

# A STUDY ON THE ADOPTION OF GREEN SUPPLY CHAIN INITIATIVES AMONG SMALL AND MEDIUM ENTERPRISES AND ITS BENEFITS FOR THE ENVIRONMENT SUSTAINABILITY

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## ABSTRACT

*The surroundings of a living beings, together with nature and other living creatures, that contribute for evolution and growth as well as of danger and damage is called as environment. Environmental factors include all living and non living things that affect the existence, activities, and augmentation of an entity. The management concept of green supply chains was borne out of the necessity to conserve the environment on whose plane all the activities and processes of production and distribution of goods and services occur. Traditionally, Supply Chain Management (SCM) focused on the planning and integration of the network activities to procure unfinished sources, transform them into final products and then distribute to tail end user. Greening the supply chains initiates companies to efficiently use raw materials and conserve the environment by releasing biodegradable wastes. Small and medium enterprises (SMEs) have been the backbone of the Indian economy which contributes major for the GDP of our country which is good and a bad thing is due to lack of awareness they adopt poor technology, unskilled labours who do not concern of environmental pollution. The aim of this paper is to initiate the adoption of green supply chains by the small and medium enterprises for the sustainable business growth.*

*Keywords: Green Technology, Green Skill Development, Environment Sustainability.*

## INTRODUCTION

The Micro, Small and Medium Enterprises sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. MSMEs not only play significant role in providing employment opportunities at comparatively lower cost of capital than large scale industries but also help in establishment of industrialization of rural and backward areas, which leads to reduce regional imbalances and assure equitable distribution of national income and wealth. MSMEs are complementary to large industries as ancillary units and contribute

enormously to the socio-economic development of the country. MSMEs of India has to face many challenges and utilize the opportunities in the fast changing global markets [4]. Environmentally conscious business practices have been receiving increasing attention from both researchers and practitioners. Environmental issues have become a notably prevalent concern for governments, societies and business organizations. With environmental problems such as global warming, ozone depletion, solid waste and air pollution, business organizations are considered to be the source of most of the environmental problems. The most common thought that comes to mind when it comes to going green is the basic act of recycling, reusing and reducing. There are many avenues in which a company can contribute to go green.

## **LITERATURE REVIEW**

Since the middle of the twentieth century, there has been a dramatic increase in the consumption of resources such as water, mineral fertilizers, fossil fuels, paper, as well as increased levels of deforestation and greenhouse gas emissions, particularly CO<sub>2</sub> [1]. The popular use of the term “green” can refer to either a product or a process. The concept of green is currently widely applied in the technological sector. According to Kahlil (2009), technology can be defined as all the knowledge, products, processes, tools, methods and system employed in the creation of goods or in providing services. Firms adopt green purchasing initiative to guarantee continuous supply of green inputs that enable them to produce the green products [2]. The field of “green technology” encompasses a continuously evolving group of methods and materials, from techniques for generating energy to non-toxic cleaning products. Most of these companies are involved in developing improved packaging, and increasing the recyclable content of the products. It is important that the company’s supply chain is socially responsible and ethical. One of the dimensions in operational performance that needs to be incorporated to the framework is improved risk management and reputation [3]. Problems of MSMEs in India are: Unduly delayed payments by large industry players, Absence of adequate and timely affordable bank credit, Lack of infrastructure inputs and banking support, Limited capital and knowledge, Low managerial capability, Low return on investment, Lack of suitable technology, Low production and productivity, Ineffective marketing strategies, Non-Identification of new markets, Hurdles in expansions, modernization and innovations, Inadequate power supply, water supply, transportation facilities Lack of adequate warehousing facilities, Lack of information timely, Lack of skilled labor and training, Ruthless competition, declining exports of total exports[4]. The objective of green supply chain is to eliminate or minimize negative environmental impacts (air, water, and land pollution) and waste of resources (energy, materials, products) from the extraction or acquisition of raw materials up to final use and disposal of products (Hervani, Helms & Sarkis, 2005)[5].

