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Disclosures of Environmental Performance: An Essential Element in the Success of 'Make in India'

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Abstract

To address the problems of Indian manufacturing sector, Government of India brought 'National Manufacturing Policy-2011' and an initiative of 'Make in India' to increasing share of manufacturing sector up to 25% in national GDP by 2025. Meantime, national GDP would be three times and it would make huge demand of natural resources in manufacturing activities. Commitment made by government of India to reduce carbon footprint at Paris convention and depletion of pure air, water, land, metals etc in development make focus on environmental sustainability in the growth of manufacturing sector. Major Indian manufacturing companies has adopted environmental management system through ISO 14000 and also disclosing their efforts towards sustainability in annual sustainability reports based on the guidelines of Global reporting initiatives (GRI). This disclosure is for the stakeholders such as government, investors, society, employees etc. Authors found that in absence of statutory framework and voluntary nature of reporting systems, there is non-uniformities in present disclosures and tends to paint only positive performance. This paper proposes a framework of reporting system along with new indicators with the objectives of capturing real efforts of company towards environment sustainability and reducing the environmental impact, a emerging challenge in the environment of 'Make in India'.

Keywords: Disclosures, Environmental sustainability, Green manufacturing, Indicators, Make in India

1. Introduction

The need of environmental sustainability was established by the World Commission on Environment and Development (WCED, 1987). It was realised that in course of development, needs of future generation should be take care of. While the industrial growth is necessary, the India's environment concerns need to be mitigated. Industry and associated technology impose negative impacts on the natural environment such as,

i. Global temperature have increased by 0.74 degree centigrade over the last century, the fastest warming observed in the history of earth (Intergovernmental panel on climate change (IPCC) estimates)

ii. Manufacturing sector is the third largest source of CO2 emission (18%) after power generation & transportation. (International energy Agency)

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iii. Manufacturing sector generates hazardous waste and consumes natural resources (water etc)

The manufacturing units must consume natural resources, energy efficiently and generate minimum amount of waste. Energy use by industries in India accounted for nearly 38% of the total energy used in the country. In the context of global indices, India is the 4th largest industrial energy consumer in the world, with a 5% share of the overall global energy use in industries. Industries consumed nearly half of electricity generated annually in India in 2011-2012. This share in consumption has been consistent over the last two decades. Electrical energy use contributes 15% in the total energy used by industries. Since 1991, electricity consumption in industries has increased by 311%. Manufacturing consumes more than 33% of the global final energy and emits 38% of direct and indirect carbon dioxide worldwide. According to 'Energy and Climate Change'- a report by IEA (2015), in 2012, three countries – China, United States and India – gave rise to almost half of global carbon dioxide emissions from fossil-fuel combustion. According to 'Water for Sustainable World (2015)' a report by United Nations, demand of water would rise by 400% from year 2000 to 2050. India is much focusing on its gross domestic product (GDP) growth through enhancing manufacturing sector, it is essential now to decouple economic growth with emission level.

The concept of environmental sustainability needs to be addressed at most priority because growth of Indian economy largely depends on manufacturing sector and in recent years, government of India has focused on this segment of GDP. Increase in manufacturing activities increase ecological footprint and hence it is the responsibility of organisation to take care of environment in their operations. Increasing demand of information by different stakeholders regarding what business is doing and then using this information to compare benchmark and rank the performance of competing companies forced not to avoid challenges (Elkington J., 1999).

Objectives of 'Make in India' must include the concept of eco-efficiency i.e. delivery of products at competitive price with the balance between quality of life, reduced ecological impacts. This is because, if challenges implied by triple bottom line are refused, there is a risk of extinction. In despite of owing responsibilities due to footprints made by their activities, business organisation should come forward to tackle challenges because business organisations are resourceful technology, finance and management skills to achieve the sustainability transition (Elkington J., 1999).

Reporting of Environmental Sustainability

In today's world, success of organisations largely depends on their reputation and trust by consumers. Organisation's responsibilities towards environment do not end at the factory fence. The lack of report on environmental performance may imply a lack of awareness. Secrecy in environmental performance may backfire and damage company's reputation (Elkington, J., 1999). More than 80 % of the 250 largest corporations of the world are using guidelines of GRI (Savitz and Weber, 2006).

