945,098	-9,293,893	6,980,852	13,288,441	13,270,456	100,233,539

Source: Researcher's own calculation

Table: 5.12.1; WC/TA of the Repairs based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C14	0.17	0.05	-0.02	-0.03	0.12	0.06
C22	0.17	0.15	0.09	0.10	NA	0.13
C23	0.38	-0.38	-0.06	0.15	0.12	0.04

Source: Researcher's own calculation

Table No 5.12.1 depicts average/mean value of 5 years net liquid assets (Working Capital) to total assets i.e. X_1 for 3 repair based enterprises. The analysis shows that all three enterprises C14 (0.06), C22 (0.13) and C23 (0.04) not much effective condition of working capital as a percentage of total capitalization.

Table: 5.12.2; RE/TA of the Repairs based Enterprise

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C14	0.01	0.01	0.01	0.01	-0.08	-0.01
C22	1.28	1.25	1.18	0.01	NA	0.93
C23	-	-0.05	-0.15	-0.04	-0.11	-0.07

Source: Researcher's own calculation

The retained earning terms used to describe the account to reports that the total amount reinvested by enterprise over the period. Looking at the position of enterprises taken as sample in this study for the period of 5 years, it is found out from Table 5.12.2 that percentage of retained earnings in financing long term assets of 3 enterprises in the study period is like this: C14 (-0.01), C22 (0.93), C23 (-0.07).The negative trends of retained earnings during the study period indicate that unsustainable growth of these companies, the situation of the enterprises bankruptcy at low profitability.

Table: 5.12.3; EBIT/TA of the Repairs based Enterprise

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C14	0.02	0.01	0.01	0.01	-0.02	0.01
C22	0.15	0.13	0.16	0.10	NA	0.14
C23	-	-0.03	-0.11	-0.09	-0.15	-0.08

Source: Researcher's own calculation

The EBIT/TA ratio is measure of the true productivity of firm's assets independent of any tax or leverage factors the ratio measures efficiency of firm's assets. Table 5.12.3 show that enterprise C23 (-0.08) had negative operating

performance and enterprises like C14 (0.01) and C22 (0.14) had demonstrated a positive performance but not good performance.

Table: 5.12.4; BVE/TL of the Repairs based Enterprise

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C14	3.26	0.97	0.48	0.38	0.21	1.06
C22	0.28	0.25	0.18	0.23	NA	0.23
C23	0.06	0.16	-0.01	-0.04	-0.13	0.01

Source: Researcher's own calculation

The BVE/TL ratios are played an important role in defining long term financial policies of the enterprise. From Table 5.12.4 it is observed that the equity portion of enterprise C22 (0.23), and C23 (0.01) which is quite low, while enterprise C14 (1.06) depict that there is proper combination of debt and equity mix in the capital structure of the enterprises during study period. On analyzing table 5.12.4 cases it is evident that companies C14 has excellent in their capital structure as they are able to provide a margin of safety to their creditors in the times of bankruptcy.

Table: 5.12.5; Sales /TA of the Repairs based Enterprise

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C14	0.77	0.04	0.64	0.03	0.18	0.33
C22	3.79	2.90	1.86	1.81	NA	2.59
C23	0.00	0.11	0.40	0.32	0.08	0.18

Source: Researcher's own calculation

From the Table 5.12.5 the value of total sales turnover ratio shows that the enterprise C22 (2.29) has best performance. It is utilizing its assets in generating sales in much better manner as compared to other enterprises C14(0.33) and C23 (0.18). It is evident from the ratio value that these enterprises are not utilizing full capacity of their assets in boosting up their sales. It is suggested that these enterprises must use their assets up-to optimum level in order to generate maximum sales and thereby increasing revenue for the enterprise concern

Table: 5.12.6; Z' score Result of Repair Based Enterprises

Year/Enterprises	C14	C22	C23
2012-13	2.33	5.55	0.30
2013-14	0.51	4.57	-0.23
2014-15	0.84	3.49	-0.11

2015-16	0.21	2.29	0.11
2016-17	0.22	NA	-0.45
Average	0.82	3.98	-0.08
Inference	Distress	Safe	Distress

Source: Researcher's own calculation

Z' Score Result

The results obtained from the financial statements mirror the actual scenario of repair based enterprises in the State. The Table 5.12.6 state that, 2 out of 3 units is in distress phase, and 1 enterprise financial position is sound. C14 enterprise Z' score was initially was in Grey 2.33 in 2012-13 but it's gradually its performance down to the level of 0.22 in 2016-17. C23 is in distress zone show no recovery from financial distress. However the C22 (3.98) Z' score depicts the enterprise financial position is healthy.

5.13 Textile Based Enterprise: Cotton cloth by power loom, Silk reeling units, Units making readymade garments, cotton ginning & pressing and monofilament yarn nets constitute this group. The ingredients which have been used for the computation of the Z' score of textile based industries are mentioned in the Table 5.13.

Table: 5.13; Z' score Ingredients of Textile based Enterprise

Year	Enterprise	WC	TA	RE	NS	BE	EBIT	TL
2012-13	C12	25,935,556	264,557,584	5,720,237	171,016,367	102,920,237	5,720,237	161,637,347
	C15	6,838,710	11,546,880	67,712	1,986,194	8,723,306	67,712	2,823,484
	C26	-5,883,898	66,156,061	-711,346	10,668,000	31,736,666	-699,793	34,419,394
	C27	-6,939,047	26,734,963	405,861	9,898,568	7,304,424	587,353	32,436,619
2013-14	C12	27,586,347	238,353,893	5,863,709	349,462,476	108,783,946	14,956,754	126,228,283
	C15	6,919,127	14,204,240	74,708	20,166,037	8,798,014	109,051	5,406,226
	C26	1,382,796	56,089,535	205,504	23,898,073	31,942,171	2,895,785	24,147,363
	C27	10,475,844	35,283,623	501,581	275,852,242	11,536,104	2,862,392	23,745,519
2014-15	C12	28,281,690	267,662,105	7,875,896	547,489,526	116,659,842	19,872,968	151,002,261
	C15	11,553,244	13,476,108	91,578	39,082,821	8,890,629	130,504	4,585,479
	C26	-900,779	56,494,828	711,253	19,830,676	32,633,239	2,605,307	23,861,589
	C27	11,059,053	25,959,829	583,660	249,242,055	12,039,686	2,161,727	13,920,142
2015-16	C12	52,859,402	324,354,320	6,520,859	720,915,381	114,687,753	24,160,548	209,666,566
	C15	7,033,458	14,405,094	77,813	39,991,870	8,968,442	118,886	5,436,661
	C26	8,681,810	36,548,183	143,512	8,283,909	32,776,751	1,837,888	3,771,432
	C27	11,306,773	34,149,226	163,886	177,309,432	12,203,513	2,145,552	21,945,712
2016-17	C12	61,878,666	367,450,533	7,442,155	868,371,789	134,237,308	31,072,939	269,385,957
	C15	5,409,284	14,470,917	-208,420	37,645,790	6,884,422	-208,420	7,586,496
	C26	9,090,481	34,317,249	129,272	78,500	32,647,478	-424,570	1,669,871
	C27	12,608,824	42,748,575	1,128,332	193,573,379	13,331,845	3,395,192	29,416,729

Source: Researcher's own calculation

Table: 5.13.1; WC/ TA of the Textile based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C12	0.10	0.12	0.11	0.16	0.17	0.13
C15	0.59	0.49	0.86	0.49	0.37	0.56
C26	-0.09	0.02	-0.02	0.24	0.26	0.08
C27	-0.26	0.30	0.43	0.33	0.29	0.22

Source: Researcher's own calculation

Table No 5.13.1 depicts average/mean value of 5 years of net liquid assets (Working Capital) to total assets i.e. X_1 of the 4 enterprises from textile based companies. The result shows that only C12 (0.13), C26 (0.08) and C27 (0.22), depict unsatisfactory condition of working capital as a percentage of total capitalization. The condition of the enterprise C15 (0.56) working capital condition is satisfactory.

Table: 5.13.2; RE/TA of the Textile based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C12	0.02	0.02	0.03	0.02	0.02	0.02
C15	0.01	0.01	0.01	0.01	-0.01	0.01
C26	-0.01	0.01	0.01	0.01	-0.01	0.01
C27	0.02	0.01	0.02	0.01	0.03	0.02

Source: Researcher's own calculation

The retained earning terms used to describe the account to reports that the total amount reinvested by enterprise over the period. Looking at the position of enterprises taken as sample in this study for the period of 5 years, it is found out from Table 5.3 that percentage of retained earnings in financing long term assets of 3 enterprises in the study period is like this: C12 (0.02), C15 (0.00), C26 (0.00) and C27 (0.02).

Table: 5.13.3.; EBIT/TA of the Textile based Enterprise

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C12	0.02	0.06	0.07	0.07	0.08	0.06
C15	0.01	0.01	0.01	0.01	-0.01	0.01
C26	-0.01	0.05	0.05	0.05	-0.01	0.03
C27	0.02	0.08	0.08	0.06	0.08	0.07

Source: Researcher's own calculation

The EBIT/TA ratio is measure of the true productivity of firm's assets independent of any tax or leverage factors the ratio measures efficiency of firm's assets. Table 5.13.3 show that enterprise C15 (0.01) is little positive operating performance and enterprises like C12 (0.06), C26 (0.03) and C27 (0.07) had demonstrated a positive performance but not good performance.

Table: 5.13.4; BVE to TL of the Textile based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C12	0.64	0.86	0.77	0.55	0.50	0.66
C15	3.09	1.63	1.94	1.65	0.91	1.84
C26	0.92	1.32	1.37	8.69	19.55	6.37
C27	0.23	0.49	0.86	0.56	0.45	0.52

Source: Researcher's own calculation

The BVE/TL ratios are played an important role in defining long term financial policies of the enterprise. From Table 5.13.4 it is observed that the equity position of enterprises C12 (0.66), and C27 (0.52) which are quite low. The enterprises C15 (1.84) and C26 (6.37) depict that there is proper combination of debt and equity mix in the capital structure of the enterprises during study period. On analyzing above cases it is evident that enterprise C26 has excellent in their capital structure as they are able to provide a margin of safety to their creditors in the times of bankruptcy.

Table: 5.13.5; Sales/TA Textile based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C12	0.65	1.47	2.05	2.22	2.36	1.75
C15	0.17	1.42	2.90	2.78	2.60	1.97
C26	0.16	0.43	0.35	0.23	0.01	0.23
C27	0.37	7.82	9.60	5.19	4.53	5.50

Source: Researcher's own calculation

From the Table 5.13.5 the value of total sales turnover ratio shows that the enterprise C27 (5.50) has best performance. It is utilizing its assets in generating sales in much better manner as compared to other enterprises C12 (1.75), C15 (1.97) and C26 (0.23). It is evident from the ratio value that these enterprises are not utilizing full capacity of their assets in boosting up their sales.

Table: 5.13.6; Z' score Result of Textile based Enterprise

Year/Enterprises	C12	C15	C26	C27
2012-13	1.07	1.92	0.44	0.36
2013-14	2.12	2.47	1.16	8.46
2014-15	2.69	4.35	1.07	10.50
2015-16	2.81	3.84	4.21	5.84
2016-17	2.96	3.18	8.36	5.18
Average	2.33	3.15	3.05	6.07
Inference	Grey	Safe	Safe	Safe

Source: Researcher's own calculation

The results obtained from the financial statements mirror the actual scenario of textile based enterprise in the State. It is found from Table 5.13.6 that, 1 out of 4 enterprises in grey zone, while others are in safe/ financial sound zone.

5.14 Paper and Forest Based Enterprises: Paper coins & tubs, offset printing flexo graphic printing, Label printing Wooden furniture saw mills, corrugated cardboards, paper boards, beedi manufacturing etc are considered under forest industry. The ingredients which have been used for the computation of the Z' score of paper and forest based industries are mentioned in the table.

Table 5.14: Z' score Ingredients of Paper and Forest based Enterprises

Year	Enterprise	WC	TA	RE	NS	BVE	EBIT	TL
2012-13	C6	-2,935,054	28,106,155	161,215	3,586,400	7,066,687	2,245,249	21,039,467
	C30	-44,902,745	58,654,264	-362,493	770,179	2,048,507	-362,493	2,048,507
	C24	1,951,979	96,469,897	-3,137,888	9,602,766	28,962,111	-3,137,888	67,507,785
2013-14	C6	NA	NA	NA	NA	NA	NA	NA
	C30	-51,851,738	58,636,264	-406,508	0	2,004,492	-44,015	2,004,492
	C24	59,211,636	103,098,780	2,322,048	110,161,713	35,199,431	6,378,164	67,899,348
2014-15	C6	9,580,393	29,638,339	260,682	27,622,400	14,850,785	2,191,983	14,787,553
	C30	-51,856,738	58,502,945	-87,225	0	1,866,713	-87,225	1,866,713
	C24	2,672,167	92,981,417	3,123,843	103,431,628	38,323,275	7,464,186	54,658,140
2015-16	C6	10,148,459	30,059,360	188,299	19,769,747	15,009,430	1,670,805	15,020,275
	C30	-51,856,738	58,502,945	-41,000	0	1,825,173	-41,000	1,825,173
	C24	-7,608,765	93,892,062	731,383	95,855,877	33,254,658	3,983,155	58,797,394
2016-17	C6	10,767,093	20,287,846	349,718	37,411,531	15,388,803	1,409,976	4,899,042
	C30	-44,935,737	58,502,945	-42,000	0	1,783,173	-42,000	1,783,173
	C24	-5,236,776	120,578,707	-2,675,639	133,091,737	36,379,019	1,804,083	84,199,685

Source: Researcher's own calculation

Table: 5.14.1; WC/TA of the Paper and Forest based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C06	-0.10	NA	0.65	0.34	0.53	0.35
C30	-0.77	-0.88	-0.89	-0.89	-0.77	-0.84
C24	0.02	0.57	0.03	-0.08	0.04	0.10

Source: Researcher's own calculation

Table No 5.14.1 depicts average/mean value of 5 years net liquid assets (Working Capital) to total assets i.e. X_1 for 2 enterprises from Paper (C06), (C30) and 1 from forest (C24). The analysis shows that C06 (0.35) and C24 (0.10) unsatisfactory condition of working capital as a percentage of total capitalization. The condition of C30 (-0.84), had shown negative working capital which is really a serious problem for the company as it is a threat to the liquid position of the enterprise.

Table: 5.14.2; RE/TA of the Paper and Forest based Enterprises

Enterprises	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C06	0.01	NA	0.01	0.01	0.02	0.01
C30	-0.01	-0.01	-0.01	-0.01	-0.01	-0.01
C24	-0.03	0.02	0.03	0.01	-0.02	-0.01

Source: Researcher's own calculation

The retained earning terms used to describe the account to reports that the total amount reinvested by enterprises over the period. Looking at the position of companies taken as sample in this study for the period of 5 years, it is found out from Table 5.14.2 that percentage of retained earnings in financing long term assets of 3 enterprises in the study period is like this: C06 (0.01), C30 (-0.01) and C24 (-0.01). The negative trends of retained earnings during the study period indicate that unsustainable growth of these enterprises, the situation of the company's bankruptcy at low profitability.