### 3. MSME IN INDIA

Micro, Small and Medium Enterprises contribute nearly 8 percent of the country's GDP, 45 percent of the manufacturing output and 40 percent of the exports. They provide the largest share of employment after agriculture. They are the nurseries for entrepreneurship and innovation. They are widely dispersed across the country and produce a diverse range of products to meet the needs of the local markets, the global market and the national and international value chains.

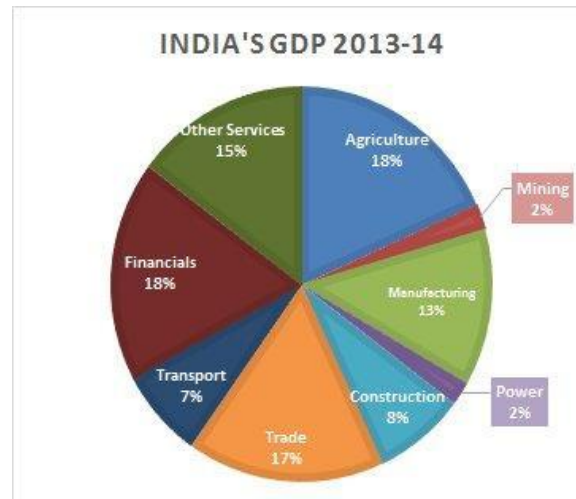


Fig 1 Statistical data for 2013-2014

Statistical data of the past few years, however, indicates that the share of MSMEs in GDP, manufacturing output and exports has been slowly increasing. During deliberations with a diverse set of MSME stakeholders, it was repeatedly flagged that the MSMEs, as individual and collective entities, lack the abilities of the larger enterprises to advocate on economic and functional issues, and therefore come adversely on the receiving end of the unexpected actions of other stakeholders, including the state machinery. While the primary concern of the entrepreneur should be to run the enterprise, the prevalent ecosystem places huge demands on the time and resources of the entrepreneur engaged in manufacturing. A complex and unfriendly business ecosystem pushes small entrepreneurs towards the informal and unregistered segment, which is growing faster than the organized segment by more than five times, and already accounts for over 95 percent of all MSMEs. This trend must be reversed as it is not sustainable.