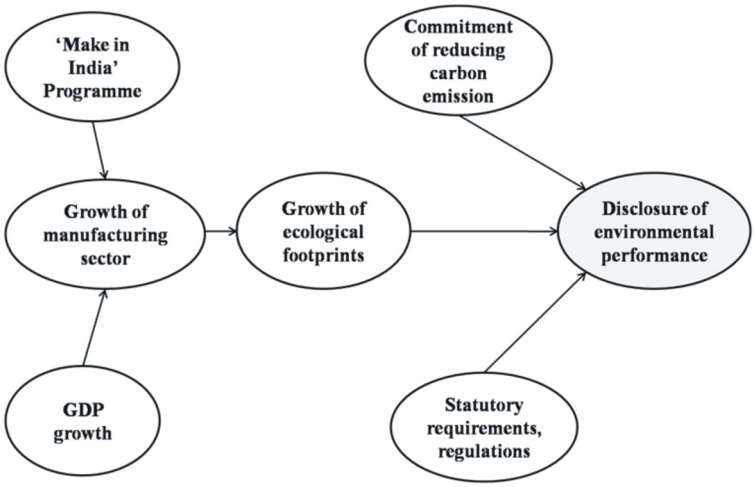

Figure 1: Need of Disclosure in the Success of 'Make in India'

Figure 1 is describing why 'Make in India' programme needs disclosure of environmental sustainability in manufacturing sector. Authors in this paper investigate, how Indian manufacturing companies are reporting based on guidelines provided by global reporting initiatives (GRI) for environmental sustainability. Objective of this paper is to suggest transparent indicators to make reporting of environmental sustainability more near to reality.

2. Literature Review

Better indicators at organisation level to measure environmental sustainability in honest manner. There is no consensus for a set of indicators for sustainability (Sikdar, 2003). Joung et al., (2012) found 11 indicator sets available for sustainability reporting as follow:

Table 1: Sets of Sustainability Indicators Available For Disclosure

S. No.	Sustainability indicator sets
1	Global Report Initiative (GRI)
2	Dow Jones Sustainability Index (DJSI)
3	2005 Environmental Sustainability Indicators (ESI)
4	Environment performance index (EPfI)
5	United Nations-Indicators for Sustainable Development (UN-CSD)
6	Organisation for Economic cooperation and Development (OECD) Core Environment Indicators (CEI)
7	Ford Product Sustainability Index (Ford PSI)
8	International Organisation for Standardization (ISO) Environment Performance Evaluation (EPE) Standard (ISO 14031)
9	Environmental Pressure Indicators for European Unions (EPrI)
10	Japan National Institute of Science and Technology Policy (IS-TEP)
11	European Environmental Agency Core Set of Indicators (EEA-CSI)

India is committed to comply with international regulations such as Kyoto protocol and UNFCCC (United Nations Framework Convention on Climate Change). Industries are facing pressure to operate with improved environmental performance because governments are framing policies in line of such commitments, resulting adoption of ecological responsibilities in corporate strategies (Koo et al., 2014). Ignorance of environmental practices has many types of wastes such as unused resources, emission and energy inefficiency (Watson et al., 2010). Initially, industries tried to disclose minimum information but few companies such as Monsanto (in the US), Norsk Hydro (in Norway) decided to publish environmental reports and began the culture of disclosures. Silva-Gao (2012) proves that firms with superior environmental performance use disclosures to communicate their superior performance to stakeholders. International standard ISO 14004 suggest 13 performance indicators regarding energy, water, material, waste, carbon emission recycling etc. Global Reporting Initiative guidelines suggest 34 indicators for disclosure in annual sustainability reporting. Global Reporting Initiative (GRI) is voluntary framework and accepted worldwide for reporting of sustainability (Overell et al., 2008). GRI framework includes material, energy, water, biodiversity, emissions, effluents and waste etc as environmental aspect.

3. Disclosures in Environmental Sustainability Reporting

Being the disclosures voluntary in nature, quality of information is questionable. Due to voluntary and self monitored reporting system, completeness and credibility has limits (Adams et al., 2004). Disclosure on sustainability indicators should not be vague. For example, if an organisation reports reduction in hazardous waste generation by 50% in a year (seems unrealistic) but does not report the reason, then this discloser may not due to the impact of environmental practice. The actual reason may be the fall in manufacturing due to low demand. Many researchers suggest improvement in reporting system. Sustainability indicators should be linked to some reference values and targets (Moldan et al., 2012). In reporting, absolute values do not serve real performance but it is the trend over a period of time or the change from baseline. Dennis et al. (2015) established that GRI's sustainability reporting framework has much scope for improvement because present indicators can be manipulated for partial disclosures. Van Gerven et al., (2007) identified more relevant indicators beyond GRI's framework such as presence of environment management system, use of sustainable energy, amount of environmental expenditures. Indicators are the powerful tools for making important dimension of the environmental sustainability (Dahl, 2012). So, disclosures of environmental performance must have transparency and credibility.

