



Driving Process Improvements under Sustainable Development Initiatives

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ABSTRACT: Sustainable Development has been a daunting challenge in front of the business world which is caught in between the economic development and environmental protection and social upliftment. Stake holders including the investors and customers are demanding Greener products and demanding business organizations to demonstrate their commitment on improving their performance on Sustainable Development.

Sustainable Development requires companies to adopt improved technology as well as processes to remain competitive. A scan through the top Indian companies shows a greater focus of the companies on using newer technology for bettering their environmental performance. This study shows companies are not aggressively working on the process improvement. This research assesses the environment related GRI Standards and identifies significant number of Process Improvement opportunities for the companies. The process improvements would result in to savings for the organizations which would turn it in to a win-win for organizations.

KEYWORD HEAD: Sustainability, Sustainable Development, Process Improvement, GRI Standards, Sustainability Reporting.

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I. INTRODUCTION:

There is a greater recognition to the fact that every business has an impact on the environment. The impact could be in the form of pollution, consumption of natural resources, dissipation of heat to the atmosphere and thereby raising ambient temperatures, emission of Green House Gases, soil erosion and the list goes on. There are no businesses which can insulate itself from this damage. However, a positive side is that there is a greater awareness among the industry and the governments.

Technological innovations and improved efficiencies in the business operations have been stunned by the sheer growth in the per capita consumption of natural resources (UN Report, 2010). This is coupled with the population growth and rise in the per capita income in the developing countries. The resource consumption has been unsustainable. While the pressures on the natural resources is temporarily relieved because of substitution and new technologies, the scale of use of the finite resources continues to rise unsustainably.

Several initiatives have started globally ever since the Earth Summit took place more than 20 years before. In 1992, the world was seeing the glimpses of the challenges emerging across the planet earth. According to the report released by United Nations Environment Program (UNEP) titled "Towards Life Cycle Sustainability Assessment – 2011" the challenges were climate change, loss of species, desertification and land degradation. 20 years later all these far-off concerns have become the realities. UNEP emphasizes the term Sustainable Consumption and Production which was defined as "the use of services and related products, which respond to basic needs and bring a better quality of life while minimizing use of natural resources and toxic materials as well as emissions of waste and pollutants over the life cycle of a service or product so as not to jeopardize the needs of future generations."

The business organizations appear to be in the dilemma of environmental preservation and social equality versus economic growth. It's a tough challenge for the organizations to embrace all the three pillars 'Profit, People and Planet' within their business strategy and treat all of them fairly equal. Various Government and non-government organizations are educating the consumers and the public at large about the climate change, corporate social responsibility and social equality. The consumers and the stakeholders are increasingly becoming concerned

about the environmental impact the organization are causing. Governments are tightening the legislations around the protection of environment and social parameters.

Corporate social and environmental responsibility has become a major concern in the recent years for the top management. Various voluntary initiatives such as – Global Compact, Global Reporting Initiative, Carbon Disclosure Project, ISO 14000 certification for environmental management system, development of ISO26000 – are increasingly being adopted by the business organizations. All these are voluntary initiatives. These initiatives require the organizations either to disclose their environmental and social impact or to comply to the requirement of the specific standard.

If the top 100 companies on Bombay Stock Exchange (BSE 100) are scanned, it is apparent that the environmental responsibility has improved and most of the companies are either publishing their sustainability reports as per GRI guidelines or at least releasing Business Responsibility Report as per the National Voluntary Guidelines.

Even though, there has been an increased transparency among the corporate world, reducing environmental impacts and sustaining the change has been seen as a challenge for most of the organizations.

II. APPROACHES BY COMPANIES TO DEAL WITH ENVIRONMENTAL CHALLENGES:

There are studies which have observed that investors reward the companies who demonstrate superior performance on sustainability parameters (Shuili Du, Kun Yu, Bhattacharya, C. B.; and Sankar Sen, 2017). The transparency allows the investors to include the parameters related to sustainability performance in the stock valuation and in a longer term benefit the organizations. According to Grinstein Amir and Riefler Petra (2015) the cosmopolitan consumers demonstrate environmental concern and adopt the sustainable behavior.