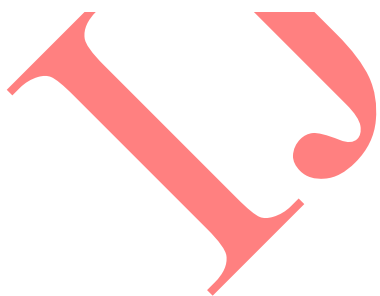
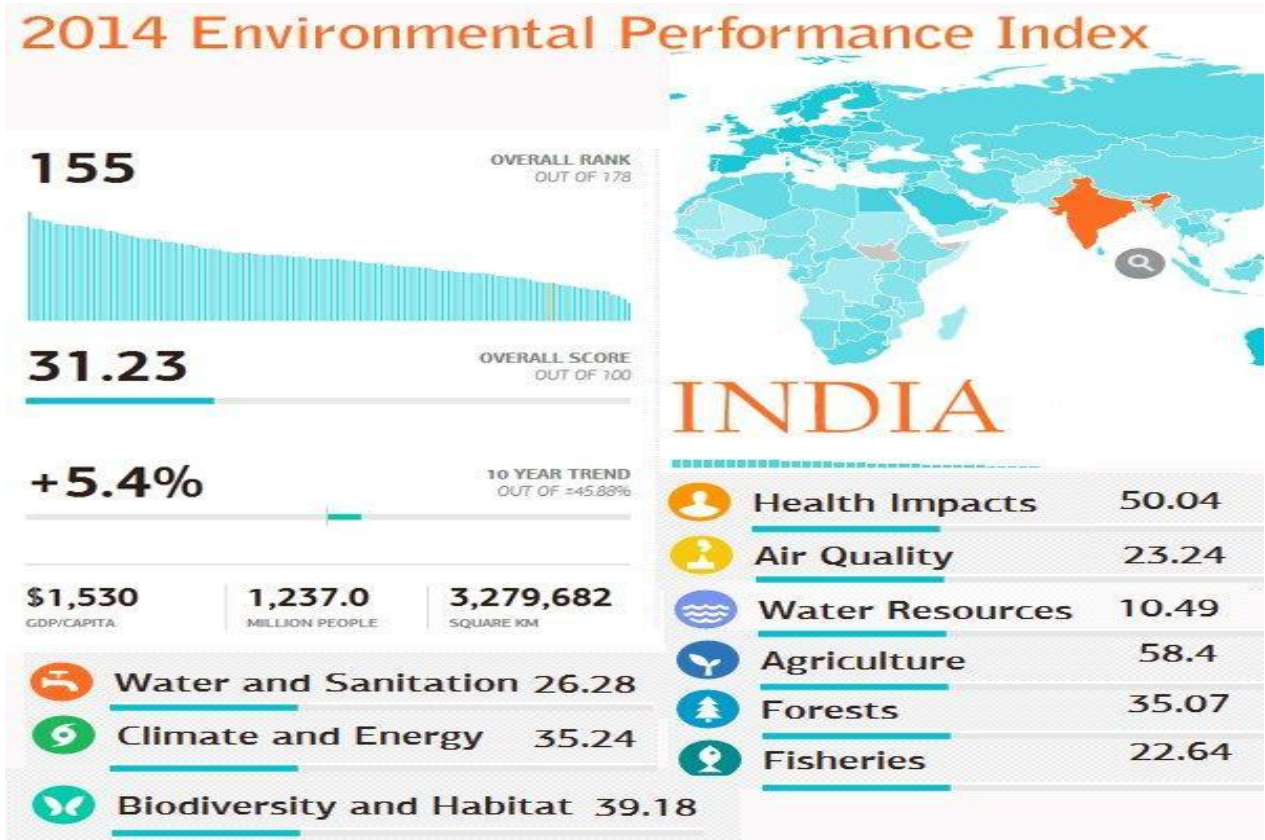


Fig 2 India GDA

Hence, there is a need for a common understanding amongst the policy makers and administrators in multiple departments of the local, state and central governments to help create an ecosystem that enables and assists entrepreneurs through the life cycle of creation, growth and closure of enterprises and encourages them to operate in the organized economy.

#### 4. ENVIRONMENTAL PERFORMANCE INDEX (EPI)

India ranks 155th out of 178 countries in its efforts to address environmental challenges, according to the 2014 Environmental Performance Index (EPI). India performs the worst among other emerging economies including, China, which ranks 118th, Brazil, at 77th, Russia, at 73rd, and South Africa at 72nd.





A bottom performer on nearly every policy issue included in the 2014 EPI, with the exception of forests, fisheries, and water resources, India's performance lags most notably in the protection of human health from environmental harm. In particular, India's air quality is among the worst in the world, tying China in terms of the proportion of the population exposed to average air pollution levels exceeding World Health Organization thresholds. Both large scale industries and small scale industries contribute their share of water pollution. While many large scale industries claim to have installed costly treatment and disposal equipments, these are often not in proper working order. Small scale and cottage industries cause no less water pollution than the large scale industries. There are about 3 million small scale and cottage industrial units in India. These units neither have, nor can they afford appropriate sanitation and/or pollutant disposal systems, and yet have not hesitated in adopting highly polluting production technologies such as chrome, tanning of leather, use of azo-dyes in fabrics, use of cadmium in ornaments and silver-ware, electroplating with cyanide baths, production of dye-intermediates and other refractory and toxic chemicals, etc.

A new study led by Zifeng Lu of Decision and Information Sciences Division of Argonne National Laboratory in Argonne, USA, based on images taken by the Aura satellite between 2005 and 2012, says that SO<sub>2</sub> emissions from India's thermal power plants has gone up by a whopping 71 per cent from what it was in 2005.