Table: 5.14.3; EBIT/TA of the Paper and Forest based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C06	0.08	NA	0.07	0.06	0.07	0.07
C30	-0.01	-0.01	-0.01	-0.01	-0.0	-0.01
C24	-0.03	0.06	0.08	0.04	0.01	0.03

Source: Researcher's own calculation

The EBIT/TA ratio is measure of the true productivity of firm's assets independent of any tax or leverage factors the ratio measures efficiency of firm's

assets. Table 5.14.3 show that enterprises like C30 (-0.01), negative operative performance. Enterprises C6 (0.07), and C24 (0.03) have shown very low operating performance.

Table: 5.14.4; BVE/TL of the Paper and Forest based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C06	0.34	NA	1.00	1.00	3.14	1.37
C30	0.04	0.03	0.03	0.03	0.04	0.03
C24	0.43	0.52	0.70	0.57	0.43	0.53

Source: Researcher's own calculation

The BVE/TL ratios are played an important role in defining long term financial policies of the enterprises. From Table 5.14.4 it is observed that the equity portion of company C30 (0.03), and C24 (0.53), which is quite low as compared to other enterprises. Company C6 (1.37) depict that there is proper combination of debt and equity mix in the capital structure of the enterprises during study period.

Table: 5.14.5; Sales / TA of the Paper and Forest based Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C06	0.13	NA	0.93	0.66	1.84	0.89
C30	0.01	0	0	0	0	0.00
C24	0.10	1.07	1.11	1.02	1.10	0.88

Source: Researcher's own calculation

Business success cannot be imagined without excellent sales revenue. Sales revenue is the backbone of business survival and performance. From the table 5.14.5 the value of total sales turnover ratio shows that companies C06 (0.89), and C24 (0.88). It is evident from the ratio value that these companies are not utilizing full capacity of their assets in boosting up their sales. The enterprises C30 (0.00) has no sales utilizing capacity or not sales in last four years

Table 5.14.6: Z' score Result of Paper and Forest based Enterprises

Year/ Enterprise	C06	C30	C24
2012-13	0.45	-0.55	0.17
2013-14	NA	-0.63	1.90
2014-15	2.05	-0.63	1.70
2015-16	1.49	-0.63	1.33
2016-17	3.77	-0.54	1.28

Average	1.94	-0.59	1.28
Inference	Grey	Distress	Grey

Source: Researcher's own calculation

Z' Score Result:

The results obtained from the financial statements mirror the actual scenario of paper and forest based enterprises in the State. It is stated that from Table 5.14.6 all enterprises are in the grey zone except C30 (-0.59) in distress zone. The enterprise C30 position was very weak financial position and no chance to recover in the future; however the enterprise C24 position was little bit on the recovery path.

5.15 Hospitality & Hotel, Electronic and Miscellaneous Enterprises: Include hotel, electronic and other industries which are not included in the above categories. The ingredients which have been used for the computation of the Z' score of hospitality, hotel electronic and miscellaneous based industries are mentioned in the table. The table 5.15 to Table 5.15.6 summarized the Z' score analysis variable wise i.e. X_1, X_2, X_3, X_4 and X_5 for the sample of two (C7,C25) hospitality and hotel, one Electronic (C21) and two companies belongs from miscellaneous (C18,C29) companies summarized below.

Table: 5.15; Z' score Ingredients of Hospitality & Hotel, Electronic and Miscellaneous Enterprises

Year	Enterprise	WC	TA	RE	NS	BE	EBIT	TL
2012-13	C7	-117,866	7,548,848	257,871	2,619,310	1,478,083	943,012	4,595,764
	C25	33,678,335	671,485,502	86,192	411,298	575,385,383	103,004	96,099,617
	C21	18,987,314	35,884,718	1,089,629	28,008,943	3,589,629	194,958	28,495,089
	C18	962,529	6,610,621	224,197	6,836,858	3,883,235	485,764	2,727,386
	C29	-69,453,239	104,104,266	24,796	14,717,996	32,474,796	1,458,800	120,511,021
2013-14	C7	-620,116	7,082,245	540,889	4,005,850	3,512,800	1,007,511	2,511,886
	C25	29,422,823	769,893,287	87,809,796	399,842,238	653,901,029	118,449,217	115,992,255
	C21	17,473,124	33,985,445	1,361,437	31,221,065	8,061,437	271,808	25,924,058
	C18	701,399	6,812,765	240,690	6,619,193	4,123,925	563,667	2,688,840
	C29	-8,428,055	105,286,379	1,418,849	108,442,307	33,893,646	6,706,535	71,392,833
2014-15	C7	-285,715	6,936,107	659,716	3,964,475	4,053,689	1,205,710	2,259,035
	C25	37,813,366	817,119,670	72,586,376	401,208,961	712,513,022	109,231,251	104,606,645
	C21	16,005,195	29,571,181	-672,911	19,633,511	7,388,525	1,885,094	22,182,656
	C18	252,591	7,044,597	181,461	7,492,171	4,305,386	478,246	2,739,211
	C29	16,868,553	96,782,721	4,160,890	162,153,625	38,054,536	11,400,170	58,728,235
2015-16	C7	-290,987	7,032,060	545,727	4,370,375	4,519,928	877,634	2,553,293
	C25	10,978,023	906,500,045	68,143,551	444,208,995	771,990,577	107,896,108	134,509,465
	C21	15,174,738	25,553,953	-151,274	4,809,594	5,222,626	67,857	20,331,330
	C18	-437,585	6,090,233	3,293	7,286,665	4,308,679	374,125	2,381,554

	C29	18,262,363	94,641,785	5,172,373	154,046,474	43,226,909	12,975,647	51,414,875
2016-17	C7	-36,473	6,822,751	466,239	4,319,925	5,065,656	849,857	1,715,933
	C25	228,717,448	937,191,771	64,862,498	429,968,844	829,193,148	92,960,750	107,998,621
	C21	11,544,831	20,178,644	1,830,633	7,535,737	3,391,993	137,592	16,786,652
	C18	82,762	7,301,026	297,800	7,437,608	4,606,479	607,334	2,694,547
	C29	11,943,876	88,285,202	5,894,329	156,917,987	49,121,239	10,902,011	39,163,963

Source: Researcher's own calculation

Table: 5.15.1; WC/TA of the Hospitality & Hotel, Electronic and Miscellaneous Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C7	-0.02	-0.09	-0.04	-0.04	-0.01	-0.04
C25	0.05	0.04	0.05	0.01	0.24	0.08
C21	0.53	0.51	0.54	0.59	0.57	0.55
C18	0.15	0.10	0.04	-0.07	-0.01	0.04
C29	-0.45	-0.08	0.17	0.19	0.14	-0.01

Source: Researcher's own calculation

Table No 5.15.1 depicts average/mean value of 5 years net liquid assets (Working Capital) to total assets. The table 5.15.1 indicate that C25 (0.08), and C18 (0.04), depict unsatisfactory condition of working capital as a percentage of total capitalization. The condition of C7 (-0.04) and C29 (-0.01) have shown negative working capital which is really a serious problem for the enterprises as it is a threat to the liquid position of the company enterprises. The enterprises C21 (0.55) has a positive and satisfactory working capital ratio.

Table: 5.15.2; RE/TA of the Hospitality & Hotel, Electronic and Miscellaneous Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C7	0.03	0.08	0.10	0.08	0.07	0.07
C25	0.01	0.11	0.09	0.08	0.07	0.07
C21	0.03	0.04	-0.02	-0.01	-0.09	-0.01
C18	0.03	0.04	0.03	0.01	0.04	0.03
C29	0.01	0.01	0.04	0.05	0.07	0.04

Source: Researcher's own calculation

The retained earning terms used to describe the account to reports that the total amount reinvested by company over the period. Looking at the position of enterprises taken as sample in this study for the period of 5 years, it is found out from table 5.15.2 that percentage of retained earnings in financing long term assets of 5 enterprises in the study period is like this: C7(0.07), C25 (-0.07), C21 (-0.01), C18 (0.03),and C29 (0.04),.The negative trends of retained earnings during the study period indicate that unsustainable growth of these enterprises, the situation of the enterprises bankruptcy at low profitability.

Table: 5.15.3; EBIT/TA of the Hospitality & Hotel, Electronic and Miscellaneous Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C7	0.61	0.35	0.33	0.36	0.25	0.38
C25	0.00	0.15	0.13	0.12	0.10	0.10
C21	0.01	0.01	0.06	0.00	-0.01	0.01
C18	0.07	0.08	0.07	0.06	0.08	0.07
C29	0.01	0.06	0.12	0.14	0.12	0.09

Source: Researcher's own calculation

The EBIT/TA ratio is measure of the true productivity of firm's assets independent of any tax or leverage factors the ratio measures efficiency of firm's assets. Table 5.15.3 show that Companies like C25 (0.10), C21 (0.01), C18 (0.07), and C29 (0.09), have shown very low operating performance and company like C7 (0.38) has demonstrated slightly higher performance than previous enterprises.

Table: 5.15.4; BVE/TL of the Hospitality & Hotel, Electronic and Miscellaneous Enterprises

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C7	0.32	1.40	1.79	1.77	2.95	1.65
C25	5.99	5.64	6.81	5.74	7.68	6.37
C21	0.13	0.31	0.33	0.26	0.20	0.25
C18	1.42	1.53	1.57	1.81	1.71	1.61
C29	0.27	0.47	0.65	0.84	1.25	0.70

Source: Researcher's own calculation

The BVE/TL ratios are played an important role in defining long term financial policies of the enterprise. From Table 5.15.4 it is observed that C21 (0.25), C29 (0.70), which is quite low as compared to other enterprises. Enterprises C7 (1.65), C25 (6.37) and C18 (1.61) depict that there is proper combination of debt and equity mix in the capital structure of the enterprises during study period. On analyzing above cases it is evident that enterprises C25 has excellent in their capital structure as they are able to provide a margin of safety to their creditors in the times of bankruptcy.

Table: 5.15.5; Sales/TA of the Hospitality & Hotel, Electronic and Miscellaneous Companies

Enterprise	2012-13	2013-14	2014-15	2015-16	2016-17	Average
C7	0.35	0.57	0.57	0.62	0.63	0.55
C25	0.01	0.52	0.49	0.49	0.46	0.39
C21	0.78	0.92	0.66	0.19	0.37	0.58
C18	1.03	0.97	1.06	1.20	1.02	1.06
C29	0.10	1.03	1.68	1.63	1.78	1.24

Source: Researcher's own calculation

Business success cannot be imagined without excellent sales revenue. From the 5.15.5 the value of total sales turnover ratio shows that the enterprises C18 (1.06) and C29 (1.24) have best performance. It is utilizing its assets in generating sales in much better manner as compared to other enterprises in same period and lowest performance is that of C7(0.55), C25 (0.39) and C21(0.58). It is suggested that these enterprises must use their assets up-to optimum level in order to generate maximum sales and thereby increasing revenue for the enterprises concern.

Table: 5.15.6: Z' score Result of Hospitality & Hotel, Electronic and Miscellaneous Enterprises

Year/ Enterprise	C7	C25	C21	C18	C29
2012-13	2.39	2.55	1.25	1.99	-0.09
2013-14	2.25	3.49	1.47	1.97	1.38
2014-15	2.39	3.87	1.37	1.98	2.47
2015-16	2.53	3.34	0.72	2.09	2.58
2016-17	2.71	4.22	0.77	2.02	2.83
Average	2.45	3.49	1.12	2.01	1.83
Inference	Grey	Safe	Distress	Grey	Grey

Source: Researcher's own calculation

Z' Score Result

It is observed that 3 out of 5 units such as C7 (2.45), C18 (2.01) and C29 (1.83) are in grey zone means company must have to immediate action or remedial measure to became sick or distress in near future. , C21, is in distress zone show no recovery from financial distress. The position of the C25 is in safe the company balance sheet is healthier.

5.16 Statistical Hypotheses Testing

5.16.1 Working capital to Total assets

H_{01}:- There is no significant difference on working capital to total assets between all types of units under study period.

H_{11}:- There is significant difference on working capital to total assets between all selected units under study period.

Table: 5.16.1; ANOVA Working Capital to Total Assets

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**significance-value**
Between Groups	.146	4	.037	.339	.851
Within Groups	15.430	143	.108		
Total	15.576	147			Fail to reject

Source: Researcher's own calculation

Table No 5.16.1 shows result hypothesis in relation to working capital to total assets of all type sampled units under study period. The significance value is 0.851 is more than the significance level 0.05, hence reject the null hypothesis (H_{01}). It indicate that the stand of alternate hypothesis. To conclude that year wise working capital and total assets is differ significant for different enterprises, therefore, it is concluded that there is significant difference on working capital to total assets between all selected units under study period.

5.16.2 Retained Earnings to Total Assets

H_{01}: There is no significant difference on Retained earnings to total assets between all types of units under study period.

H_{11}:- There is significant difference on Retained earnings to total assets between all selected units under study period.

Table: 5.16.2; ANOVA Retained Earnings to Total Assets

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Significance value**
Between Groups	.120	4	.030	.846	.498
Within Groups	4.963	140	.035		
Total	5.083	144			Fail to reject

Source: Researcher's own calculation

Table No 5.16.2 shows result hypothesis in relation to working capital to total assets of sampled units under study period. The significance value is 0.498 is

more than the significance level 0.05, hence reject the null hypothesis (H_{01}). It indicate that the stand of alternate hypothesis. To conclude that year wise Retained earnings to total assets is differ significant for different enterprises. Therefore, it is concluded that there is significant difference on working capital to total assets between all selected units under study period.

5.16.3 Earnings before Interest and Taxes to Total Assets

H_{01}: There is no significant difference on EBIT to total assets between all types of units under study period.

H_{11}:- There is significant difference on EBIT to total assets between all selected units under study period.

Table: 5.16.3; ANOVA EBIT to Total Assets

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Significance value**
Between Groups	.042	4	.011	.181	.948
Within Groups	8.226	140	.059		
Total	8.268	144			Fail to reject

Source: Researcher's own calculation

Table No 5.16.3 shows result hypothesis in relation to working capital to total assets of sampled units under study period. The significance value is 0.948 is more than the significance level 0.05, hence reject the null hypothesis (H_{01}). It indicate that the stand of alternate hypothesis. To conclude that year wise EBIT to total assets is differ significant for different enterprises. Therefore, it is concluded that there is significant difference on EBIT to total assets between all selected units under study period.

5.16.4 Book Value of Equity to Total Liability

H_{01}: There is no significant difference on Capital Fund to Total Liability between all selected units under study period.

H_{11}:- There is significant difference on Capital Fund to Total Liability between all selected units under study period.

Table: 5.16.4; ANOVA Book value of Equity to Total Liability

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Significance-value.**
Between Groups	263.269	4	65.817	1.319	.266
Within Groups	7136.115	143	49.903		
Total	7399.383	147			Fail to reject

Source: Researcher's own calculation

Table No 5.16.4 shows result hypothesis in relation to working capital to total assets of sampled units under study period. The F value is 0.266 is more than the significance level 0.05, hence reject the null hypothesis (H_{01}). It indicate that the stand of alternate hypothesis. To conclude that there is significance of market value of equity and total liabilities between to selected sampled enterprises. Thus market value of equity to total liability of all sample units was remains not same under study period.

5.16.5 Sales to Total Assets

H_{01}: There is no significant difference on sales to total assets between all types of units under study period.