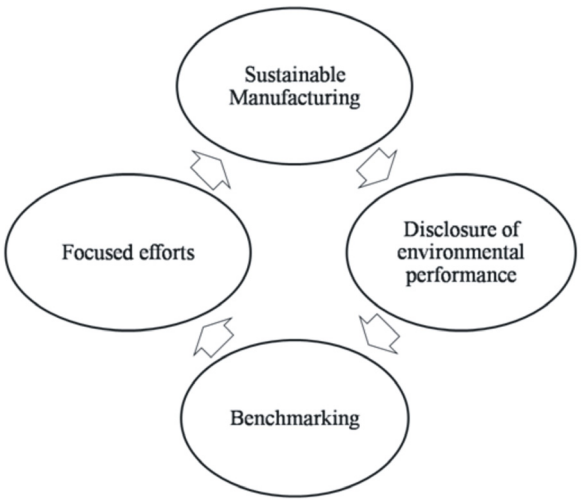

Figure 2: Proposed Framework of Disclosure for Sustainable Manufacturing

3.1 Credibility through New Indicators

Since, environmental reporting is for disclosures only; reporting on indicators should be such that more transparency in data/figures and honest efforts are reflected to stakeholders. GRI do not judge the quality of reports and its contents. Moreover, many efforts for green manufacturing is not covered in GRI guidelines. Few of the efforts are, Chetan et al. (2015) review the machining methods in sustainable way to replace the coolants and lubricants having environmental and biological problems. Rao (2008) described the greening of supply chain of a food factory in India through refrigerator plant using ammonia (it do not damage Ozone layer) and replacing caustic soda with non hazardous cleaning agents in cleaning process of equipments. To overcome such problems, authors are suggesting new indicators to infuse more credibility.

Table 2: Proposed Indicators

Aspect	Proposed indicators
Material materials	1- Percentage of materials substituted with environment friendly (Amount of hazardous material substituted with non-hazardous material) 2- Percentage material consumption per unit of turnover 3- Ratio of indirect material and Direct material consumption (Indicate waste) 4- Quality (Rejection) in manufacturing process
Energy	1- Renewable energy as a percentage of total consumption2- Certifications related to environment management
Effluents and waste	1- Hazardous waste reduction through initiatives 2- Preparedness for emergency to reduce pollution and accidents
Land and Green buildings	1- Factory land area per unit turnover. It would reflect efficiently use of land in manufacturing activities 2- Standardisation/rating of green building
Research and development	1- IPRs related to environmental sustainability 2- Research papers 3- Academia-Industry collaborations
Knowledge sharing	1- Sharing of technology, expertise, patents with green manufacturing with other industries, customers, vendors etc.
Quality	1- Amount of material, energy and other resources waste in rejection
Energy and environmental management	1- Certifications of iinternational standards such as ISO 14001, ISO 14004, ISO 50001

4. Discussion and Conclusion

Most of the reports for environmental performance are voluntary, hence presentation of information are highly diverse and difficult in making of comparisons. Based on reports published for disclosures on environmental sustainability, comparative study was done in Indian companies and leading companies at global level. Name and identity of companies are not being disclosed here. Authors found that Indian companies are reporting to fulfil the requirement of GRI guidelines.

However global leaders have sustainability plan for up to 2050. Base year against which performance is tracked for showing continual improvement should include a previous year i.e. reporting of improvements should be for a year. Reduction in emissions, waste, material consumption, energy etc should be reported in absolute quantity as well as in percentage. In same sector and for same indicators, different companies are disclosing in different way. There is a wade gap between Indian companies and global leaders in the way of disclosing information. Few existing indicators need to be modified such as material consumption and new more indicators are needed to be included. Indicators should be based on targets. Spring Council (2007) approved the "20-20-20 target" for improving environmental sustainability in European Union. The target is 20% reduction in emission of greenhouse gases and 20 % share of renewable energy resources and 20 % rise in energy efficiency, all three to be achieved by 2020 (EC, 2007). One Indian automobile manufacturing company has target based program 'one gram one component' for reducing material consumption i.e. target is to reduce weight of components by one gram in each year. A German based automobile company has a program 'Think Blue factory'. This program is to reduce energy consumption, disposed waste, carbon emission by 25 % at all factories worldwide up to year 2018 compared with 2010 levels. Within next decade, Indian industries would have statuary requirement for disclosing environmental performance, hence, robust reporting system should be adopted to reflect true efforts for reducing ecological footprints.

The conclusion is, Indian industries needs to adopt more honest reporting practice and target based environmental performance improvement plans.

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