GRI guidelines stress that the companies open up their performance on economic, environmental and social impact areas. Economic reporting is mandatory and being central to the business, each organization anyway reports it with consistency and accuracy. While on the environmental and social impact areas companies have reported various performance measures as prescribed by the GRI guidelines and their initiatives in addressing the challenges. Even though, the disclosures are encouraging there is a large amount of scope for the companies to improve the sustainability performance.

Under the environmental criteria following are the main impact areas as per the GRI guidelines.

- Material
- Energy
- Water
- Emissions
- Waste and Effluents
- Biodiversity
- Suppliers Environmental assessment

GRI Standards 2016 released by Global Reporting Initiative have been made effective from May 2018. These include various performance measures apart from the disclosure information. This research paper focuses primarily on the approaches followed by organizations towards environmental aspect of Sustainability. A study was made on select Indian companies, a sample of 30 companies, to study the improvement approaches adopted by companies. Primarily two types of improvement initiatives were seen.

1. Technology Improvement or Technology Change
2. Process Improvement

Technology Improvement (TI) included those improvement initiatives where the companies have worked on improving the technology in order to reduce the environmental impact or a better technology is used to better the sustainability performance. Whereas, Process Improvement (PI) type actions included process optimization, elimination of waste, efficiency improvement, conservation like activities.

Sr.	Company	Emission		Energy		Material		Water		Waste		Total	
		PI	TI	PI	TI	PI	TI	PI	TI	PI	TI	PI	TI
1	ACC Limited	4	2	1	2	0	2	1	2	0	1	6	9
2	Aegis Ltd.	0	0	0	1	0	0	0	0	0	0	0	1
3	Ambuja Cement	5	2	1	3	0	1	0	2	0	2	6	10
4	BPCL	1	0	2	12	0	0	0	1	0	1	3	14
5	CLP India	0	0	0	0	0	0	0	0	0	0	0	0
6	Dr. Reddy's Laboratories India	3	3	3	3	0	4	1	2	1	1	8	13
7	GAIL (India) Limited	1	4	1	4	0	1	1	2	0	1	3	12
8	Havells	0	0	2	8	0	3	1	1	0	1	3	13
9	Hindalco Industries	0	2	0	0	1	0	2	1	0	1	3	4
10	Hindustan Construction Company	0	0	1	3	1	0	0	1	0	0	2	4
11	Hindustan Petroleum Corporation Ltd.	0	2	3	6	0	2	0	2	1	1	4	13
12	Indian Oil	0	1	0	0	1	0	1	0	0	2	2	3
13	Indusind Bank	0	0	1	2	1	0	0	0	0	0	2	2
14	Infosys Limited	1	1	1	3	0	0	0	1	1	1	3	6
15	ITC Limited	1	1	4	3	0	0	3	3	0	3	8	10
16	JSW Steel Limited											0	0
17	Jubilant Industries Limited	0	1	2	3	0	0	0	2	0	0	2	6
18	Kirloskar Brothers Limited	0	0	2	3	1	0	0	0	0	0	3	3
19	Larson and Toubro	0	0	0	1	0	0	0	2	0	2	0	5
20	Mahindra & Mahindra Financial Services	0	0	1	2	0	0	0	0	0	0	1	2
21	Mahindra & Mahindra Limited	0	0	3	2	1	1	1	1	1	1	6	5
22	Mahindra Lifespace Limited	1	3	0	1	0	0	0	1	0	0	1	5
23	Maruti Suzuki India Limited	0	1	1	2	1	0	1	1	0	0	3	4
24	Shree Cement Limited	0	1	0	3	1	0	0	1	0	0	1	5
25	Tata Chemicals	1	1	0	2	0	0	2	1	0	0	3	4
26	Tata Consultancy Services (TCS)	0	1	0	3	0	0	0	2	2	1	2	7
27	Tata Motors	0	0	0	2	4	0	0	0	3	1	7	3
28	Tata Steel	0	3	0	0	0	0	2	0	1	1	3	4
29	Toyota Kirloskar Motor Pvt Ltd	3	1	1	0	0	0	1	1	1	1	6	3
30	Wipro Limited	0	0	0	1	0	0	1	2	0	1	1	4

Table 1. – Process Improvement and Technology Improvement actions reported by selected companies.