H_{11}:- There is significant difference on sales to total assets between all selected units under study period

Table: 5.16.5; ANOVA Sales to Total Assets

ANOVA					
	Sum of Squares	**df**	**Mean Square**	**F**	**Significance-value**
Between Groups	24.639	4	6.160	.970	.426
Within Groups	908.011	143	6.350		
Total	932.650	147			Fail to reject

Source: Researcher's own calculation

Table No 5.16.5 shows result hypothesis in relation to working capital to total assets of sampled units under study period. The F value was 0.426 more than the significance level 0.05, hence rejects the null hypothesis (H_{01}). It indicate that the stand of alternate hypothesis. To conclude that there is significant difference on sales and total assets between to selected sampled enterprises. Thus sales to total assets of all sample units were not same under study period.

5.17 Prevention of Sickness

In competitive business environment sick and non-sick companies to take preventive and curative measure to prevails from the industries in distress. The preventive measures are not only on the internal but also external factor. Its check at various stages with various coordination approaches various departments and agencies. The effective dialogue and communication with various agencies would likely to reduce the sickness probability. The preventive measures can take individually or jointly with the consultation or discussion with different stakeholders.

The following agencies are directly or indirectly connected with sickness of the companies, these points are discussed in following heads.

5.17.1 Prevention of Sickness by Entrepreneurs and Management

In a way, it should be the sole responsibility of the entrepreneur, who commences, implement and monitoring the project has responsibility to prevent from the sickness. The owners or management must pay adequate attention or homework properly while formulate the projects and discuss the deficiencies point with the financial institution, select the proper plant and machinery according to the need of the project , carefully higher the labour can reduces chances of sickness in the enterprises. The main point of prevention of sickness at entrepreneurs and management level are discussed below.

5.17.1.1 Appraisal of Management

If the management evaluates projects on timely basis, the 50% of sickness chances has been reduced. The sound management can be found the solution for the day to day problems and take remedial measures to reduce the projection of sickness. The term lender can always obtain reports of the prospective borrowers from bankers and other known sources, particularly regarding his antecedents and business reputation. The term lender can always receive reports of potential borrowers of bankers and other known sources, especially in relation to their predecessor and business reputation.

5.17.1.2 Machinery & Equipment

Occasionally, the entrepreneurs are started their project with second hand machinery. The reconstruction of the second hand machinery project is not done satisfactorily or technicians are not available at the required time to set up the equipment, so that such a project can easily become sick. Therefore, additional efforts are made by funding institutions to ensure that after the reconstruction of second-hand equipment, there will be proper life, and in case of any reduction in equipment, assistance available from vendors should be available.

5.17.1.3 Timely implementation of Projects

The time is the major element to reduce the cost of the projects. The timely disposal of the projects ensures not to delay in payment from the creditors. During the implementation of the project a timely evaluation and monitoring reduced the project cost as well reduces the time of the project. It should be emphasized that the urgency should not be obtained by distributing the project without the proper

assessment or by taking the usual precautions. In fact, a good evaluation is another important step that a lender has to take the disease into the prison in the unit.

5.17.1.4 Management Board

The industry should have a board a board of directors involved the entire competent person from the entire department. The board of directors are approved the management to take corrective measure or hire professional or expert to prevent the sickness in the industry. The management should also take a note from the bankers to remove the causes of sickness.

5.17.1.5 Partners in Enterprise

The borrower consider themselves as partners in enterprises managed by enterprises and are fully aware that recovery of their lent fund depends on the capacity of the unit to generate surplus. Collateral, profitability and viability of entrepreneurship Solvency project depends on entrepreneurial capabilities partnerships, responsibilities, awareness, and protection of disease warning. Under circumstances, entrepreneurs can limit their problems independently to lenders and it is too late before they can use their expert advice in removing the disease.

5.17.2 The Role of the Government

The Government can help in controlling sickness by without making sudden and frequent changes industrial and taxation system. The government should be appreciated that setting up of new industrial unit is an investment decision, which promotes new entrepreneurs and existing enterprises.

5.17.2.1Sudden changes in industrial policy

The frequently changes are made by the government in the industrial policy, not only discourage new investment, but may also hampered the future plans and became major causes of the sickness in newly born units. Immediate withdrawal of subsidy or any policies lead to sickness in the enterprises. It will only be fitness if the words of the lenders, who are expected to know the pulse of each industry funded by them, are taken into confidence by the government before affecting any major amendment in industrial policy. Financial institutions and industry representatives can sometimes be asked to come with or without any government participation to discuss problems of industry in particular or industry, and to revise

the existing solution, the government developing solutions, including recommendations, policies.

5.17.2.2 Resistance to change

The law that stands today does not empower lenders to make changes in the management of an auxiliary unit, even if they are convinced that the initial illness in the unit is completely due to the inability of the inability and / or current management and it is clear to them that without a change in management, the unit became sick. The management is efficient and honest, any changes suggested by the owners in management are easily accepted, but a management which is not above the board, generally resists change in management.

5.17.2.3 Others Issues

In the business environment, the government is also a key stakeholder in privately owned enterprises. The various tax relief and subsidies that it provides, the ownership or control of institutions funding institutions, enterprises related to enterprises generated from their overriding concern with the industrial enterprises, make it a key stakeholder in even minor enterprises. Its functions often affect the health of the whole enterprises. The policies on infrastructure and financial is also determine the health of the enterprises. To reduce industrial sickness, the government should avoid the frequently changes in policies.

5.17.3 Role of Financial Institution

The financial institutions should also ensure timely finance. At the project implementation stage, time element plays an important role. Speedy decisions and actions can help preventing the sickness. An entrepreneur has to run from pillar to post to complete all the procedures and the project implementation gets delayed. Prompt actions by the entrepreneurs as well as the financial institutions during the time of project implementation could avoid the cost and time overruns. It could also establish harmonious relations between the promoter and the lender, which very much essential particularly while monitoring the project later. If the financial institutions can prevent the sickness at the birth of the units by careful appraisal of the project, suggestions on improvements, avoidance in the delay in procedures and sanction of the project, only on the basis of 'viability of the project' instead of accepting the project under social or political pressures. The bank managers are of the opinion that the main reason for sickness in the MSMEs sector is diversion of funds to unauthorized purposes. It is believed that the entrepreneurs are interested

in taking advantage of concessions, incentives and subsidies provided by the government policies. Thus, to prevent sickness the proper end use of funds must be ensured. The financial institutions and the banks can ensure this by frequent field visits at the time of project implementation. The commercial banks can ensure the end use of funds by strictly monitoring the units and by insisting on the follow up systems. The bank' managers had complained that the promoters do not keep accounts properly they do not send periodic reports or send them belatedly or try to conceal information. However the banks can monitor the units by insisting on the quarterly information system or by frequent inspections or by interaction with the borrowers. It is necessary for the commercial banks to observe signals and symptoms of sickness at an incipient stage; because their future also depends on the viable and growing units. However this is not being done by the banks. The banks generally do not detect sickness at an incipient stage. On the other hand the banks try to delay the decisions about the sickness of the unit, to avoid sanctioning of the additional finance to such units. These delays aggregate the problems leading the units to the closure.

6. Data Analysis, Result, and Discussion

6.1 Introduction

Micro Small and Medium Enterprises (MSMEs) are playing an indispensable role in Indian economic development. It has been observed in the previous chapters that industrial sickness is widely spread and growing at the alarming rate in the country as well in the state. This endemic problem is the pressing matter for concern for the government and policymakers. The entrepreneurs had different problems regarding the factors causes for industrial sickness in the MSMEs in the state. In this chapter, an attempt has been made to examine and analyses the cause of industrial sickness in the state. The chapter also includes the revival measure according to the purview of the entrepreneurs to overcome industrial sickness in the state.

6.2 Backdrop of the Analysis

To proceed with the study, a primary survey of 450 registered and unregistered enterprises from micro small and medium enterprises were selected from 9 administrative division of Bihar. The data has been collected 50 from each division on through multi-stage sampling method. The enterprises were categorized into 10 categories (mentioned in chapter research methodology). The relevant information has been collected through a schedule among the surveyed sample enterprises. In the schedule, 5 point rating scale (5 = highly responsible, 4 = responsible, 3 = somewhat responsible, 2 = not very responsible and 1 = not responsible at all) has been used to detect the degree of responsibility of the causes in bringing about sickness in the respective enterprises.

6.3 Year of Establishment of Enterprise

From the Table: 6.3 it has been observed that for 450 observed enterprises, mean year of the establishment was 2003 A.D. (i.e., enterprises on average are 15 years old in 2018 A.D.) with Std. Deviation of 10.33 years and the range of year of establishment of the enterprise is 96 years (i.e., from 1920 to 2016 A.D.).

Table: 6.3; Year of Establishment

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Year of Establishment	450	96	1920	2016	2003	10.33

Source: Field Survey

6.4 Sex of Entrepreneurs

Gender is an important socio-demographic indicator of economic activity. The sex distribution of the respondents helps to understand the income generating potential, the power of decision-making in the family and the knowledge about the environment in which they live. The details of gender are provided in Table 6.4.

Table: 6.4; Sex of Entrepreneurs

Gender	Frequency	Share (%)
Male	367	81.6
Female	83	18.4
Total	450	100

Source: Field Survey

The sex distribution shows that the composition of the male is 367 (81.6%) and female is 83 (18.4%).

6.5 Type of Enterprise

From the Table 6.5, it is found that the proportion of micro, small and medium enterprises is 317(70.4%) enterprises, 122 (27.2%), and 11 (2.4%) respectively.

Table: 6.5; Type of Enterprise

Type of Enterprise	Frequency	Share (%)
Micro	317	70.4
Small	122	27.2
Medium	11	2.4
Total	450	100

Source: Field Survey

6.6 Distribution of Unit

Table 6.6 shows that, out of 450 enterprises, 338 (75.1%) enterprises are manufacturing enterprises and 112 (24.9%) enterprises are service enterprises.

Table: 6.5; Distribution of Unit

Type of Enterprise	Frequency	Share (%)
Manufacturing Enterprises	338	75.1
Service Enterprises	112	24.9
Total	450	100

Source: Field Survey

6.7 Entrepreneurs' Age

Age is an important factor in making considerable changes in the income earning capacity and decision making in any family. Table 6.7 shows the age group of the entrepreneurs which helps us to identify the most dominant age category that is involved in doing business.

Table: 6.7; Entrepreneurs Age

Age Group	Frequency	Share (%)
18- 30	36	8.0
31-40	119	26.4
41-50	188	41.8
51-60	62	13.8
Above 60	45	10.0
Total	450	100.0

Source: Field Survey

Table 6.7 shows that, out of 450 respondents, 36 (8%) of the respondents fall in the age group of 18-30, 119 (26.4%) respondents in group 31-40 years, 188 (41.8%) in the group 41-50 years, 62 (13.8%) in the group 51-60 years and 45 (10%) fall in the group above 60.

6.8 Enterprise Distribution of Sample

In study 450 samples from MSMEs have been taken for study. Enterprise distribution of sample micro, small and medium enterprises has shown in Table 6.8. 113 (25.1%) enterprises are agro, food & allied based enterprises, 42 (9.3%) enterprises are non- metallic & mineral based enterprises, 57 (12.7%) are engineering based enterprises, 24 (5.3%) are paper and printing enterprises, 69 (15.3%) are forest-based enterprises, 62 (13.8 %) are repairs and service-based enterprises, 41 (9.1 %) are textile-based enterprises. The remaining enterprises

belong to hotel and hospitality enterprises 12 (2.7%), electronics and electrical enterprises are 7 (1.6) and 23 (5.1%) are miscellaneous enterprises.

Table: 6.8;Enterprise Distribution of MSMEs

Category	Frequency	Share (%)
Agro, food & allied based enterprises	113	25.1
Non- metallic & mineral based enterprises	42	9.3
Engineering based enterprises	57	12.7
Paper & printing based enterprises	24	5.3
Forest-based enterprises	69	15.3
Repairs & Service based enterprises	62	13.8
Textile based enterprises	41	9.1
Hotel and hospitality sector	12	2.7
Electronics & Electric based enterprises	7	1.6
Miscellaneous enterprises	23	5.1
Total	450	100

Source: Field Survey

6.9 Type of Organization

The distribution of sample MSMEs by type of organization has presented in Table 6.9.

Table: 6.9; Type of Organization

Category	Proprietary	Partnership	Co-Operative	Private Limited	Total
Agro, food & allied enterprises	74 (85.1%)	16 (16.1%)	3 (2.3%)	20 (9.5%)	113
Non- metallic & mineral enterprises	29 (69%)	5 (11.9%)	-	8 (19.1%)	42
Engineering Enterprises	36 (63.2%)	16 (28.1%)	-	5 (8.8%)	57
Paper & printing Enterprises	19 (79.2%)	4 (16.7%)	-	1(4.1%)	24
Forest enterprises	57 (82.6%)	12 (17.4%)	-	-	69
Repairs & Service enterprises	60 (96.8%)	2 (3.2%)	-	-	62
Textile enterprises	32	4	2	3	41

	(78%)	(9.8%)	(4.9%)	(7.3%)	
Hotel and hospitality enterprises	6 (50%)	1 (8.3%)	4 (33.3%)	1 (8.3%)	12
Electronics & Electric enterprises	7 (100%)	0 (0%)	-	-	7
Miscellaneous enterprises	19 (82.6%)	4 (17.4%)	-	-	23
Total	339 (75.3%)	64 (14.2%)	9 (2%)	38 (8.4%)	450 (100%)

Source: Field Survey

Table 6.9 reveals that out of 450 sample enterprises, 75.3% are proprietary concerns, 14.2% are partnership firms, 2% are co-operative, and the remaining 8.4% are private limited companies. Among the 113 Agro & allied based enterprises, 85.1% are proprietary firms, 16.1% are partnership firms, 2.3% belongs to co-operative, and the remaining 9.5% are privately limited concerns. Among the 69 forest-based enterprises, 82.6% are proprietary firms, and 17.4% are enterprises belonging to the partnership. The data reveals that the majority of sample enterprises belong to proprietary concerns in the Bihar state.

6.10 Entrepreneur's Education

Educational status of the sample entrepreneurs who manage the micro and small enterprises has its influence on the management of the enterprises. The educational background of sample entrepreneurs is shown in Table 6.10.

TABLE: 6.10; Entrepreneur's Education

CATEGORY	Frequency	Share (%)
Under Matriculation	61	13.6
Matriculation	129	28.7
Pre University	106	23.6
Graduate	109	24.1
Post-graduate	18	4
Professional Graduate	14	3.1
Technical Education	13	2.9
Total	450	100

Source: Field Survey

It is clear from Table 6.10 that the educational profile of the entrepreneurs is varied significantly. Out of the total 450 enterprises, 129 enterprises (28.7%) are

managed by matriculates, 106 enterprises (23.6%) are managed by Pre University, 61 enterprises (13.6%) are managed by under matriculate person, 18 enterprises (4%) are operated by the postgraduate person, 14 enterprises (3.1%) are operated by professional graduate and 13 enterprises (2.9%) are operated by the technically educated person. Thus the educational level of 90% of entrepreneurs is either graduation or below it professionally, postgraduate and technically qualified persons are taking little interest in setting up micro small and medium scale industrial enterprises in the state.

6.11 Entrepreneurs Category

Table: 6.11 the purpose of data collection. Out of 450 entrepreneurs, 66 (14.7%) are scheduled Caste, 05 (1.1%) are scheduled Tribes, 257(57.1%) are Other Backward Classes, and 122 (27.1 %) are others.