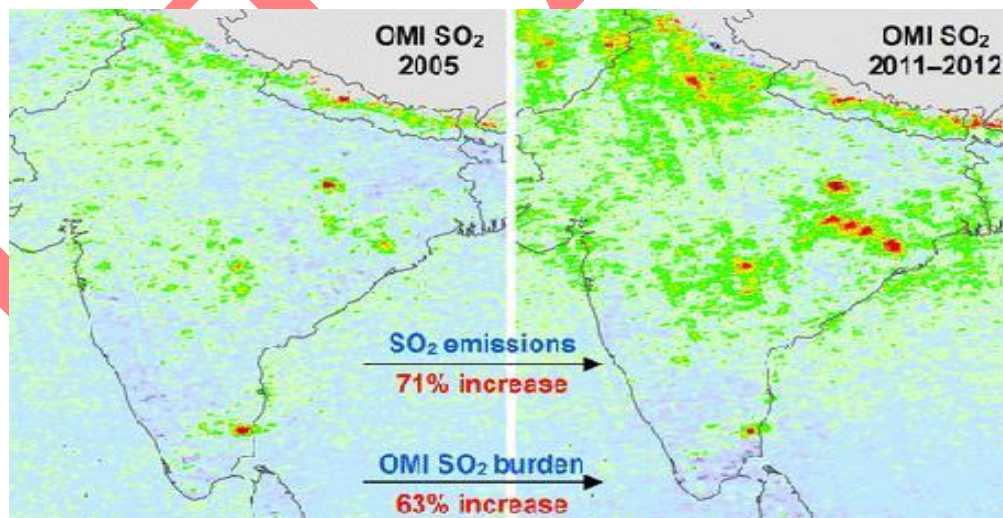


Fig 3 Emission rate

Ghose (2001) is of the view that all industrial activities have adverse impact on the environment, but a few sectors of SMEs have major impacts and the industry has found it

difficult to mitigate these adverse impacts. Some of the environmentally problematic sectors of SMEs, according to him, are given

Table 1: SME & pollution potentials

Industry	Environmental problem*			
	Water	Air	Odour	Solid Waste
Tanneries	3	-	3	3
Pharmaceuticals	3	3	3	3
Chemical processing	3	3	3	-
Pulp and paper	3	-	3	3
Textile dyeing and printing	3	-	-	3
Dyes and Dye intermediate	3	-	-	3
Metal Finishing	3	-	-	3
Foundries with Cupolas	-	3	-	3
Brick Kilns	-	3	-	3
Lime Kilns	-	3	-	3
Stone Crushers	-	3	-	3
Khandsari Sugar	3	-	-	3
Food and Fruit Processing	3	-	3	3
Metal Processing	-	-	-	3
Slaughter House	3	-	3	3

Note: Levels of Pollution: 1 – Low, 2 – Medium, and 3 – High

## 5. GREEN TECHNOLOGY

The field of "green technology" encompasses a continuously evolving group of methods and materials, from techniques for generating energy to non-toxic cleaning products.

The present expectation is that this field will bring innovation and changes in daily life of similar magnitude to the "information technology" explosion over the last two decades. In these early stages, it is impossible to predict what "green technology" may eventually encompass.

The goals that inform developments in this rapidly growing field include:

Sustainability - meeting the needs of society in ways that can continue indefinitely into the future without damaging or depleting natural resources. In short, meeting present needs without compromising the ability of future generations to meet their own needs.

"Cradle to cradle" design - ending the "cradle to grave" cycle of manufactured products, by creating products that can be fully reclaimed or re-used.

Source reduction - reducing waste and pollution by changing patterns of production and consumption.

Innovation - developing alternatives to technologies - whether fossil fuel or chemical intensive agriculture - that have been demonstrated to damage health and the environment.

Viability - creating a center of economic activity around technologies and products that benefit the environment, speeding their implementation and creating new careers that truly protect the planet.

Examples of green technology subject areas Energy

Perhaps the most urgent issue for green technology, this includes the development of alternative fuels, new means of generating energy and energy efficiency.