The data was created by actually screening the sustainability reports of the selected 30 companies from recent years (2016 or 2017 or 2018). On the GRI Guidelines relating to 5 Environment related parameters namely, Material, Energy, Water, Emission, Waste & Effluents, the improvement activities as mentioned in the reports were counted and recorded in the above table. The activities were categorized as Process Improvement (PI) or Technology Improvement (TI). Refer Table 1 above.

Overall, the data shows there is a greater emphasis on Technology Improvement activities rather than Process Improvement. While it is seen that usually Technology Improvement areas require higher investments and these actions certainly provide significant improvement in the performance, the process improvement actions also have significant opportunity for the organizations to eliminate waste, conservation of resources and process efficiency improvement. Such actions also can have positive impact on the company’s bottom line. Therefore, there is a better sense for the companies to drive process improvement and optimize the processes from sustainable development point of view.

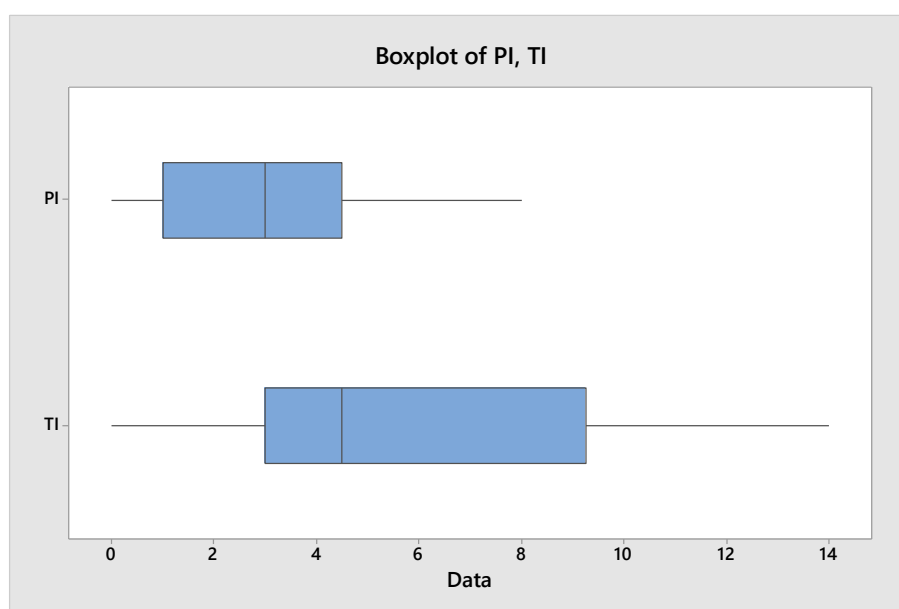


Figure 1 : Box Plot of Process Improvement and Technology Improvement actions in selected companies

III. IDENTIFICATION OF PROCESS IMPROVEMENT OPPORTUNITIES:

Following approach (ref. Figure 2) is used to identify significantly important process improvement opportunities, which typically can be the candidates for a Process Improvement projects.