Table: 6.11; Category of Entrepreneurs

Categories	Frequency	%
Scheduled Caste (S.C)	66	14.7
Scheduled Tribes (S.T)	5	1.1
Others	122	27.1
Other Backward Classes (O.B.C)	257	57.1
Total	450	100

Source: Field Survey

6.12 Location of Enterprises

Location of the MSMEs in Bihar has presented in Table 6.12, which reveals that out of 450 sample enterprises 264 enterprises (58.7%) are located in rural area. Only 186(41.3%) enterprises are located in an urban area. It's revealed that maximum enterprises are located in the rural area.

Table: 6.10; Location Enterprises

Location	Frequency	Share (%)
Rural	264	58.7
Urban	186	41.3
Total	450	100

Source: Field Survey

6.13 Family background of entrepreneur

Table 6.13 reveals that 383 (85.1%) entrepreneurs have not an entrepreneurial background. It means that maximum entrepreneurs belong to the first generation; only 67 (14.9 %) enterprises are having their ancestral business.

Table: 6.13; Family Background

Category	Frequency	Share (%)
First Generation	383	85.1
Second Generation	67	14.9
Total	450	100

Source: Field Survey

6.14. Type of Entrepreneurship

It is clear from Table 6.14 that out of the total 450 sample enterprises, 359 (79.8%) are perennial in nature and 91(20.2%) enterprises are seasonal in nature. Thus the sample includes the entrepreneurs of both perennial and seasonal unit.

Table: 6.14; Type of Entrepreneurship

Activity	Frequency	Share (%)
Perennial	359	79.8
Seasonal	91	20.2
Total	450	100

Source: Field Survey

6.15 Entrepreneurial Motivation to Start the Enterprise

The motivating factors which encouraged the entrepreneurs to establish the MSMEs enterprises are an important and essential factor to understand the factors which have a direct bearing on the development of micro and small industrial enterprises. The factors which motivated the entrepreneurs in setting up the MSMEs enterprises are shown in Table 6.15. It can be noticed from the Table 6.13 that maximum entrepreneurs have started their enterprise to self-employment or own plan 110 (24.4%), followed by 59 (13.1%) entrepreneurs motive to earn a profit, 51(11.3%) entrepreneurs have previous knowledge of the industry.

It can also be noticed from Table 6.15, that 37 (8.2%) entrepreneurs are acquired professional and technical training to motivate to start their enterprise, 26 (5.8%) entrepreneur's start their enterprise from failure from the other jobs or education, and 37 (8.2%) entrepreneurs are carried their ancestral business.

Table: 6.15; Motivation to Start the Enterprise

Category	Frequency	Share (%)
To Earn Profit	59	13.1
Self-employment/Own plan	110	24.4
To fulfill family ambition skills	38	8.4
To gain social status	21	4.7
Success stories of entrepreneurs	35	7.8
Previous knowledge of the industry	51	11.3
Encouragement of kith and kin	19	4.2
Acquired professional & Technical skill	37	8.2
Idea from bank/ Financial Institution/DIC	9	2.0
Others specific region	8	1.8
Failure in other area or Job	26	5.8
Ancestral business	37	8.2
Total	450	100

Source: Field Survey

6.16 Factors influencing the location of the enterprise

Location is a very important factor for the enterprise. In table 6.16 the factors influenced to establish the enterprises are summarized. The table revealed that 234 enterprises (52%) of entrepreneurs are established and prefer to establish their enterprises in the native place, followed by 65 enterprises (14.4%) availability of the market, 56 enterprises (12.4%) availability of power and fuels, 33 enterprises (7.3%) are established in the industrial estate. The rest of enterprise are established due to other factors that influenced the location such as social community life 25 enterprises (5.6%),availability of raw materials 16 enterprises (3.6%), availability of labour 11 enterprises (2.4%), transport facilities 7 enterprises (1.6%) and bank/financial institution 3 enterprises (0.7%).

Table: 6.16; Factors influencing the location of the Enterprise

Category	Frequency	Share (%)
Native place	234	52.0
Availability of labour	11	2.4
Availability of raw materials	16	3.6
Availability of power and fuel	56	12.4
Available of Market	65	14.4

Bank / financial institutions	3	0.7
Industrial estate	33	7.3
Transport facilities	7	1.6
Social/community life	25	5.6
Total	450	100

Source: Field Survey

6.17 Sources of Fund

Entrepreneurs need financial resources for production and distribution. The investments in the enterprises are based on the source of the fund, so entrepreneurs are making various efforts to generate fund for the investment. It is shown in Table 6.17. Out of 450 entrepreneurs, 322 (71.6%) entrepreneurs have started their enterprise by own capital or arranged from non-institutional sources, and 128 (28.4%) of the enterprises are received financial assistance from the institutional sources.

Table: 6.17; Sources of Fund

Loan	Frequency	Share (%)
Yes	128	28.4
No	322	71.6
Total	450	100

Source: Field Survey

6.18 Magnitude of Investment

Table 6.18.1 and 6.18.2 are given a detailed picture of the investments pattern of the MSMEs. Such an analysis is essential to study the relationship of MSMEs sickness with the magnitude of investments and with the form of investments.

6.18.1 Investment in Fixed and Working Capital

The Table 6.18.1 indicates the investment pattern in the fixed and working capital by the enterprises. The data revealed that the 53.8% of the enterprises are invested in fixed capital are up to 5 lakh.

The Table 6.18.1 also revealed that 60.9% of the enterprises are an investment in working capital maximum up to 5 lakh, 22.7% of the sample enterprises has an investment in working capital 5 lakh to 10 lakh. The data indicate that only 10% of the MSMEs are invested more than 10 lakh in the working capital.

Table: 6.18.1; Investment Pattern

Investment	MSMEs	Share (%)
A. Fixed Capital		
Up to 5 Lacks	242	53.8
5 Lacks to 10 Lacks	102	22.7
10 Lacks to 15 Lacks	45	10
15Lacks to 25 Lacks	19	4.2
25 Lacks to Above	42	9.3
B. Working Capital		
Up to 5 Lacks	274	60.9
5 Lacks to 10 Lacks	105	23.3
10 Lacks to 15 Lacks	19	4.2
15Lacks to 25 Lacks	29	6.4
25 Lacks to Above	23	5.1

Source: Field Survey

6.18.2 Investment in Enterprises

From the Table: 6.18.2 it may be seen that for 450 observed enterprises, entrepreneurs' mean of investment in land and building is Rs. 364,893.33 and the range of investment in land and building is Rs. 7,488,000 (i.e. from 12,000 to 7,500,000) , mean of investment in plant and machinery is Rs. 393,720 and the range of investment in equipment are Rs.8,488,000 (i.e. from 12,000 to 8,500,000), mean of investment in furniture and fitting is 250,192.88 and the range of the investment in furniture and fitting is Rs.`1,199,000 (i.e. from 10,000 to 1.20,00,000), mean of investment in tools and accessories is Rs 141,472.36 and the range of the investment in tools and accessories is Rs 1,290,000 (i.e. from 10,000 to 1,300,000) and mean of investment in others area is Rs 119,736 and the range of the investment in others is Rs. 2,490,000 (i.e. from 10,000 to 25,00,000). The highest mean of investment in plant and machinery/equipment and the lowest is others.

Table: 6.18.2; Investment in Enterprises (In Rs.)

Descriptive Statistics						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
Land and Buildings	450	7,488,000	12,000	7,500,000	364,893.33	829,312.39
Plant and Machinery	450	8,488,000	12,000	8,500,000	393,720	923,390.01
Furniture and Fittings	450	1,199,000	10,000	1,200,000	250,192.88	745,331.19
Tools and Accessories	450	1,290,000	10,000	1,300,000	141,472.36	180,497.10
Others	450	2,490,000	10,000	2,500,000	119,736	228,273.92

Source: Field Survey

6.19 Professional Training

Table 6.19 revealed that only 25.6% of the entrepreneurs had received professional training before start their enterprise, 74.4% have not any professional training.

Table: 6.19; Professional Training

Professional Training	Frequency	% Share (%)
Yes	115	25.6
No	335	74.4
Total	450	100

Source: Field Survey

6.20 Profit and loss account/ Balance sheet

Table 6.20 revealed that only 28.6% of the entrepreneurs are maintained the proper accounting profit and loss account, 71.6% are not any maintained profit and loss account.

Table: 6.20; Profit and Loss Account

Accounting System	Frequency	%
Yes	128	28.4
No	322	71.6
Total	450	100

Source: Field Survey

6.21. χ^2 Test between Professional Training and Entrepreneurs Generation.

In the Table 6.21, an attempt has been made to find out the relationship between professional training and entrepreneur generation.

Statistical Hypothesis

H_{01}: There is no relationship between Professional Training and Entrepreneurs Generation

H_{11}: There is a relationship between Professional Training and Entrepreneurs Generation

The value of Chi-square is 13.545, and the significance value is .000 less than .05 at a 95% confidence level; therefore the null hypothesis is rejected, and the alternative hypothesis accepted.

Table: 6.21; χ^2 Professional Training and Entrepreneurs Generation

Professional Training	First Generation	Second Generation
Yes	110	5
No	273	62
Total	383	67
Chi-Square	13.545	
Significance Value	.000	Rejected

Source: Researcher's own calculation

6.22 χ^2 Test between Professional Training and Loan

In the Table 6.22, an attempt has been made to find out the relationship between professional training and loan to entrepreneurs.

Statistical Hypothesis

H_{01}: There is no relationship between Professional Training and loan

H_{11}: There is a relationship between Professional Training and loan

The value of Chi-square is 3.049, and the significance value is 0.081 more than .05 at a 95% confidence level; therefore the null hypothesis is failed to reject.

Table: 6.22; χ^2 Professional Training and Loan

Professional Training	Loan(yes)	Loan (No)
Yes	40	75
No	88	247
Total	128	322
Chi-Square	3.049	
Significance value	0.081	Failed to reject

Source: Researcher's own calculation

6.23 χ^2 Test between Entrepreneurs Generation and Type of Industry

In the Table 6.23, an attempt has been made to find out the relationship between the Entrepreneurs Generation and Type of Industry.

Statistical Hypothesis

H_{01}: There is no relationship between the Entrepreneurs Generation and the Type of Industry.

H_{11}: There is a relationship between Entrepreneurs Generation and Type of Industry.

The value of Chi-square is 14.498, and the significance value is .000 less than .05 at a 5% confidence level; therefore the null hypothesis is rejected, and the alternate hypothesis is accepted.

Table: 6.21; χ^2 Entrepreneurs Generation and Type of Industry

Entrepreneurs Generation	Perennial	Seasonal
First Generation	294	89
Second Generation	65	2
Total	359	91
Chi Square	14.498	
Significance value	.000	Rejected

Source: Researcher's own calculation

6.24 χ^2 Test between Types of Industry & Ownership Pattern

In the Table 6.24, an attempt has been made to find out the relationship between the Types of Industry & Ownership Pattern.

Statistical Hypothesis

H_{01}: There is no relationship between the Types of Industry & Ownership Pattern

H_{11}: There is a relationship between the Types of Industry & Ownership Pattern.

From the table, it is clear that from the value of Chi-square is 27.404 and significance value is .000 less than .05 at 5% confidence level; therefore Null Hypothesis is rejected, and Alternative Hypothesis is accepted

Table: 6.24; χ^2 Types of Industry & Ownership Pattern

Type of Industry	S.C	S.T	General	OBC
Perennial	41	1	103	214
Seasonal	25	4	19	43
Total	66	5	122	257
Chi-Square	27.404			
Significance value	.000			Rejected

Source: Researcher's own calculation

6.25 χ^2 Test between Types of Industry & Location of Unit

In the Table 6.25, an attempt has been made to find out the relationship between the types of Industry & location of unit. From the table 6.25, it is clear that the maximum industry from both categories is located in a rural area.

Statistical Hypothesis

H_{01}: There is no relationship between the Types of Industry & Location of Unit

H_{11}: There is a relationship between the Types of Industry & Location of Unit.

The value of Chi-square is 0.21 and p-value is .881 more than .05 at a 5% confidence level; therefore the null Hypothesis is failed to reject.

Table: 6.25; χ^2 Types of Industry & Location of Unit

Type of Industry	Rural	Urban
Perennial	210	149
Seasonal	54	37
Total	264	186
Chi-Square	0.21	
Significance Value	.884	Failed to Reject

Source: Researcher's own calculation

6.26 χ^2 Test between Type of Unit and Type of Industry

In the Table 6.26, an attempt has been made to find out the relationship between the Types of Industry & Location of Unit. From the Table 6.26, it is clear that the maximum non-sick and sick industries are in perennial nature. Out of 450, 184 non-sick enterprises are perennial nature, and 62 are the seasonal type of industry.

Statistical Hypothesis

H_{01}: There is no relationship between the Types of Unit & Type of Industry.

H_{11}: There is a relationship between the Types of Unit & Type of Industry.

The value of Chi-square value is 8.345 and p-value .004 is less than .05 at a 5% confidence level; therefore the null Hypothesis is rejected, and the alternative hypothesis is accepted.

Table: 6.26; χ^2 Type of Unit and Type of Industry

Type of Industry	Perennial	Seasonal
Non-sick enterprises	184	62
Sick and operational enterprises	175	29
Total	359	91
Chi-Square	8.345	
Significance value	.004	Rejected

Source: Researcher's own calculation

6.27. Problems Faced by Entrepreneur at Initial Stage

The respondents are asked to state the problems that are usually faced at the initial stages while they established the unit. The difficulties were relating to registration of the firm; lack of infrastructure facilities, lack of technology, marketing aspects, availability of labour or availability of capital. The data collected in this aspect using the ranking method are shown in Table 6.27 for analysis.

Table: 6.27; Problem faced by Entrepreneurs at Initial Stage

Problem	Mean (Out of 5)	Standard Deviation
Electricity department	3.83	.988
Labour	3.20	1.002
Getting premises on rent/purchase	4.03	.849
Marketing	3.58	1.030
Obtaining raw material	3.86	.962
Procurement of machinery/equipment	3.78	.917
Taxes	3.88	.893
Financial sources	4.29	.759

Source: Field Survey

It is found that for the Micro small and medium enterprise, the prime problem at the initial period is financial resource(mean value: 4.29); the second one is getting premises (mean value= 4.03); the third one is taxed compliance (mean value=3.88); the fourth one is obtaining raw materials (mean value= 3.86); the fifth one is connected from the electricity department of (mean value=3.78); the sixth one is machinery/equipment (mean value=3.78); the seventh is marketing factor (3.58);the eight is others (3.23) and lastly the problem of labour (3.20).

6.28. Analysis of Causes for Industrial Sickness

There are numerous studies on the malaise of industrial sickness in the country have invariably unveiled a large number of factors varying from region to region; state to state and industry to industry. Most of the studies referred factors include; lack of pre-investment planning, wrong location, unplanned capital expenditures and expansion, diversion, of funds, underfinancing, obsolete technology, infrastructural bottlenecks, more competition, deficiency of factors like, raw-materials, absence of product planning, working capital, electricity and labour skills, poor competitiveness inefficient management practices; lack of schemes for

modernization lack of financial discipline, poor quality,- inadequate marketing effort, inadequate flow of credit by banks and other financial institutions and others. Most of these are only apparent causes which are seemingly responsible, but there are some fundamental forces behind these causes which are referred to as originating factors that induce the apparent reasons to surface. "Most of the studies in India have looked upon the problem of sickness as an economic management process. There is something more in sickness which is beyond the process of economic management". Further, behind every ‘Factor' responsible for sickness, there is some ‘actor, but the past studies have ignored to highlight that weather, there is a role failure of role players and to what extent such role failure has caused sickness, without which the problem of sickness cannot be understood in its right perspective.

