



Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

Small Scale Industries: Striving and Thriving in the Era of Globalization

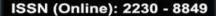
Dr. Shivani Mishra Director In-charge,

Dept of Social Work

Sardar Patel University, Gujarat, India.

Abstract

The Micro, Small and Medium Enterprise (MSME) sectors contributes significantly to manufacturing output, employment and exports of the country. It is estimated that in terms of the value, the sector accounts for about 45 percent of the manufacturing output and 40 percent of the total exports of the country. The sector estimated to employ about 69 million persons in over 26 million units throughout the country. There are over 6000 products ranging from traditional to high tech items which are being manufactured by MSMEs in the country. It is well known that MSME sector provides maximum opportunities for both self employment and job outside agriculture sector. The inclusiveness of the sector is underlined by the fact that nearly 50 per cent of the MSME are owned by disadvantaged group of society. The central discussion of this paper is to throw light on the role of MSME in upliftment of social disadvantage group. Further paper also highlighted the MSME status in the era of globalization and also mentioned review for the same. Lastly author suggested that apart from governmental role it is also responsibility of MSME sector to be empowered about awareness, access and usage of government policy and programe. This proactive approach helps MSME sector to sustain in liberalization era.





Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

Keywords: Globalization, Inclusive Approach, Micro, Small and Medium Enterprise

Background and Context

With the promulgation of MSMED Act, 2006, the ambit of small scale industries now called Micro, Small and Medium enterprise has widened. The investment limits for defining "small" have been raised and the sector encompasses medium enterprise and service sector. The Micro, Small and Medium Enterprise is a critical segment of the economy. It has large share in employment generation and significant contribution to manufacturing outputs and exports of the country. Its not only play crucial role in providing large employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural & backward areas, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and this sector contributes enormously to the socio-economic development of the country.

In the Indian context, micro, small and medium enterprises as per the MSME Development Act, 2006 are defined based on their investment in plant and machinery (for manufacturing enterprise) and on equipments for enterprises providing or rendering services. According to the Micro, Small and Medium Enterprises (MSME) Development Act of 2006, (India) a micro enterprise is where the investment in plant and machinery does not exceed twenty five lakh rupees. A medium enterprise is where the investment in plant and machinery is more than five crore rupees but does not exceed ten crore rupees. A small enterprise is where the investment in plant and machinery is more than twenty five lakh rupees but does not exceed five crore rupees. In the case of the enterprises engaged in providing or rendering of services, as (a) a micro enterprise is where the investment in equipment does not exceed ten lakh rupees. (b) a small enterprise is where the investment in equipment is more than ten lakh rupees but does not



International Journal of Enterprise Computing and Business Systems (Online) IJECBS India

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

exceed two crore rupees. (c) a medium enterprise is where the investment in equipment is more than two crore rupees but does not exceed five crore rupees

History shows that only with persistent and effective government support in these areas the SMEs countries like Japan, Korea etc emerged as global areas. In India MSME sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. Vasu (2008) rightly mentioned that MSME suits the Indian economic environment with scare financial resources; It plays a key role in transitions and developing countries. These firms typically account more than 90 percent of all firms outside the agricultural sectors, constitute a major source of employment and generate significant domestic and exports earnings. OECD economies stated that SME development emerge as key instruments in poverty reductions efforts. In developed OEDCD economies about 60 percent of GDP is generated by small enterprise i.e. enterprise with maximum of 50 employee. The reason being a large number of small enterprises guarantee a high degree of competitions and variety of economic activities that requires of million enterprises to be reasonable competitive and efficient. (Suresh& Sashidhar)

Globalization refers to the process of integration of the world into one huge market. It provides several things to several people with removal of all trade barriers among countries. Globalization happens through three channels: trade in goods & services, movement of capital and flow of finance. Globalization in India is generally taken to mean 'integrating' the economy of the country with the world economy. The real thrust to the globalization process was provided by the new economic policy introduced by the Government of India in July 1991 at the behest of the IMF and the World Bank. Globalization has led to an 'Unequal Competition'- a competition between 'giant MNC's and dwarf Indian enterprises'. The small scale sector is a vital constituent of overall industrial sector of the country (Sonia and Kansal 2009).