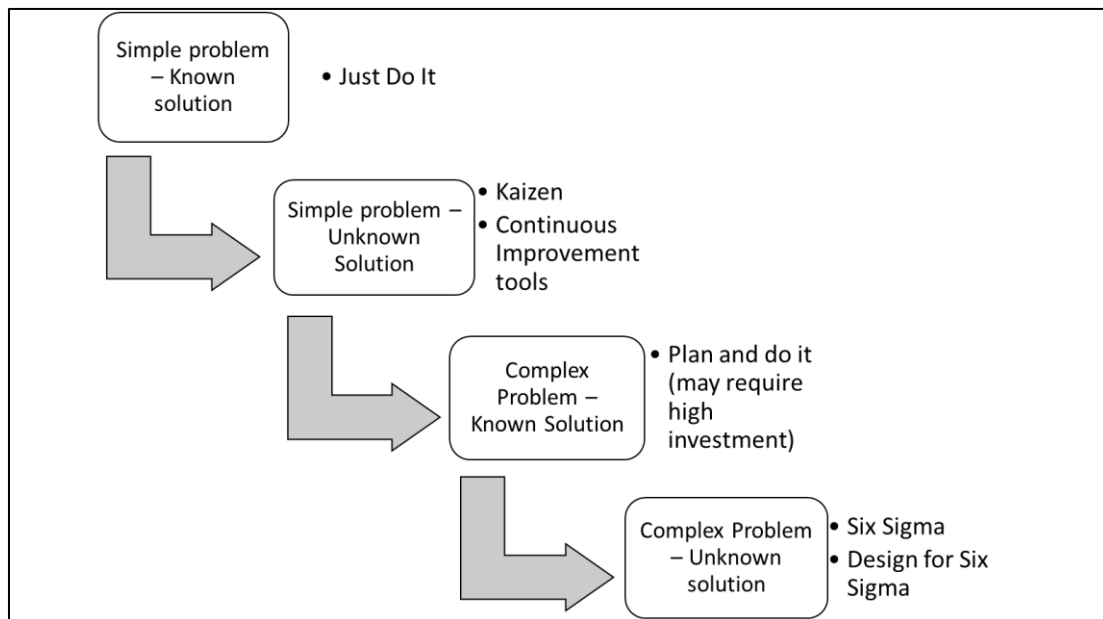


Figure 2 – Approach for identification of a Process Improvement project opportunity

Majority of the Technology Improvement activities fall under ‘Known Solution’ type, either with a simple or complex problem. For example – use of solar or wind energy, use of LED lights in place of CFL bulbs, use of new and efficient machines or equipment etc.

Using the GRI Standards 2016, an attempt was made to identify the Process Improvement project opportunities for environment related performance measures. A typical Process Improvement project is undertaken when the problem is complex and solutions are not readily known.

Under GRI Sustainability Reporting Standards, there are certain measures where the organization needs to adopt new technology or make some investment for better equipment in order to improve their performance for example use of renewable energy sources where the organization can switch to the wind or solar or hydel power. Such actions are classified as ‘Just-do-it’ (JDI) type and here the organization does not need to use Process Improvement methodology. The opportunity for the use of Process Improvement lies in the cases such as – Reducing total energy consumption OR Reducing the energy requirement of the product or services OR Reducing the total volume of water drawn etc. Such project opportunities are identified under the column ‘Process Improvement’. There are certain measures where the opportunity for a Process Improvement can be decided only after the study of the specific process. Such opportunities are marked as ‘May be’ in the table.

Note: In the tables below, there are certain sub-criteria numbers which are not included. These are primarily relating to furnishing specific information. For example, – GRI Standard 301-3-b states ‘How the data for this disclosure have been collected?’ Similarly, GRI Standard 302-1-f states ‘Standards, methodologies, assumptions, and/or calculations used.’

Each of the Sustainability Standard sub-criteria is assessed to check if it forms a Process Improvement candidate

2.1. Materials

GRI – Sub	Reporting Requirement	Technology Improvement	Significant Investment	Process Improvement	Significant Investment
301-1-i	Non-renewable Materials used	No	No	No	No
301-1-ii	Renewable materials used	No	No	No	No
301-2	Percentage recycled input materials used	Yes	Yes	Yes	No
301-3-a	Percentage of reclaimed products & packaging material	No	No	Yes	Yes

Table –2– Process Improvement Opportunities in Materials Impact Area

Our assessment identifies two significant opportunities for Process Improvement projects such as Increase content of recycled material in the material used and reclaim the products and packaging material.