The field survey researcher confined the various factors that are responsible for the sickness of the industries; all the elements are broadly divided to 14 important segments and question are developed by the researchers based on the particular segments. Five-point ‘Likert type' scale has been used to quantify the data which was otherwise qualitative to analyses the industrial problems statistically. The‘t ' test has also been conducted to measure the perceptual consonance and dissonance between different groups as to the significance and insignificance of the problem of the enterprises. The response is based on the Likert scale of 1 (Strongly disagree) to 5 (Strongly agree) against the mid-rating value (i.e., 3).t test is used at 95% confidence level to check the significance of the result. The primary factors are responsible for the industrial sickness in the state has discussed in following heads.

6.28.1 Raw Material Problems

Specific questions are asked from entrepreneurs regarding the raw materials, whether they faced materials resource problem in their industries. The result revealed that the MSMEs are facing problem-related to the raw materials and mean of all components of the table 6.28.1 are more than 3.

A further analysis was conducted using t-test of significance, and the results revealed that the raw materials problem faced by MSMEs in Bihar have significantly affected their growth and development with the t-test ranging from 4.793 to 18.643 and p-values are (.000), less than .05, at 95% confidence level. Therefore the null hypothesis that ‘entrepreneurs of MSMEs in Bihar have no

difficulties regarding untimely availability of raw materials, variation in price of raw materials, high price of raw materials, materials are not available locally, lack of finance for raw materials, faulty government policy for raw materials, obtaining raw material, and unavailability of raw materials are rejected.

Table: 6.28.1; Raw Material Problems

Problem	Mean (out of 5)	Std. Deviation	t values	Significance	Result
Untimely availability of raw material	3.26	1.151	4.793	.000	Rejected
Variation in the price of raw material	3.42	0.936	9.516	.000	Rejected
High Price of raw material	3.52	0.993	11.018	.000	Rejected
Material are not available locally	3.50	1.24	8.542	.000	Rejected
Lack of finance for raw materials	3.82	.938	18.643	.000	Rejected
Faulty government policy for raw materials	3.41	1.137	7.627	.000	Rejected
Obtaining raw material	3.49	.961	10.795	.000	Rejected
Lack of timely availability of raw materials	3.66	1.038	13.400	.000	Rejected

Source: Researcher's Estimation

6.28.2 Financial Problems

The availability of timely and adequate finance at a reasonable rate is an essential prerequisite for the development of MSME enterprises. They do not have sufficient funds of their own to invest in fixed and working capital. The availability of funds often makes it difficult for them to install modern machinery and tools and to maintain them properly. Hence different financial related questions are asked to the entrepreneurs.

The result revealed that the MSMEs are facing problem-related to the finance and mean of all components mentioned in Table 6.28.2 are more than 3. A further analysis was conducted using t-test of significance, and the results revealed that the raw materials problem faced by MSMEs in Bihar have significantly affected their growth and development with the t-test ranging from .873 to 20.770 and p-values are (.000 to .003), less than .05 at 95% confidence

level. Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding finance problems are rejected.

Table: 6.26.2; Financial Problems

Problem	Mean (out of 5)	Std. Deviation	t -values	Significance	Result
Shortage of fixed capital	3.53	0.981	11.388	.000	Rejected
Shortage of working capital	3.84	0.857	20.770	.000	Rejected
Increase in product cost	3.53	0.903	12.371	.000	Rejected
Delays in the realization of bills	3.63	0.944	14.171	.000	Rejected
Sanctioning of the loan	3.50	1.008	10.472	.000	Rejected
Under financing	3.16	1.144	2.965	.003	Rejected
Delay in Payment from creditors	3.87	.922	.873	.000	Rejected

Source: Researcher's own calculation

6.28.3 Labour Problem

Labour is the key component of the production input for the micro small and medium industries. Human resource management in the industries is one of the difficult tasks performed by entrepreneurs. The labour related question asked to entrepreneurs and results are discussed in Table 6.28.3.

The result revealed that the MSMEs are facing problem-related to the labour and mean of all components is more than 3 except non-availability of casual labour (2.82). A further analysis was conducted using t-test of significance and the results revealed that the labour problem faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (-3.603 to 14.269) and p-values are (.000 to .102), less than and more than .05 at 95% confidence level. Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding labour problems are rejected except labour unrest.

Table: 6.28.3; Labour Problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Non-availability of skilled labour	3.69	1.124035	13.127	.000	Rejected
Non-availability of casual labour	2.82	1.046553	-3.603	.000	Rejected
Demand for high wages	3.64	1.091981	12.476	.000	Rejected
Low productivity/Low efficiency	3.52	1.003473	11.181	.000	Rejected
Absenteeism	3.73	1.086938	14.269	.000	Rejected
Inadequate wages and salary	2.87	1.171	-2.376	.018	Rejected
Non-availability of proper manpower	3.36	.967	7.945	.000	Rejected
Labour unrest	2.91	1.178	-1.640	.102	Failed to reject

Source: Researcher's Estimation

6.28.4 Technology Problems

The non-adoption of sophisticated technology and modern equipment/machinery creates several technical problems in production as well distribution process. The technical problem categorized in various parts and the question asked to the entrepreneurs.

The result revealed that the MSMEs are facing technical problem related to indigenous machinery (3.24), excess consumption of raw materials (3.18) and power fuels (3.34), Obsolete Machinery (3.83) and other components mean is below 3. A further analysis was conducted using t-test of significance, and the results revealed that the technology problem faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (-9.594 to 17.786) and significance p-values are (.000 to .003), less than .05 at 95% confidence level. Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding technology problems are rejected.

Table: 6.28.4; Technology Problems

Problem	Mean (out of 5)	Std. Deviation	t values	Significance	Result
Indigenous Machinery	3.24	1.266	4.020	.000	Rejected
Imported Machinery	2.53	1.031	-9.594	.000	Rejected
Un-suitability of machinery	2.83	1.147	-2.999	.003	Rejected
Inter machinery balancing	2.62	1.050	-7.583	.000	Rejected
Testing facilities for raw material	2.75	0.986	5.211	.000	Rejected
Excess consumption of raw material	3.18	1.084	3.609	.000	Rejected
Excess consume of power/fuel	3.34	1.094	6.719	.000	Rejected
Obsolete Machinery	3.83	.991	17.786	.000	Rejected

Source: Researcher's own calculation

6.28.5 Power Supply Problems

An adequate and uninterrupted supply of electric power is an essential and crucial input for the efficient operation of small scale enterprises. Entrepreneurs are asked the question related to power supply and power tariff in the area.

The result revealed that the MSMEs are facing power problem related to an inadequate power supply (3.96), Power-cuts (3.44) and High electricity charges (4.07) and other components mean is below 3. A further analysis was conducted using t-test of significance, and the results revealed that the power problem faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (-9.434 to 25.042) and p-values are (.000 to .639), less and more than.05 at a 95% confidence level. Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding power problems except low-voltage' is rejected.

Table: 6.26.5; Power Supply Problem

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Inadequate power supply	3.96	0.984	20.775	.000	Rejected
Power-cuts	3.44	1.071	8.802	.000	Rejected
Low-voltage	2.97	1.304	-.470	.639	Fail to reject
High electricity charges	4.07	0.913	25.042	.000	Rejected
High voltage problem	2.50	1.119	-9.434	.000	Rejected

Source: Researcher's own calculation

6.28.6 Marketing Problems

Marketing problems are found to be a most challenging problem for MSMEs; the problems mostly arise due to lack of standardization, the inadequacy of products and packaging designs, use of low-quality materials, lack of precision and inconsistency in the finishing of products, etc. The market-oriented problems from inadequate resources at the disposal of small scale industries include identification of the market outlets and market characteristics of products and also tapping the existing new market outlets and contexts profitably. Some marketing based question asked to entrepreneurs, and results are mentioned in table 6.28.6.

The result revealed that the MSMEs are facing marketing problem related to all components mentioned in Table 6.28.6 mean more than 3. A further analysis was conducted using t-test of significance, and the results revealed that the marketing problem faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (-13.341 to 21.636) and significance value are (.000), less than .05 at 95% confidence level, Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding marketing problems is Rejected.

Table: 6.28.6; Marketing Problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
The high cost of marketing	3.52	0.978	11.463	.000	Rejected
Inadequate sales promotion	3.49	0.934	11.294	.000	Rejected
Customer resistance	3.35	0.943	8.047	.000	Rejected
Improper distribution strategy	2.48	.834	-13.341	.000	Rejected
Untimely introduction of product	2.53	.878	-11.277	.000	Rejected
High cost of the Advertisement	3.49	0.992	10.542	.000	Rejected
Lack of finance for Marketing	3.33	0.999	7.124	.000	Rejected
Poor Marketing Strategy	3.94	0.922	21.636	.000	Rejected

Source: Researcher's own calculation

6.28.7 Infrastructure Problems

The production and distribution of products have to be transported to various types of markets. Transportation facilities required for the movement of raw materials and other input, an adequate transportation, though the raw material is mostly available in the local areas, other inputs have to be transported from various other places which require proper transportation facility. The significant problems of transportation include an increase in transport costs and inconvenience due to different engaging modes of transport before the product is finally sent to the market. The details of transport problems revealed by the sample entrepreneurs are depicted in Table 6.28.7.

The result revealed that the MSMEs are facing infrastructure problem related to all components mentioned in Table 6.28.7 mean more than 3 except private transport (mean= 2.91). A further analysis was conducted using t-test of significance, and the results revealed that the infrastructure problem faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-values ranging from (-1.644 to 27.255) and significance value are (.000 to .101), less and more than .05 at 95% confidence level, Therefore the

null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding infrastructure problems except private transport is rejected.

Table: 6.28.7; Infrastructure Problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Lack of Public transport	4.05	0.939	23.748	.000	Rejected
Private transport	2.91	1.118	-1.644	.101	Fail to reject
High transport cost	3.95	0.934	21.548	.000	Rejected
Poor quality of roads	4.13	0.883	27.255	.000	Rejected
Poor quality of the drainage system	3.93	.938	21.609	.000	Rejected

Source: Researcher's own calculation

6.28.8 Competition Problems

Heavy competition is one of the important problems faced by Micro and Small Entrepreneurs. Owing to the increase in the number of similar products in the market, the entrepreneurs have to take proper care to produce the products of high quality and, preferably, at low prices. Because of the heavy competition, the entrepreneurs have to introduce new technology and methods to produce products of good quality and to offer the product at a reasonably low price compared to the other competitors. The various problems relating to the competition faced by the sample enterprises are presented in Table 6.28.8.

The result revealed that the MSMEs are facing competition problem related to all components mentioned in Table 6.28.8 mean more than 3 except competition from large unit MSMEs (mean=2.73). A further analysis was conducted using t-test of significance, and the results revealed that the competition problem faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (-4.613 to 12.485) and significance values are (.000), less than .05 at a 95% confidence level, Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding competition problems is rejected.

Table: 6.28.8; Competition Problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Competition from large enterprises MNCs	2.73	1.236	-4.613	. 000	Rejected
Established small industries in the region	3.55	0.982	11.900	.000	Rejected
Established small industries in other regions	3.57	0.974	12.485	.000	Rejected
Competition from imported substitutes	3.35	1.072	6.860	.000	Rejected

Source: Researcher's own calculation

6.28.9 Taxation Problem

The higher and regressive tax system creates a huge hurdle to growth of the MSMEs in the state. The various tax-related issues questions are presented in Table 6.28.9.

The result revealed that the MSMEs are facing taxation problem related to all components mentioned in Table 6.28.9, mean are more than 3. A further analysis was conducted using t-test of significance, and the results revealed that the taxation problem faced by MSMEs in Bihar have greatly affected their growth and development of the MSMEs with the t-values ranging from (1.388 to 9.911) and p-values are (.000 to .166), less and more than .05 at 95% confidence level, Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding taxation problems except municipal / local taxes is rejected.

Table: 6.28.9; Taxation Problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Municipal/local taxes	3.06	0.916	1.388	.166	Failed to reject
Sales tax /GST	3.46	0.998	9.911	.000	Rejected
Excise duty	3.11	1.072	2.198	.028	Rejected

Source: Researcher's own calculation

6.28.10 Packaging Problems

The specific type of packaging is essential to carry the products safely. To attract consumers, an attractive package is essential. The different enterprises

surveyed in the study have reported various packaging problems which are mentioned in Table 6.28.10.

The result revealed that the MSMEs are facing packaging problem related to all components mean mentioned in Table 6.28.10 are more than 3. A further analysis was conducted using t-test of significance, and the results revealed that the marketing problem faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (1.871 to 7.780) and significance value are (.000 to .062), less and more than .05 at 95% confidence level, Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding packaging problems except lack of materials required is rejected.

Table: 6.28.10; Packaging Problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Material shortage	3.28	0.945734	6.380	.000	Rejected
Lack of material in required	3.09	1.033153	1.871	.062	Failed to reject
Poor quality	3.25	1.074740	4.956	.000	Rejected
High cost	3.38	1.036118	7.780	.000	Rejected

Source: Researcher's own calculation

6.28.11 Knowledge related problems

The specific knowledge of management and technology reduced the cost of production. The different enterprises surveyed in the study have reported ineffective knowledge leads to becoming significant problems for the industry which are mentioned in Table 6.28.11.

The result revealed that the MSMEs are facing a lack of knowledge related all components mean mentioned in Table 6.28.11 are more than 3 except lack of accounting skill (2.85). A further analysis was conducted using t-test of significance, and the results revealed that the lack of knowledge faced by MSMEs in Bihar has significantly affected their growth and development of the MSMEs with the t-test ranging from (-2.826 to 9.977) and significance values are (.000 to .005), less.05 at 95% confidence level. Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding lack of knowledge is rejected.

Table: 6.26.11; Knowledge related problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Lack of Managerial skill	3.50	1.054	9.977	.000	Rejected
Lack of accounting skill	2.85	1.134	-2.826	.005	Rejected
Technical skill	3.42	1.088	8.188	.000	Rejected

Source: Researcher's own calculation

6.28.12 Government and Administrative Problems

Political changes and administrative bottlenecks could affect the growth of MSMEs in Country. The various questions are asked from entrepreneurs regarding the government policies and administrative problems. The problems are categorized in the table.

The result revealed that the MSMEs are facing a lack of knowledge related all components mean mentioned in table 6.28.12 are more than 3 except fear of nationalization (2.12). A further analysis was conducted using t-test of significance, and the results revealed that the government and administrative problems faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (-15.266 to 12.455) and significance value are (.000 to .006), less.05 at a 95% confidence level, Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties in the government and related administrative problems are rejected.

Table: 6.28.12; Government and Administrative problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Strict credit policy	3.31	1.043	6.370	.000	Rejected
Unfavorable investments climate	3.13	.993	2.754	.006	Rejected
Fear of Nationalization	2.12	1.226	-15.266	.000	Rejected
Restraints restriction on purchases	3.40	.984	8.723	.000	Rejected
Excessive taxation policy of the government	3.54	.920	12.455	.000	Rejected

Source: Researcher's own calculation

6.28.13 Management related Problems

The poor project, personal and finance management leads to enterprises became sick. Entrepreneurs ask various questions regarding management related problems. The problems are categorized in the table.