Globalization is the metamorphosis of the individual nations into an integrated entity by means of their interconnection on an economic, social and cultural level, fuelled by easy transport and



International Journal of Enterprise Computing and Business Systems (Online) IJECBS India

Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

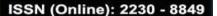
communication among them. It is the modern renaissance that makes ideas, goods, services, trade, technology and culture permeate into the entire geography of the world thus turning it into a global village. While globalization is a large scale phenomenon, small scale enterprises are a local phenomenon but having effects of dimensions as large as it's global 'friend and foe'. Friend- because both globalization and small scale industries are the two wheels of the vehicle of economic growth and prosperity; foe- because some argue that given the developing nation that India is, Small Scale Industries(SSIs) can suffer and strangulate to death by the fierce competition put up by globalization

The small scale sector forms a dominant part of Indian industry and contributing to a significant proportion of production, exports and employment. (Sania and Kansal 2006)). In a developing country like India, the role and importance of small-scale industries is very significant towards poverty eradication, employment generation, rural development and creating regional balance in promotion and growth of various development activities. In this papers author tries to examine the SSI performance in the era of globalization and its role for social upliftment.

Methodology and data source

The present study data and information relating to MSME units, employment opportunities, gender development, GDP,growth of SSI in pre and post globalizations period, productions and exports and sick SSI were compiled from various Annual Reports of MSME, Economic Survey,MSME fourth census report, 12th five year plan and working group report of MSME and RBI Bulletin etc.

Status of MSME Sectors in India





Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

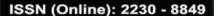
http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

The MSME sector is a nursery of entrepreneurship after driven by individual creativity and innovations. This sector contributes 8 percent of the country GDP, 45 percent of the manufactured output and 40 percent of its exports. The sector is estimated to employ about 595 lakh persons in over 261 lakh enterprises throughout the country. Further, this sector has consistently registered a higher growth rate than the rest of the industrial sector. There are over 6000 products ranging from traditional to high-tech items, which are being manufactured by the MSMEs in India. It is well known that the MSMEs provide good opportunities for both self-employment and wage employment.

Table 1: Employment Trends in MSME Sectors

Sr.	Years	Total MSME	Employment
no		(Lakhs No.)	(Lakhs &Person)
1	1992-1993	73.51	174.84
2	1993-1994	76.49	182.64
3	1994-1995	79.60	191.40
4	1995-1996	82.84	197.93
5	1996-1997	86.21	205.86
6	1997-1998	89.71	213.16
7	1998-1999	93.36	220.55
8	1999.2000	97.15	229.10
9	2000-2001	101.1	238.73
10	2001-2002	105.21	249.33
11	2002-2003	109.49	260.21
12	2003-2004	113.95	271.42
13	2004-2005	118.59	282.57
14	2005-2006	123.42	294.91





Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

15	2006-2007	261.01	594.61
16	2007-2008	272.79	626.34
17	2008-2009	285.16	659.35
18	2009-2010	298.08	695.38
19	2010-2011	311.52	732.17

Source: Annual Report 2011-2012, Ministry of MSME

The latest figure for the year 2010-11 is 311 lakhs enterprise generating employment for about 732 lakhs persons. India is developing country and hence it is dire need to have source of livelihood. Since MSME it is labour intensive in character helps immensely in job creations. Above data shows a positive and phenomenal growth in MSME sector. SSI Sector in India creates largest employment opportunities for the Indian populace, next only to agriculture. It has been estimated that a lakh rupees of investment in fixed assets in the small scale sector generates employment for four persons

Table: 2 Performances of Micro & Small Enterprises

Year Number of Enterprises (Lakh Nos.)			Empl. (Lakh	Production (Rs. Crs.)	Growth	
	Registered Unregistered Total		Person)	at Current	Rate	
					prices	(%)
2002-2003	15.91	93.58	109.49	263.49	314850	8.68
2003-2004	16.97	96.98	113.95	275.30	364547	9.64
2004-2005	17.53	101.06	118.59	287.55	429796	10.88
2005-2006	18.71	104.71	123.42	299.85	497842	12.32
2006-2007	20.98	107.46	128.44	312.52	587196	12.65
2007-2008	24.68	108.99	133.67	322.28	695126	13.00
(Projected)						



International Journal of Enterprise Computing and Business Systems (Online) IJECBS India

Annual Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

Source http://www.dcmsme.gov.in/

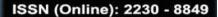
Small Enterprises play a very significant role in terms of balanced and sustainable growth of the economy by way of employment generation, development of entrepreneurial skills and contribution to export earnings. These units produce a wide range of items employing traditional to state-of-the-art technology.