Green building

Green building encompasses everything from the choice of building materials to where a building is located.

Environmentally preferred purchasing

This government innovation involves the search for products whose contents and methods of production have the smallest possible impact on the environment, and mandates that these be the preferred products for government purchasing.

Green chemistry

The invention, design and application of chemical products and processes to reduce or to eliminate the use and generation of hazardous substances.

Green nanotechnology

Nanotechnology involves the manipulation of materials at the scale of the nanometer, one billionth of a meter. Some scientists believe that mastery of this subject is forthcoming that



will transform the way that everything in the world is manufactured. "Green nanotechnology" is the application of green chemistry and green engineering principles to this field.

## 6. GREEN SKILL

### DEVELOPMENT Green policies for green skills

Green skills are becoming a part of almost every job, the motivation for developing green skills is different. Although using less energy and resources can reduce costs, Cedefop's study found that businesses and consumers want more convincing evidence of the financial benefits of investing in green technologies.

Launching a Green Job Training Program: Workers have always been the backbone of a country's economy, and in order to make sure green industries continue to expand, we will need to teach our workers the skills they need for high-quality new green jobs. MSME Employees close to 40% of India's workforce and contributing 45% to India's manufacturing output, SMEs play a critical role in generating millions of jobs, especially at the low-skill level. The country's 1.3 million SMEs account for 40% of India's total exports. The bad thing is that SMEs in India, due to their low scale and poor adoption of technology, lack of training we have very poor productivity. Although they employ 40% of India's workforce, they only contribute 17% to the Indian GDP. Why? Too many firms stay small, unregistered and un-incorporated in the unorganized sector so that they can avoid taxes and regulations. "The firms have little incentive to invest in upgrading skills of largely temporary workers or in investing in capital equipment," says the latest Economic Survey.

### Are Green Jobs Good Jobs?

If the goal is to help low-skill workers improve their economic success, another critical issue is whether green jobs are actually worth pursuing. That is, are there "good" green jobs that would allow low-skill individuals to support their families and move up the economic ladder? Some studies suggest that green jobs are generally higher quality than the average job. Because of the improved job quality in the green economy, other studies estimate that increased investments in the green economy will increase the relative wages of workers without college degrees (Bivens et al. 2009). Researchers also highlight the unionization of green jobs as a pathway to higher wages for lower-skill workers. Despite these projections, green industries clearly consist of a range of high-, middle-, and low-skill jobs at varying

levels of pay. Highly skilled green jobs, including engineers and scientists as well as white-collar jobs in management, low paying, with little opportunity for advancement. These low-skills, low-paying jobs that workers with high school degrees can obtain without additional training.

**Training Low-Skill Individuals for Green Jobs** For workers already trained for occupations in traditional industries, many middle-skill green jobs will require little additional training. Core skills are typically most important, and green competencies can usually be learned either in tandem with or after learning the core skills associated with a given occupation (Krepcio 2009). However, if low-income individuals are to gain the skills necessary to access higher quality green jobs, training programs should be well designed to meet the needs of this population. Fortunately, several strategies show promise in making training possible for low-skill individuals, whether in green jobs or not.

These strategies include the following five:

Curricular reforms at community colleges and other training providers  
Strong partnerships between employers and training providers

Financial assistance to help low-wage workers afford school and meet their expenses.  
Recruitment efforts and support services for nontraditional workers.

## **7. SUMMARY**

Green Technology is one of emerging fields in the today's changing world. The technology is changing day to day and the large companies can adopt it easily, but they are showing lack of interest in implementing these methods. The MSME sectors are small units, but considering as a whole they also contributes major for the country's GDP. Also MSME have one third of the workers population. Though the government introduces new policies they are lacking due to financial inefficiencies and awareness. They workers are also the part of the environment, so they have to be aware and request the company owners to adopt green technology and training for the better society, meeting the global needs. It is in the hands of the every individual to be aware of environment and must take steps for the change.

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