The result revealed that the MSMEs are facing a lack of knowledge related all components mean mentioned in table 6.28.13 are more than 3 except disputes among partners (1.91). A further analysis was conducted using t-test of significance, and the results revealed that the management related problems faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (-19.81 to 14.828) and significance values are (.000 to .182), less or more than 05 at 95% confidence level, Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding the management related problems is rejected except underutilization of installed capacity.

Table: 6.28.13 Management related problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Poor utilization of the assets	3.57	.820	14.828	.000	Rejected
Underutilization of installed capacity	3.06	.882	1.336	.182	Failed to reject
Inadequate Material management	3.42	.931	9.467	.000	Rejected
An Absence of product planning	3.12	1.003	2.443	.015	Rejected
An absence of manpower planning	3.14	1.009	2.851	.005	Rejected
Disputes among partners	1.91	1.166	-19.81	.000	Rejected
Lack of market research	3.64	1.140	11.863	.000	Rejected

Source: Researcher's own calculation

6.28.14 Other Problems

Entrepreneurs ask various questions regarding the other problem. The problems are categorized in the table.6.28.14.

The result revealed that the MSMEs are facing other problems related all components mean mentioned in table 6.28.14 are more than 3 except Manmade

disaster (2.98). A further analysis was conducted using t-values of significance, and the results revealed that the other problems faced by MSMEs in Bihar have significantly affected their growth and development of the MSMEs with the t-test ranging from (-.428 to 10.022) and significance values are (.000 to .970) less than or more than 05 at a 95% confidence level. Therefore the null hypothesis that 'entrepreneurs of MSMEs in Bihar have no difficulties regarding the other problems is failed to reject except man-made disaster and border disputes.

Table: 6.28.14 Other Problems

Problem	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Man Made Disaster	2.98	1.211	-.428	.669	Failed to reject
Natural calamities	3.49	1.030	10.022	.000	Rejected
Border disputes	3.00	1.242	.038	.970	Failed to reject
Domestic problem of entrepreneurs	3.22	1.115	4.101	.000	Rejected
Lack of Demand	3.54	1.144	9.970	.000	Rejected

Source: Researcher's own calculation

6.29 Entrepreneurs perception of loss in Enterprises

The researcher has asked the questions regarding the opinion of the entrepreneurs about the reason of that firm making the loss. Five-point 'Likert type' scale has been used to quantify the data which was otherwise qualitative to analyze the industrial problems statistically. The't' test has also been conducted to measure the perceptual consonance and dissonance between different groups as to the significance and insignificance of the problem of the enterprises. The response is based on the Likert scale of 1 (Strongly Disagree) to 5 (Strongly Agree) against the mid-rating value (i.e., 3).

The respondents were asked to state the perception about the loss in the enterprises. The reasons for failure were categorized into various categories. The causes of loss may be shortage of working capital, reduction in credit unit by banks, disputes among partners, marketing problem, labour Problem, domestic problem of entrepreneurs, lack of demand, transportation bottleneck in the region, state problem, breakdown in plant and machinery and non-availability of raw

materials. The data collected in this aspect using the ranking method are shown in Table 6.29 for analysis.

Table: 6.29; Entrepreneurs perception of loss in Enterprises

Cause of Loss	Mean (Out of 5)	Std. Deviation
Shortage of working capital	3.73	.967
Reduction in credit unit by banks	2.17	1.028
Disputes among partners	1.91	1.166
Marketing problem	3.44	1.090
Labour Problem	3.43	1.247
The domestic problem of entrepreneurs	3.22	1.115
Lack of Demand	3.54	1.144
Transport bottleneck in the region	2.98	1.193
state problem	2.77	1.118
The breakdown in plant and machinery	2.82	1.163
Non-availability of raw materials	3.07	1.262

Source: Field Survey

It is found that for the micro, small and medium enterprises, the losses in enterprises due to shortage of working capital (mean value: 3.73); the second lack of Demand (mean value= 3.54); the third was marketing problem (mean value=3.44); the fourth one is obtaining the labour Problem (mean value= 3.43); the fifth one is domestic problem of entrepreneurs (mean value= 3.22); the sixth one is non-availability of raw materials (mean value= 3.07); the seventh is transport bottleneck in the region (3.98);the eight is Breakdown in plant and machinery (2.82), ninth state problem (2.77), tenth was reduction in credit unit by banks (2.17) and lastly disputes among partners (1.91).

Table 6.29 revealed that the primary cause for losses was a Shortage of working capital and the minor cause was disputed among the partners.

6.30 F Test & Analysis of Variance (ANOVA) of factors responsible for sickness and Product specified Enterprises.

Hypothesis

H_{01}: There is no significant difference in the various factors responsible for industrial sickness with product specified industries.

6.30.1 Test of Homogeneity of variances for Factors responsible for industrial sickness and Product specified Enterprises.

The Table: 6.30.1 for the test of homogeneity of variance. If the significance from Levene's test is less than 0.05, then variances are significantly different and parametric tests cannot be used. In Table 6.30.1 indicate that the variables of sickness such as power problem, infrastructure problems, packaging problems, government and administrative problems, and other problems significance values are more than 95% of level of confidence of null hypothesis. Hence the homogeneity of variance of these variables is used for one way ANOVA test.

Table: 6.30.1Test of Homogeneity of Product specified Enterprises

Test of Homogeneity of Variances					
		Levene Statistic	**df1**	**df2**	**Sig.**
Raw materials Problems	Based on Mean	15.578	9	440	.000
Financial Problems	Based on Mean	2.583	9	440	.007
Labour Problems	Based on Mean	2.846	9	440	.003
Technology Problems	Based on Mean	7.862	9	440	.000
Power Supply Problems	Based on Mean	.778	9	440	.637
Marketing Problems	Based on Mean	4.028	9	440	.000
Infrastructure problems	Based on Mean	1.384	9	440	.193
Competition problems	Based on Mean	4.146	9	440	.000
Taxation problems	Based on Mean	2.319	9	440	.015
Packaging problems	Based on Mean	1.450	9	440	.165
Knowledge related Problems	Based on Mean	5.170	9	440	.000
Government and administrative problems	Based on Mean	1.759	9	440	.074
Management related problems	Based on Mean	3.115	9	440	.001
Other problems	Based on Mean	1.692	9	440	.089

Source: Researcher’s own calculation

The Table 6.30.2 represent the result of F-test in one way ANOVA, as shown in the Table 6.30.2 the F values are lies between (2.472 to 11.043) and significance-values are (.000 to .009) below the significance value .05 at 95% confidence level hence null hypothesis, There is no significant difference in the

various factors responsible for industrial sickness with product specified industries has been rejected.

Table: 6.30.2 Product specified industries Based ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Power Problem	Between Groups	13.073	9	1.453	3.851	.000
	Within Groups	165.939	440	.377		
	Total	179.011	449			
Infrastructure Problem	Between Groups	7.170	9	.797	2.472	.009
	Within Groups	141.790	440	.322		
	Total	148.960	449			
Packaging Problem	Between Groups	58.306	9	6.478	11.043	.000
	Within Groups	258.131	440	.587		
	Total	316.436	449			
Government and administrative problems	Between Groups	8.608	9	.956	4.070	.000
	Within Groups	103.411	440	.235		
	Total	112.020	449			
Other Problems	Between Groups	16.349	9	1.817	3.665	.000
	Within Groups	218.088	440	.496		
	Total	234.437	449			

Source: Researcher's own calculation

6.31 F Test & Analysis of Variance (ANOVA) of factors responsible for sickness and Type of Organization

Hypothesis

H_{01}: There is no significant difference in the various factors responsible for Industrial sickness with Type of organization.

6.31.1 Test of Homogeneity of variances for Factors responsible for industrial sickness and Type of Organization.

The Table: 6.31.1 for the test of homogeneity of variance. If the significance from Levene's test is less than 0.05, then variances are significantly different and parametric tests cannot be used. In Table 6.31.1 indicate that the variables of sickness such as power problem, competition problems, packaging problems, lack of knowledge, government and administrative problems, and lack of managerial ability significance values are more than 95% of level of confidence of null

hypothesis. Hence the homogeneity of variance of these variables is used for one way ANOVA test.

Table: 6.31.1; Test of Homogeneity of Type of Organization

Test of Homogeneity of Variances					
		Levene Statistic	**df1**	**df2**	**Sig.**
Raw material Problems	Based on Mean	5.021	3	446	.002
Financial Problems	Based on Mean	11.899	3	446	.000
Labour Problems	Based on Mean	8.306	3	446	.000
Technical Problems	Based on Mean	2.647	3	446	.049
Power Problems	Based on Mean	2.229	3	446	.084
Marketing Problems	Based on Mean	8.646	3	446	.000
Infrastructure Problems	Based on Mean	4.772	3	446	.003
Competition Problems	Based on Mean	1.511	3	446	.211
Taxation Problems	Based on Mean	5.877	3	446	.001
Packaging Problems	Based on Mean	2.002	3	446	.113
Lack of knowledge's	Based on Mean	1.862	3	446	.135
Government and administrative problems	Based on Mean	2.481	3	446	.060
Lack of managerial ability	Based on Mean	1.272	3	446	.283
Other Problems	Based on Mean	4.291	3	446	.005

Source: Researcher's own calculation

In the Table: 6.31.2 represent the result of F-test in one way ANOVA, as shown in the Table 6.31.2 the F values are lies between (2.064 to 13.185) and significance values are (.000 to .104) more than or less than the significance value .05 at 95% confidence level hence null hypothesis that there is no significant difference in the various factors responsible for industrial sickness with type of organization has been rejected except lack of knowledge.

Table: 6.31.2; Type of Organization of ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Power Problems	Between Groups	5.949	3	1.983	5.110	.002
	Within Groups	173.063	446	.388		
	Total	179.011	449			

Competition Problems	Between Groups	19.737	3	6.579	11.993	.000
	Within Groups	244.675	446	.549		
	Total	264.412	449			
Packaging Problems	Between Groups	17.185	3	5.728	8.537	.000
	Within Groups	299.251	446	.671		
	Total	316.436	449			
Lack of knowledge	Between Groups	2.795	3	.932	2.064	.104
	Within Groups	201.319	446	.451		
	Total	204.115	449			
Government and administrative problems	Between Groups	4.553	3	1.518	6.299	.000
	Within Groups	107.466	446	.241		
	Total	112.020	449			
Lack of managerial ability	Between Groups	7.834	3	2.611	13.185	.000
	Within Groups	88.327	446	.198		
	Total	96.161	449			

Source: Researcher's own calculation

6.32 F Test & Analysis of Variance (ANOVA) of factors responsible for sickness and Educational background

Hypothesis

H_{01}: There is no significant difference in the various factors responsible for industrial sickness with Education background.

6.32.1 Test of Homogeneity of variances for Factors responsible for industrial sickness and Education Background.

The Table: 6.32.1 for the test of homogeneity of variance. If the significance from Levene's test is less than 0.05, then variances are significantly different and parametric tests cannot be used. In Table 6.32.1 indicate that the variables of sickness such as labour problems, power problem, infrastructure problem, taxation problem, lack of managerial ability and other problems significance values are more than 95% of level of confidence of null hypothesis. Hence the homogeneity of variance of these variables is used for one way ANOVA test.

Table: 6.32.1 Test of Homogeneity of Education Background

Test of Homogeneity of Variances					
		Levene Statistic	df1	df2	Sig.
Raw materials	Based on Mean	4.263	6	443	.000
Financial Problem	Based on Mean	2.331	6	443	.032
Labour Problem	Based on Mean	2.092	6	443	.053
Technical Problem	Based on Mean	6.405	6	443	.000
Power Problem	Based on Mean	2.058	6	443	.057
Marketing Problem	Based on Mean	5.106	6	443	.000
Infrastructure Problem	Based on Mean	.441	6	443	.851
Competition Problem	Based on Mean	2.594	6	443	.018
Taxation Problem	Based on Mean	1.403	6	443	.212
Packaging Problem	Based on Mean	2.282	6	443	.035
Lack of knowledge Problem	Based on Mean	4.731	6	443	.000
government and administrative problems	Based on Mean	3.542	6	443	.002
Lack of managerial ability	Based on Mean	.802	6	443	.569
Other Problems	Based on Mean	1.364	6	443	.227

Researcher's own calculation

In the Table: 6.32.2 represent the result of F-test in one way ANOVA, as shown in the Table 6.32.2 the F values are lies between (1.018 to 5.653) and significance values are (.000 to .413) more than or less than the significance value .05 at 95% confidence level hence null hypothesis that there is no significant difference in the various factors responsible for industrial sickness with educational background has been rejected except labour problems.

Table: 6.32.2; Education Background of ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Labour Problems	Between Groups	2.117	6	.353	1.018	.413
	Within Groups	153.553	443	.347		
	Total	155.670	449			
Power Problems	Between Groups	9.865	6	1.644	4.306	.000
	Within Groups	169.146	443	.382		

	Total	179.011	449			
Infrastructure Problems	Between Groups	4.936	6	.823	2.531	.020
	Within Groups	144.023	443	.325		
	Total	148.960	449			
Taxation Problems	Between Groups	9.659	6	1.610	2.742	.013
	Within Groups	260.114	443	.587		
	Total	269.773	449			
Lack of managerial ability	Between Groups	6.839	6	1.140	5.653	.000
	Within Groups	89.321	443	.202		
	Total	96.161	449			
Other Problems	Between Groups	8.911	6	1.485	2.917	.008
	Within Groups	225.526	443	.509		
	Total	234.437	449			

Source: Researcher's own calculation

6.33 F Test & Analysis of Variance (ANOVA) of factors responsible for sickness and Ownership pattern

Hypothesis

H_{01}: There is no significant difference in the various factors responsible for industrial sickness with Ownership Pattern.

6.33.1 Test of Homogeneity of variances for Factors responsible for industrial sickness and Ownership Pattern.

The Table: 6.33.1 for the test of homogeneity of variance. If the significance value of Levene's test is less than 0.05, then variances are significantly different and parametric tests cannot be used. In Table 6.33.1 indicate that the variables of sickness such as financial problems, labour problems, technical problems, taxation problems, government and administrative problems, lack of managerial ability and other problems significance values are more than 95% of level of confidence of null hypothesis. Hence the homogeneity of variance of these variables is used for one way ANOVA test.

Table: 6.33.1; Test of Homogeneity of Ownership Pattern

Test of Homogeneity of Variances					
		Levene Statistic	**df1**	**df2**	**Sig.**
Raw materials Problems	Based on Mean	13.238	3	446	.000
Financial Problems	Based on Mean	1.882	3	446	.132

Labour Problems	Based on Mean	1.933	3	446	.123
Technical Problems	Based on Mean	.547	3	446	.651
Power Problems	Based on Mean	2.751	3	446	.042
Marketing Problems	Based on Mean	2.638	3	446	.049
Infrastructure Problems	Based on Mean	3.264	3	446	.021
Competition Problems	Based on Mean	6.910	3	446	.000
Taxation Problems	Based on Mean	2.537	3	446	.056
Packaging Problems	Based on Mean	3.318	3	446	.020
Lack of knowledge Problems	Based on Mean	7.437	3	446	.000
Government and administrative problems	Based on Mean	2.434	3	446	.064
Lack of managerial ability	Based on Mean	.334	3	446	.801
other Problems	Based on Mean	.903	3	446	.440

Source: Researcher's own calculation

In the Table: 6.33.2 represent the result of F-test in one way ANOVA, as shown in the Table 6.33.2 the F values are lies between (.687 to 8.302) and significance-values are (.000 to .561) more than or less than the significance value .05 at 95% confidence level hence null hypothesis that there is no significant difference in the various factors responsible for industrial sickness with ownership pattern has been rejected except financial problems, taxation problems, and government and administrative problems.