Table 3 Contribution of MSME in GDP

Year	Contribution of MSEs (%) at 1999-2000 prices in		
	Total Industrial	Gross Domestic	
	Production	Product (GDP)	
04-05	38.62	5.84	
05-06	38.56	5.83	
06-07	45.62	7.20	
07-08	45.24	8.00	
08-09	44.86	8.72	

Source: Annual Report 2011-2012, Ministry of MSME

The MSE sector has maintained a higher rate of growth vis-à-vis the overall industrial sector. Since independence, the small scale industries have rendered a major contribution to the gross domestic product of the country. They play a vital role in changing the industrial scenario and strengthening the industrial sector tremendously. They assist the utilization of assets for productive purposes with minimal initial resources. If we have closer look about the export performance of the MSME it is found that this sector plays a major role in India's present export performance. 45%-50% of the Indian Exports is contributed by SSI Sector. Direct exports from





Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

the SSI Sector account for nearly 35% of total exports. Besides direct exports, it is estimated that small-scale industrial units contribute around 15% to exports indirectly. Hence such exercise helps in said country gross domestic product too.

Table 4: Area- wise contribution in MSME Sectors

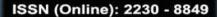
Area Wise Share	Sharing
Rural	45%
Urban	55%

Source: Annual Report 2011-2012, Ministry of MSME

SMEs sector has made significant contributions towards employment generation and rural industrialization. Further the Prime Minister's Employment Generation Programme (PMEGP) implemented by the Ministry of Micro, Small and Medium Enterprises is expected to boost the process of rural industrialisation in India. Rural industrialization also helps in poverty, migrations and unemployment.

Pragmatic Role of MSME for Social Upliftment

Table 5 Number of Enterprise Managed by





Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

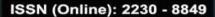
No. of Enterprise	(Number	%
Managed by	in lakhs)	
Male	13.49	86.28
Females	2.15	13.72

Source: Annual Report 2011-2012, Ministry of MSME

From the data it can be observed that registered MSME sectors are also managed by women enterprise and the share of enterprise was 13.72 percent . The Micro, Small & Medium Enterprises Development Organisation (MSME-DO conducting various program including Entrepreneurship Development Programmes (EDPs). To cater to the needs of potential women entrepreneurs, who may not have adequate educational background and skills, MSME-DO has introduced process/product oriented EDPs in areas like TV repairing, printed circuit boards, leather goods, screen printing etc. A special prize to Outstanding Women Entrepreneur of the year is being given to recognize achievements made by and to provide incentives to women entrepreneurs. The Office of DC (MSME) has also opened a Women Cell to provide coordination and assistance to women entrepreneurs facing specific problems.

Table 6 Ownership by the Social Category

Social Category	(Number in lakhs)	%





Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

Schedule Caste		1.19	7.60
Schedule Tribes		0.45	2.87
Other	Backward	5.99	38.28
Class			
Others		8.01	51.26

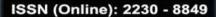
Source: Annual Report 2011-2012, Ministry of MSME

As regards to social group it is found that 48.75 percent of the working enterprises in the registered MSME sectors were owned by socially backward classes. There are 15.64 lakh enterprises are in India. Out of these, 5.99 lakh units are managed by OBC entrepreneurs. Scheduled Caste entrepreneurs are managing 1.19 lakh units and Scheduled Tribe entrepreneurs are managing only 0.45 lakh units in India. Remaining 8.02 lakh units are managed by others. The data suggested that MSME sector has work for inclusive growth.

Table 7 Employment by Male and Female

Employment	Registered	Unregistered	Total
Male	73.04	412.75	486.15
	(79.74%)	(82.13%)	(81.76%)
Female	18.64	89.82	108.46
	(20.26%)	(17.87%)	(18.24%)
Total	92.04	502.57	594.61
	(15.86%)	(84.14%)	(100%)

Source: Annual Report 2011-2012, Ministry of MSME





Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

Female employment opportunities are there in this sector. It has been observed from the above datat that there is sign of good hopes with reference women employment or entrepreneur. These data also suggested the social inclusive growth.

Growth of MSME in the Era of Globalization

Fourth census 2006-07 reports firmly stated the role of MSME in employment productions and exports. The results were in increasing trends. In case of per unit employment the registered MSME sectors was 5.93 whereas in manufacturing and service sectors it was 7.71 and 2.36 respectively. Per unit employment has gone up from 4.48 in 3rd Census to 5.93 in 4th Census of registered MSME. About 92.04 lakh persons were reported to have been employed in the registered working MSMEs, compromising 86.75 percent in manufacturing sector and 13.25 per cent in service sectors. The employment per one rupee lakh fixed investment was 0.184 whereas in manufacturing and service sectors it was 0.81 persons and 0.202 persons respectively. Sania and Kansal (2006) had mentioned in their papers globalization and its impact on small scale industries. The some highlights of their study mentioned in following tables:

Table 8: Examined Average Annual Growth Rate of SSI in Pre and Post Liberalization Period

SSI	Pre-Liberalization	Post-Liberalization	
Elements	Period	Period	
Growth Rate	4.07	9.36	
Productions	19.45	13.57	
Employment	7.25	4.26	

Source: Sania and Kansal (2006)



International Journal of Enterprise Computing and Business Systems (Online) IJECBS India

Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

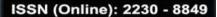
http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

YHNUJM Problems of Small Scale Industries

Significantly, the MSME sector has maintained a higher growth rate vis-à-vis the overall industrial sector during the past decade. Today, the sector produces a wide range of products, from simple consumer goods to high-precision, sophisticated finished products. It has emerged as a major supplier of mass consumption goods as well as a producer of electronic and electrical equipment and drugs and pharmaceuticals. An impetus to the sector is likely to have a multiplier impact on economic growth. Despite this sector confront several challenges in the era of globalization. Technological obsolescence and financing problems have been associated with the sector since long. Also, constraints such as high cost of credit, low access to new technology, poor adaptability to changing trends, lack of access to international markets, lack skilled manpower inadequate infrastructure facilities including power water coordination between the Government, Industry and Academia. There is also a need to develop an alternate delivery channels through capacity building of the MSME Associations and the public-private partnerships in the institutional structure as also the schemes. Given the nature of the enterprises, there is a need to facilitate start-ups and evolve a time-bound exit mechanism of manpower, facilities, power, water, roads, etc., and regulatory issues related to taxation (statecentral), labour laws, environmental issues etc. are also linked with its growth process.(Thornton 2010). Hence problems of MSME sectors leads to sickness. Sickness in MSME Sectors is a cause of concern. The latest definition given by the Working Group on Rehabilitation of Sick Units set up by the Reserve Bank of India –Kohli Committee given as follows:

The sick industrial unit is considered as sick when if any of the borrowal accounts of the unites remains substandard for more than six months i.e. principal or interest, in respect of any of its borrowal accounts has remained overdue for period exceeding one year will





1 B

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

remain unchanged even if the present period for classification of an account as substandard is reduced in due course: there is erosion in net worth due to accumulated losses to the extent of the 50 per cent of its net worth during the previous accounting year.

The following table indicates the reason given by the units suffering from sickness/incipient sickness. "Lack of demand and Shortage of working capital "were the main reasons for sickness in this sector.

Table 9 Reasons for Sickness

Reason for Sickness	Proportions of Sickness*
Lack of Demand	71.6%
Shortage of Working Capital	48.0%
Non-availability of raw material	15.1%
Power Shortage	21.4%
Labour Problems	7.4%
Marketing Problems	44.5%
Equipment Problems	10.6%
Management Problems	5.5%

^{*} The total will exceed 100% as some units have reported more than one reasons

Source : MSME Fourth Census Report-2006-2007



International Journal of Enterprise Computing and Business Systems (Online) IJECBS India

Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

MSME sector – a Growth Engine for Destination

Strategy is required to be adopted by MSME sectors for striving and thriving in the globalization era. According to Grant Thornton International study 2010 a proactive strategy, reactive strategy and limited strategy significantly work in MSME sector. At present, the sector is taking limited steps in formulating growth strategies and moving along with pace of GDP. In addition, the sector also adopts a reactive strategy approach where the sector reacts according the current economic situation of the country. The productivity and growth becomes limited for the moment and growth falls back again. Therefore, the sector needs to adopt a proactive strategy approach where the government should prepare a medium to term strategy to sustain themselves in the changing economic scenario and progress beyond the current GDP growth.

MSMEs constitute over 90 per cent of total enterprises in most of economies and are credited with generating high rates of employment .and account for a major share of industrial production and exports. In India too, MSMEs play a pivotal role in the overall industrial economy of the country. With its agility and dynamism, the sector has shown admirable innovativeness and adaptability to survive the recent economic downturn and recession (Thornton 2010)

Conclusion:

The Small-Scale Industries (SSI) gathered momentum along with industrialization and economic growth in India. It started growing due to the vision of our late Prime Minister Jawaharlal Nehru who sought to develop core industry and have a sustaining sector in the form of small-scale enterprises. Being a labor-intensive sector, they offer a higher productivity of capital than capital-intensive enterprises due to low investment per worker. The SSI today constitutes a very important segment of the Indian economy as they help in dispersal of industries, rural development, and the decentralization of economic power.(Vidya &Sashidhar)



International Journal of Enterprise Computing and Business Systems (Online) IJECBS India

Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

Micro, Small and Medium Enterprises (MSMEs), including khadi and village/rural enterprises are credited with generating the highest rates of employment growth and account for a major share of industrial production and exports. They also play a key role in the development of economies with their effective, efficient, flexible and innovative entrepreneurial spirit. The socio-economic policies adopted by India since the Industries (Development and Regulation) Act, 1951 have laid stress on MSMEs as a means to improve the country's economic conditions.