Table: 6.33.2; Ownership Pattern of ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Financial Problems	Between Groups	.913	3	.304	1.090	.353
	Within Groups	124.548	446	.279		
	Total	125.461	449			
Labour Problems	Between Groups	8.233	3	2.744	8.302	.000
	Within Groups	147.437	446	.331		
	Total	155.670	449			
Technical Problems	Between Groups	2.924	3	.975	3.083	.027
	Within Groups	140.969	446	.316		
	Total	143.892	449			

Taxation Problems	Between Groups	1.240	3	.413	.687	.561
	Within Groups	268.533	446	.602		
	Total	269.773	449			
Government and administrative problem	Between Groups	1.813	3	.604	2.445	.063
	Within Groups	110.207	446	.247		
	Total	112.020	449			
Lack of managerial ability	Between Groups	3.387	3	1.129	5.427	.001
	Within Groups	92.774	446	.208		
	Total	96.161	449			
Other Problems	Between Groups	8.905	3	2.968	5.870	.001
	Within Groups	225.532	446	.506		
	Total	234.437	449			

Source: Researcher's own calculation

6.34 Factor Analysis of Industrial sickness

The Factor Analysis (FA) is used for the identified the major factors which are responsible for the industrial sickness in MSMEs in Bihar. This technique is considered an appropriate measure to no preexisting of functional relationships and data reduction. It is used to reduce a large number of attributes into a small number of major factors. The important variables that can cause sickness in industrial enterprises are analyzed with the help of the scores of the 80 problems.

Thus the FA, a data reduction technique, is used to identify a few factors that explain the majority of problems that can result in the sickness of industrial enterprises. Initially, the sufficiency and suitability of data for factor analysis have been tested with the help of Kaiser-Meyer Ohlin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity.

6.34.1 KMO and Bartlett's Test for the Industrial sickness

Kaiser-Meyer-Olkin is the correlation matrix to measure the attributes is more or less correlated. If KMO is close to 1, it seems more effective and if close to 0 it seems very low efficiency. KMO recommends accepting a value greater than 0.5 is acceptable. On the same time Bartlett's test the null hypothesis that the correlation matrix is an identifying matrix. Bartlett's test relates to the significance of the study. The factor analysis index has a recommendation that Bartlett's test result must be below 0.05.

From Table: 6.34.1 it may be observed that Kaiser-Meyer-Olkin correlation matrix is .577 is more than 0.50 and Bartlett's Test value (18474.975) of the null hypothesis is being rejected at 95 % confidence level (Sig. = .000). Hence factor Analysis is considered as an appropriate technique for further analysis of data.

Table: 6.34.1; KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure Correlation Matrix.		.577
Bartlett's Test of	Approx. Chi-Square	18474.975
	df	3160
	Sig.	.000

Source: Researcher's own calculation

The executed factor analysis has resulted in 27 important factors. Table 6.34.2 shows the Eigenvalues, variance explained, and cumulative variance explained for factor solution.

Table: 6.34.2; Total Variance Explained

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	8.650	10.812	10.812
2	4.329	5.411	16.224
3	3.607	4.509	20.733
4	3.452	4.315	25.048
5	2.751	3.439	28.487
6	2.686	3.357	31.844
7	2.515	3.143	34.987
8	2.236	2.795	37.782
9	2.216	2.770	40.552
10	2.139	2.674	43.227
11	1.987	2.484	45.711
12	1.757	2.197	47.907
13	1.705	2.132	50.039
14	1.685	2.106	52.145
15	1.587	1.983	54.129
16	1.530	1.913	56.041
17	1.455	1.818	57.860

18	1.373	1.716	59.575
19	1.335	1.668	61.244
20	1.269	1.587	62.830
21	1.226	1.532	64.363
22	1.214	1.517	65.880
23	1.186	1.482	67.362
24	1.132	1.414	68.777
25	1.125	1.406	70.183
26	1.039	1.299	71.482
27	1.032	1.290	72.771

Source: Researcher's own calculation

Table 6.34.2 shows that there are 27 factors whose eigenvalues are above 1.00. Also, these eight factors account for 72.77% of the total variance. Thus these 27 factors explain most of the variance that occurs among all the identified variables.

Table 6.34.2 shows the factor loadings of each variable and its corresponding factor. Table: 6.34.3 contains the rotated factor matrix, which shows the correlations between the variable and the factor. The correlation possible value range is from -1 to1. Component columns under this heading are the rotated factors that have been extracted. It can be seen in Table: 6.31.3 that 27 factors have been extracted.

Table: 6.34.3; Rotated Component Matrix

Rotated Component Matrix																											
	Component																										
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Partner Disputes														.458													
Untimely availability of raw materials			.592																								
Variation in the price of raw materials			.770																								
High Price of raw materials			.760																								
Materials are not available locally.			.620																								
Lack of finance for raw materials										.791																	
Faulty government policy																								.353			
Shortage of fixed capital																					.759						
Shortage of working capital										.572																	
Increase in product cost												.473															
Delays in the realization of bills												.460															
Sanctioning of the loan												.640															
Under financing										.429																	

Non-availability of skilled labour		.788																									
Non-availability of casual labour		.598																									
The demand for high wages		.821																									
Low productivity/Low efficiency		.785																									
Absenteeism		.626																									
Indigenous Machinery					.667																						
Imported Machinery				.656																							
Un-suitability of machinery				.732																							
Inter machinery balancing				.745																							
Testing facilities for raw material				.662																							
Excess consumption of raw material					.689																						
Excess consumes of power/fuel.					.754																						
Inadequate power supply							.789																				
Power-cuts							.794																				
Low-voltage				.356																							
High electricity charges							.367																				

High voltage problem				.231																						
The high cost of marketing																								.386		
Inadequate sales promotion															.584											
Customer resistance																								.377		
Improper distribution strategy								.356																		
Untimely introduction of product														.643												
The high cost of the Advertisement								.712																		
Lack of finance								.850																		
Poor Marketing Strategy																										.766
Lack of Public transport									.511																	
Private transport				.321																						
High transport cost									.762																	
Poor quality of roads									.778																	
Poor quality of the drainage system																									.796	
Competition from large enterprises MNCs																.510										

Well established small scale enterprises in the region						.710																					
Established small scale enterprises in other regions						.790																					
Competition from imported substitutes						.522																					
Municipal/local taxes													.461														
Sales tax /GST													.382														
Excise duty													.701														
Material shortage	.839																										
Lack of material in required	.803																										
Poor quality	.705																										
High cost	.781																										
Poor utilization of the assets																									.594		
Underutilization of installed capacity														.403													
Lack of Market Research																				.310							
Obsolete Machinery					.410																						
Inadequate Material management																					.421						

The absence of product planning																						.803					
Inadequate wages and salary											.832																
The absence of manpower planning											.496																
Lack of Managerial skill																									.494		
Lack of accounting skill																	.377										
Technical skill					.299																						
Strict credit policy								.346																			
Unfavorable investments climate																							.779				
Fear of Nationalization																	.792										
The absence of costing and pricing																							.606				
Obtaining raw material																				.840							
Restraints restriction on purchases																				.606							
Excessive taxation policy of the government																								.793			
Market Recession/Lack of Demand							.392																				

Non-availability of proper manpower																		.337									
Labour unrest																			.328								
Man -made Disaster																			.806								
Delay in Payment from creditors												.562															
Natural calamities																		.789									
Border disputes														.792													
Lack of timely availability of raw material															.688												

6.34.4 Factor Labeling

The variables that have been included in each core factor have been named in table 6.34.4

Table: 6.34.4; Factor Labeling Twenty seven core Factors

Factor	Variable Include	Name of The Factor
1	Material shortage Lack of material in required Poor quality High cost	Packaging Problems
2	Non-availability of skilled labour Non-availability of casual labour The demand for high wages Low productivity/Low efficiency Absenteeism	Labour Problems
3	Untimely availability of raw materials Variation in the price of raw materials High Price of raw materials Materials are not available locally	Raw material Problems
4	Imported Machinery Un-suitability of machinery Inter machinery balancing Testing facilities for raw material Low-voltage High voltage problem Private transport	Machinery and Equipment deficiency
5	Indigenous Machinery Excess consumption of raw material Excess consume of power/fuel Obsolete Machinery Technical skill	Technology Deficiency
6	Well established small scale enterprises in the region Established small scale enterprises in other regions Competition from imported substitutes	Regional Competition
7	Inadequate power supply Power-cuts Low-voltage	Energy and Demand Problem

	High electricity charges Market Recession/Lack of Demand	
8	Improper distribution strategy The high cost of the Advertisement Lack of finance Strict credit policy	Physical Distribution & Financial Constraints
9	Lack of Public transport High transport cost Poor quality of roads	Transportation Problem
10	Shortage of working capital Under financing	Lack of Finance
11	Lack of finance for raw materials Inadequate wages and salary The absence of manpower planning	Managerial Deficiency
12	Increase in product cost Delays in the realization of bills Sanctioning of the loan	Costing & Liquidity Problem
13	Municipal/local taxes Sales tax /GST Excise duty Delay in Payment from debtors	Taxation and Receivable Problem
14	Partner Disputes Border disputes	Disputes
15	Untimely introduction of product Underutilization of installed capacity Lack of timely availability of raw material	Product & Process Planning Deficiency
16	Inadequate sales promotion	Ineffective sales strategy
17	Competition from large enterprises MNCs Lack of accounting skill Fear of Nationalization	Risk of competition, takeover and faulty book keeping
18	Faulty government policy Non-availability of proper manpower Man-made calamities	Inadequate Policy and man power deficiency
19	Labour unrest	Labour Disputes
20	Non-availability of raw material	Quantity restriction

	Restraints restriction on purchases of raw materials	
21	Shortage of fixed capital Lack of Market Research	Research and Capital Problem
22	Inadequate Material management The absence of product planning	Production & Pricing issues
23	Unfavorable investments climate The absence of costing and pricing	Net worth related issues
24	Excessive taxation policy of the government	Discourage tax provision
25	The high cost of marketing Customer resistance Poor utilization of the assets Lack of Managerial skill	Lack of managerial and marketing skill
26	Poor quality of the drainage system	Infrastructure
27	Poor Marketing Strategy	Ineffective Marketing Strategy

Source: Researcher's own calculation

6.35 Ethics & Factors responsible for Industrial Sickness in Bihar

Table 6.35 indicates the result of the factors or major actors who are responsible for the industrial sickness in Micro Small and Medium Industries in Bihar. From Table 6.35, the result revealed that actual scenario of the entrepreneurs about the major causes is responsible for the industrial sickness in the state. The table indicates that the external factors responsible for the industrial sickness all components mentioned in Table 6.32 and the mean of all the components are more than 3. From the Table: 6.35 it can be seen the major factor for industrial sickness in Bihar mean rating is highest (4.22) government department and lowest (3.37) mean rating is for entrepreneurs. It says that major factor tends to be government department and minor factor tend to be Entrepreneurs.

A further analysis was conducted using t-test of significance, and the results revealed that the major factors responsible for the industrial sickness in Bihar with the t-test ranging from (7.725 to 31.768) and p-values are (.000), less than .05 at 95% confidence level, therefore the null hypothesis that 'such as no

entrepreneurs, general economic condition, financial institution/bank and government department are major actors of industrial sickness in Bihar is rejected.

Table: 6.35; Ethics responsible for Industrial Sickness

Factors	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Entrepreneurs	3.37	1.013	7.725	.000	Rejected
General economic condition	4.17	.779	31.768	.000	Rejected
Financial institution/Bank	4.11	.878	26.833	.000	Rejected
Government department	4.22	.844	30.540	.000	Rejected

Source: Researcher's own calculation

6.36 Remedial Measure to Remove the Industrial Sickness in Bihar.

In the preview of the constraints faced by the MSMEs, the researcher was asked to entrepreneurs to suggest some measure to reduce the sickness in an industry. The researcher drafted 10 possible measure and asked to entrepreneur with the use Likert scale where 1(Strongly Disagree) and 5(strongly agree) and mid value is 3.The categories of the remedial measure and distribution of the responses are mentioned in the below Table 6.36.

The data revealed that 10 possible methods to reduce the possibility of sickness among the industries. The Table 6.36 indicates that the remedial measure to remove the industrial sickness all components mentioned in table 6.36 and the mean of all the components are more than 3. From the Table: 6.36 it may be seen the major factor for industrial sickness in Bihar mean rating is highest (4.14) for government policy more feasible whereas lowest (3.58) mean rating is for restructuring the capital structure. It says that major factor tends to be Government policy more feasible and minor factors tend to be restructuring the capital structure.

Table: 6.36; Remedial Measure to Remove the Industrial Sickness

Remedial Measure	Mean (Out of 5)	Std. Deviation	t values	Significance	Result
Industrial education /training	3.59	.977	12.781	.000	Rejected
Development of infrastructure facilities	3.92	.778	25.016	.000	Rejected
Effective project formulation and appraisal	3.94	.777	25.539	.000	Rejected
Fostering entrepreneurship	3.92	.796	24.387	.000	Rejected
Timely remedial action	3.95	.785	25.691	.000	Rejected
Inspiration and motivation	3.88	.802	23.149	.000	Rejected
Marketing strategy	4.12	.764	31.148	.000	Rejected
Government policy more feasible	4.14	.695	34.862	.000	Rejected
Maximum use of the financial resource	3.69	.885	16.619	.000	Rejected
Restructuring the capital structure	3.58	.902	13.635	.000	Rejected

Source: Researcher's own calculation

A further analysis was conducted using t-test of significance, and the results revealed that the remedial measure to remove the industrial sickness in Bihar with the t-test ranging from 12.781 to 34.862 and significance value is (.000), less than .05 at 95% confidence level. Therefore the null hypothesis that 'such as no industrial education /tanning, development of infrastructure facilities, effective project formulation and appraisal, fostering entrepreneurship, timely remedial action, inspiration and motivation, marketing strategy, government policy more feasible, maximum use of financial resource, and restructuring the capital structure are major corrective measure to remove the sickness in Bihar is rejected.

7. Findings, Suggestions and Conclusions

7.1 Introduction

The collected data are processed with the help of appropriate statistical tools. The result and interpretation of the analyses have been discussed in the previous chapters. Hence, the present chapter focuses on the summary of the findings, suggestions and conclusions of the study. The major findings of this study are summarized as follows.

7.2 Findings

7.2.1 Performance of MSMEs: The section is divided in to two parts. The first part includes with the finding of performance of MSMEs in India and second part includes the findings of performance of MSMEs in Bihar.

7.2.1.1 Performance of Micro, Small and Medium Enterprises in India

- The MSMEs sector provides employment over 1209 lakh persons in over 633.88 lakh unit throughout the country.
- Over 8,000 varieties of products are produced by MSMEs in India.
- The number of MSMEs has increased from 361.76 lakh units in 2006-07 to 633.88 lakh units by 2015-16. The number of MSMEs units almost double from 2006-07 to 2015-16.
- The investment and production increased from Rs. 86,854,379 lakh and Rs. 119,881,800 lakh in 2006-07 to Rs. 147,191,294 lakh and Rs. 222,368,332 lakhs in 2014-15 respectively.
- In 2006-07, 805.2 lakh people were employed in MSMEs, which increased to 1209.30 lakh persons in 2015-16, it's almost 50% increase from 2006-07.
- In 2006-07, export of MSMEs production was Rs. 18,253,800 which increased to Rs. 84,924,800 in 2014-15. Export per unit was Rs 0.50 lakhs in 2006-07 that increased to Rs. 1.67 lakhs per unit in 2014-15.
- The share of MSMEs export in the total state ranged from 30% to 46%.
- The compound growth rate of the number of MSMEs for the whole period (2006-07 to 2015-16) was 5.77%.
- Compound growth rates are computed for investment, production, and employment in MSMEs for the period from 2006-07 to 2015-16. On the production front, the compound growth rate for the entire period is 38.33%. The compound growth rate of fixed investment is more than the other

components. It is 6.04% for the whole period. The compound growth rate of employment has been worked to 4.15% during the same period.

- The share of the MSMEs sector to total exports increased consistently from 31.92% during 2006-07 to 44.76% till 2014-15, but in 2009-10 the share increased to 46.26%.
- The highest MSMEs units had present in Uttar Pradesh with a share of 14.20% followed by Bengal 14%. The Bihar state had accounted for 5.43% of MSMEs units.
- There were 1.27 lakh sick MSMEs units in 2006-07, and their number steadily increased year by year to 5.35 lakh units in 2014-15.
- The percentage of sick units among the MSMEs was 0.35% in 2006-07, and it gradually decreased to 0.19% in 2011-12 and slightly increased to 1.05% in 2014-15.
- The total investments in sick MSME units were reported Rs. 4,981 crore in 2006-07, which rose to 33,378 crore in 2014-15.
- The percentage of investment by sick units was revolving in the range of 0.57% to 2.26%. The maximum 2.41% was observed during the year 2013-14 but gradually decreased in 2014-15 by 2.27%.
- Uttar Pradesh (13.27%) and Maharashtra (10.42%) suffered from large scale sickness in the Micro small and medium scale sector.

7.2.1.2 Performance of Micro, Small and Medium Enterprises in Bihar

- Micro, Small and Medium Enterprises (MSMEs) account for 202,531 registered units with a capital investment of Rs. 6322.85 crore and employing 698,250 persons.
- In the total MSMEs, only 86 units belong to medium scale, and 2,150 enterprises are belong to small scale enterprises.
- The compound annual growth rate (CAGR) of MSMEs units in the state is 2.25 %(2006-07-2015-16), however the employment CAGR is 2.66% in the same period.
- The aggregate fixed investment incurred on the MSMEs was Rs. 801 crores in 2006-07 which has gone up to Rs. 6322.85 crores in 2015-16 are recording an increase more than seven times with compound growth rate of 22.95%.

- It is observed that total 202,531 units, 27.91% units are engaged in agro and allied based units, 13.76% units are involved in the engineering based sector 11.63% enterprises are working repair based enterprises. On the same hand percentages for paper, forest, textiles, non-metallic and mineral, electrical and electronics, hotel and hospitality and miscellaneous units were1.07%, 10%, 7.26%, 8.74%, 3.61%, 1.71%, and 14.31% respectively.
- It is observed from the table that the aggregate employment provided by the MSMEs was 698,250 persons in 2015-16.
- Out of 698,250 persons, 34.13% are employed in agro and allied based enterprises and 12.83% in engineering based enterprises, 11.66% persons in non- metallic & mineral based enterprises, 9.31% in forest-based, 9.01 % in repairs & service based enterprises.
- The aggregate fixed investment incurred on the MSMEs was Rs. 632,262 lakh in 2015-16.
- Out of total investment of 632,262 lakh, 44.10% was invested by agro, food and allied based enterprises, and for engineering based enterprises was 11.20%.

7.2.2 Prediction the magnitude of Sickness in MSMEs

- Altman Z' Score method is used to find out the prediction of sickness among the MSMEs in the state.
- The 5 years account statement (period 2012-13 to 2016-17) is taken to predict the sickness among the selected enterprises.
- It is found that in agro, food and allied based enterprises, 4 out of 9 enterprises are in distress zone, 1 enterprise is falling under the grey zone and 4 enterprises are in safe zone.
- It is found that in non-metallic and mineral based enterprises, 2 in grey zone and 1 in safe zone.
- It is found that in engineering based enterprises, 1 out of 3 in distress zone, 1 in grey zone while 1 enterprise in safe zone.
- It is found that in repair based enterprises in the State, 2 out of 3 units is in distress zone, and 1 company financial position is sound.
- It is found that in textile based enterprises, 1 out 4 companies is in grey zone, 3 companies financial position are sound.

- It is found that in paper and forest based enterprises 2 out of 3 in grey zone while 1 enterprise in distress zone.
- It is found that in hospitality & hotel, Electronic, and Miscellaneous enterprises, 3 out 5 enterprises are in grey zone, 1 in safe zone and 1 in distress zone.
- WC/TA, RE/TA, EBIT/TA, BVET/TL and Sales/TA, ANOVA test resulted that there is significant difference on WC/TA, RE/TA, EBIT/TA, BVET/TL and Sales/ TA between all selected units under study period.

7.2.3 Findings from field survey

- It is found that a maximum of 81.6% of entrepreneurs who run micro, small and medium enterprises in Bihar State are male, while 18.4% of the respondents are female. So this analysis shows that MSMEs are a male-dominated in the State.
- The dominant age group among the entrepreneurs in micro small and medium enterprises is in the range of 40-50 years constituting 41.8% of the total enterprises followed by 30-40 years age groups constituting 26.4% enterprises.
- It is found that maximum enterprises are engaged in the state are based on agriculture, food and allied sectors with 25.1% and least enterprises are engaged in electronics & electric based units with 1.6% of total MSMEs.
- The analysis of the question regarding the ownership details show that 75.3% enterprises are of sole proprietorship nature, 14.2% partnership firms, 2% are co-operative society and 8.4% are privately limited enterprises.
- Regarding the category of ownership 57.1% enterprises belongs to Other Backward Classes (O.B.C), 27.1% belongs to General, 14.7% belongs to Scheduled Caste (S.C), and 1.1% belongs to Scheduled Tribes (S.T).
- Regarding the location of the enterprises 58.7% of enterprises are in rural area and 41.3% units are in the urban area.
- It is found that 79.8% enterprises are in perennial nature and 20.2% of enterprises are seasonal.
- The primary motivation for starting the industry is self-employment. The least motivating factor is other specific region.

- It is found that 53.8 % of enterprises invested up to Rs. 5 lakh in fixed investment, and 60 % of enterprises are also invested up to Rs. 5 lakh in working capital.
- It is found that 28.4% of enterprises received loan from institutional sources and 71.6% of the enterprises received a loan from non-institutional sources/self.
- Before starting a business, the entrepreneur has to face many challenges such as selection of location, finance, electricity, marketing problem, taxes compliance, and others.
- It is found that financial resources are the main constraint in starting an enterprises and minimal problem is labour.
- Regarding raw materials related problems MSMEs mostly led to industrial sickness by lack of finance for raw materials and least led by untimely availability of raw materials.
- Regarding finance related problems MSMEs mostly led to payment from creditors and least led by under financing.
- Regarding labour related problems MSMEs mostly led to absenteeism and least led by non-availability of casual labour.
- Regarding technology related problems MSMEs mostly led to obsolete machinery and least led by imported machinery.
- Regarding power supply related problems MSMEs mostly led to high electricity charges and least led by high voltage problem.
- Regarding marketing related problems MSMEs mostly led to poor marketing strategy and least led by improper distribution strategy.
- Regarding infrastructure related problems MSMEs mostly led to poor quality of roads and least led by private transport.
- Regarding competition related problems MSMEs mostly led to established small scale industries in other region and least led by competition from large unit MNCs.
- Regarding taxation related problems MSMEs mostly led to sales tax/GST and least led by municipality/local tax.
- Regarding packaging related problems MSMEs mostly led to high cost of packaging and least led by lack of materials.

- Regarding knowledge related problems MSMEs mostly led to lack of managerial skills and least led by lack of accounting skills.
- Regarding government and administrative related problems MSMEs mostly led to excessive taxation policy of government and least led by fear of nationalism.
- Regarding management related problems MSMEs mostly led to lack of market research and least led by disputes among partners.
- Regarding other problems MSMEs mostly led to lack of demand and least led by man-made disaster.
- The null hypothesis, there is no significant difference in the various factors responsible for industrial sickness with product specified industries has been rejected.
- The null hypothesis, there is no significant difference in the various factors responsible for industrial sickness with type of organization has been rejected except lack of knowledge.
- The null hypothesis, there is no significant difference in the various factors responsible for industrial sickness with educational background has been rejected except labour problems
- The null hypothesis, there is no significant difference in the various factors responsible for industrial sickness with ownership pattern has been rejected except financial problems, taxation problems, and government and administrative problems.
- The total 80 causes are used for the factor analysis for the study. The executed factor analysis has resulted in 27 important factors.
- The role of government department is considered as the major factor to remove the industrial sickness in the State.

7.3 Suggestion/ Remedial Measures

From the analysis made in the previous chapters and its recapitulation in this chapter, a few suggestions may be put forward for smooth and accelerated growth of MSME units in Bihar, India.

- It is known from the study, the ratio to male to female respondent's participation is low. Government is already providing different types of concessions and subsidies to women entrepreneurs. It is need to start viable and attractive policies to increase women as entrepreneurs, it's also

need to offer more discounts for women entrepreneurs while starting new enterprises compare to men entrepreneurs.

- Most of the respondents belong to the age group 40-50, and least belongs to age group of below 30 years. To encourage and promote young entrepreneurs there is need to spread awareness among the youth to start their own startup. The financial institution should have also helped rural youth for taking self-employment activity at micro level.
- It is found that 71.6% of entrepreneurs did not receive any financial help from the organized sector. The financial institution should take appropriate measure to provide adequate fund and provide financial assistance.
- Out of 450 enterprises only 15.8% of entrepreneurs belong to SC/ST category; generally, it seems that these categories are socially and financially backward. Therefore the government should take special care or additional incentive to promote entrepreneurship in these categories.
- The procedure of tax filling must be simple.
- MSMEs entrepreneurs may think of positive measures like counseling, perks & incentives, festival bonus, maternity leave, job security, improving the work environment, technical education training, providing fire and safety devices to tackle the issues of labour problems.
- The industries registration process must be simplified and provide government assistance to those who are not much educated.
- Electricity is a major problem for the downfall of many MSMEs industries in State. There is need to ensure low-cost electricity with ensuring continuous availability of power to MSMEs.
- Most of the units received raw materials from outside the local market due to inadequate supply of raw material. It is very much desirable that the domestic demand for raw material should be developed.
- There is need to enhance infrastructure facilities like road, transportation, drainage system to tackle the issues of infrastructure.
- The distress companies must hire some outside professional experts from management, marketing, and engineers for necessary support.
- The distress companies' management and policy makers should take immediate step to restructure the working capital and increase the sales of

the product. The distress companies may apply to government for rehabilitation from the sickness.

- The distress/ sick companies should reduce their overhead cost such as untimely supply of raw material, minimization of the wastage, improper recruitment of staff, division of labour etc.

7.4 Conclusions

MSMEs sector is known as the backbone of the economy. These sectors are considered to be powerful engine in the socio- economic development and growth of the nation. They provide excellent employment opportunities at lower cost, nurture the locally available entrepreneurial skills; help in balanced growth reduce regional disparities and improve overall economic conditions. This study is carried out to analyze the causes of industrial sickness in Bihar, India. The performance of the MSME sector has shown positive performance in production Rs. 239,312,799 lakh (2015-16), employment 1209.30 lakh persons (2015-16) and fixed investment Rs. 147,191,294 lakh in 2014-15, and produced over 8,000 varieties of product with nominal amount of investment. Besides, these sectors are also capable to resolve the contemporaneous issues of nation like, underemployment, regional disparities, under employment, economic disparities, social evils, social unrest and others. But MSMEs in India are continuously arrested under the clutches of sickness. The sicknesses among the enterprises had also increased and restrict substantial financial resources. Sickness in MSMEs spread throughout India. In Bihar it accounted 34,055 sick enterprises in 2015, which is 3% of total sick industries of India.

The performances of MSMEs in terms of units are 202,531, employment 698,250 persons and fixed investment Rs. 6322.85 crore in 2015-16. The Compound annual growth rate of MSMEs is less than the overall country performance.

In this context an attempt has been made to identify the major responsible causes for industrial sickness by conducting primary survey of 450 enterprises. The questions are asked from the entrepreneurs with respect to problems faced by enterprises like raw materials, finance, labour, taxation, management, government policies, power, infrastructure, marketing, taxation, competition, managerial skill, education and others. In combined total 80 types of questions are asked and researcher find out with 27 major causes has been identified as major factors are

responsible for industrial sickness in the state. Among service units, marketing and environmental problems play a crucial role. Availability of vast natural resources and manpower is a great boon for the promotion of young entrepreneurs. MSMEs in the developing stage can tackle these problems and global challenges if the present Government policies on MSMEs are reviewed in tune with comprehensive policies.

The procedure of taxation filling and rigorous taxation system or over-night blacklisting of certain types of units is also noted to be a factor contributing to sickness. Among the financial causes apart from the entrepreneur, the reasons for sickness include the role of outsiders like bankers/financial institutions in not providing funds on time.

There is less degree of interaction between the industry and the academicians, consultants and constant updating of knowledge is absent. Entrepreneurs are roping funds at exorbitant rates of interest which are eating into their vitals and pushing them into a zone of no return or vicious circle of entrepreneurial death. Influence of media to exhibit a hi-fi lifestyle or simple put-the lifestyle adopted by the entrepreneurs does not commensurate with the business established.

7.5 Limitation of Study

The researchers face a number of constraints in the study of Micro Small and Medium enterprises because of being diversified, a wide geographical area and mostly run by persons with a moderate level of education. During the present study, the researcher faced many problems which have been overcome to the desired level; however, it was very cumbersome and time-consuming. Following are the main limitations to the study

1. The main difficulty faced in the study was due to the weak database of the micro, small scale industrial sector in the state. The sick unit database is missing. To identify the sick unit's researches face enormous difficulties while finding out the sick unit status in the Bihar state.
2. The study is limited in terms of its generalizability to the total MSMEs in Bihar because the sample under study may not represent the whole population. While the proposed study sample is quite diverse, the fact remains that certain segments of the MSMEs in Bihar have not been included.

3. The study is the regional in nature and not confined to all the states of the country.
4. Altman Z' score model is not only the tools to identify the magnitude of sickness in the MSMEs, there are another tools are also available.

7.6 Scope for Future Study

The discussion and hypothesis of the study suggest that further research can be undertaken in the different aspect of the MSMEs.

- The further study can be undertaken to study the causes of sickness in the different MSMEs located in the different region of the country.
- The study found that enterprises are failed due to negligence and mismanagement; hence there could be studies on the strategies used by private companies of the state.
- The future study can be done on the role of government policies in the development of MSMEs in the state and reduce the sickness among the enterprises.
- The present research work has been limited to register MSMEs in the state Bihar. However further research can be include the unregistered enterprises in the state.
- There is scope to increase the more enterprises to predict the financial position of the enterprises.

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