The crucial and significant factor in MSME sector is that it should be empowered themselves and continuously developed an entrepreneur skills. Looking to FICCI Survey which confirmed the general perception that there is limited awareness about the different support programmes amongst the target beneficiaries. More than 60% of the respondents were not aware of the MSME schemes and their benefits. 38 % of the respondents confirmed having used and benefitted from the MSME schemes. Out of this, 20% confirmed that they used the scheme at the time of expansion and Only 8% reported using the scheme at the stage of businesses startup. Almost 42% respondents felt that the schemes are not easily accessible and 13% confirmed the need of external help to avail the schemes benefits. These seriously impact on growth of MSME.

Planning Commission constituted the present Working Group on Micro, Small & Medium Enterprises Growth for the 12th Five Year Plan (2012-17). The Working Group examined the recommendations of the 11 sub- Groups. While formulating its recommendations, the Working Group took note of the fact that the National Manufacturing Policy envisages increasing the sectoral share of Manufacturing in GDP to 25 % over the next decade and generating additional 100 million jobs in manufacturing sector through an annual average growth rate of 12-14 % in manufacturing sector. MSME sector being the major base of manufacturing sector in India, with its contribution of over 45% in the overall industrial output, the Working Group is of the view that the achievement of the NMP targeted growth of the manufacturing sector would necessitate substantial enhancement of the growth rate of MSME sector during the 12th Plan from the



International Journal of Enterprise Computing and Business Systems (Online) IJECBS India

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

current growth rate of 12-13%. This would call for quantum jump in plan allocation for the sector during the 12th Plan to address major bottlenecks facing the sector.

Reference:

Basem M. Lozi Small-Scale Industries in the Globalization Era: The case of Jordan Journal of Business and Public Affairs. (Online) www.scientificjournals.org/journals2008/articles1348.pdf

Bhavani T.A. (2002), Small-Scale Units in the Era of Globalisation: Problems and Prospects, Economic and Political Weekly, Special Article, July 20, 2002.

Handbook of Statistics on Indian Economy (2010-2011) (Online) www.rbi.org.in Accessed on 12th Feburary, 2012.

Government of India – Annual Report (2011-2012) Ministry of Micro, Small and Medium Enterprise, New Delhi

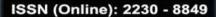
Grant Thornton (2010) Vision 2020: Implication for MSME (Online) Accessed on 9th April, 2012

Micro, Small and Medium Enterprise Fourth Census Report (2006-2007) (Online) www.dcmsme.gov.in. Accessed on 11th January, 2012

Nallabal Kalyan Kumar and Gugloth Sardar (2011) Competitive Performance of Micro, Small and Medium Enterprise in India. Vol III (1) Jan-June 2011. Asia Pacific Journal of Social Science. (Online) http://www.socialsciences-ejournal.org. Accessed on 8th March 2012.

Report on Prime Minister Task force on Micro, Small and Medium Enterprise (2010) . Ministry of Micro, Small and Medium Enterprise, New Delhi

Report on Working Group on Micro, Small and Medium Enterprise Growth for 12th Five year Plan (2012-2017)





Frequency: Bi-Annual

Specialized, Refereed and Indexed Journal in International Scientific and Corporate Databases

http://www.ijecbs.com

Vol. 2 Issue 2 July 2012

Sonia and Rajeev Kansal (2009) Globalizations and its Impact On Small Scale Industries In India . Vol. 1, No. 2 (June, 2009) pp. 135-146. PCMA Journal of Business. (Online) www. publishingindia.com. Accessed on 18th December, 2011

Vidya Suresh, and Shashidhar, P. "Competitiveness of Small –Scale Industries of India" Indian Institute of management, Bangalore IIMK- 560076, India.(Online) www. dspace.iimk.ac.in/bitstream/ 2259/501/439-453.pdf.Accessed on 20th December, 2011

Y. Sujatha, P. Sunilkumar Reddy and Dr. K. Prahlada Rao Small Scale Industries Common Causes Of Sickness And Probable Remedies International Journal of Current Research Vol. 4, Issue, 01, January, 2012 .(Online) www.journalcra.com Accessed on 21st February, 2012