2.2. Energy:

GRI – Sub	Reporting Requirement	Technology Improvement	Significant Investment	Process Improvement	Significant Investment
302-1-a	Fuel consumption within from non-renewable sources	Yes	Yes	Yes	No
302-1-b	Fuel consumption within from renewable sources	Yes	Yes	JDI	Yes
302-1-e	Total energy consumption within organization	Yes	Yes	Yes	No
302-2-a	Energy consumption outside of the organization	No	No	Yes	No
302-3-a	Energy intensity ratio	No	No	Yes	No
302-4-a	Amount of reduction in energy consumption	No	No	Yes	No
302-5-a	Reduction in energy requirements of sold products & services	Yes	Yes	No	No

Table – 3 – Process Improvement Opportunities in Energy Impact Area

Under the Energy criteria there are at least 5 Process Improvement project opportunities. Out of these Energy Consumption related project scopes are wide and have to be broken in to multiple projects. Simultaneously, the targets for improvement can also be broken in to multiple milestones.

2.3. Water:

GRI – Sub	Reporting Requirement	Technology Improvement	Significant Investment	Process Improvement	Significant Investment
303-1-a	Total volume of water withdrawn	Yes	Yes	Yes	No
303-3-a	Total volume of water recycled & reused	Yes	Yes	JDI	Yes
303-3-b	Percentage of water recycled & reused	Yes	Yes	JDI	Yes

Table –4– Process Improvement Opportunities in Water Impact Area

Under ‘Water’ impact area, the sole and significant opportunity is in reduction of total volume of water withdrawn. While companies may require to enhance the technology, there is a good opportunity for saving on the water withdrawal using Process Improvement methodology. For water recycling, there are ready solutions

available and hence there is no need for a Process Improvement project. Therefore, those opportunities are marked as Just-do-it (JDI) type of improvements.

2.4. Emissions:

GRI – Sub	Reporting Requirement	Technology Improvement	Significant Investment	Process Improvement	Significant Investment
305-1-a	Gross direct GHG emissions	Yes	Yes	Yes	Yes
305-1-c	Biogenic CO2 emissions	Yes	Yes	May be	May be
305-2-a	Gross location based energy indirect GHG emissions	Yes	Yes	May be	May be
305-2-b	Gross market-based energy indirect GHG emission	Yes	Yes	May be	May be
305-3-a	Gross other indirect GHG emissions	Yes	Yes	May be	May be
305-4-a	GHG emissions intensity ratio	No	No	No	No
305-5-a	GHG emissions reduced as a result of reduction initiative	No	No	Yes	Yes
305-6-a	Production, imports or export of Ozone Depleting Substances	No	No	No	No
305-7-a	Significant air emissions	Yes	Yes	May be	May be

Table – 5 – Process Improvement Opportunities in Emissions Impact Area

Under emissions control, most of the approaches followed are relating to technology improvement or use of alternate technology. Process Improvement would be useful for solution deployment. A structured Process Improvement method would play a significant role for sustaining the improvement by the use of tools such as control plan, and control charts.

2.5. Effluents and Waste:

GRI – Sub	Reporting Requirement	Technology Improvement	Significant Investment	Process Improvement	Significant Investment
306-1-a	Total volume of planned and unplanned water discharge	Yes	Yes	Yes	Yes
306-2-a	Total weight of hazardous waste	Yes	Yes	Yes	Yes
306-2-b	Total weight of non-hazardous waste	Yes	Yes	Yes	Yes
306-3-a	Total number and volume of recorded spills	No	No	Yes	No
306-4-a	Total weight of hazardous waste transported, imported, exported, treated	No	No	No	No
306-4-b	Percentage of hazardous waste shipped internationally	No	No	No	No

Table – 6– Process Improvement Opportunities in Waste Impact Area

At least four areas are identified as Process Improvement opportunities. For all these Process Improvement opportunities, use of control charts is extremely useful in terms of continuous monitoring. It would be a confidence boosting step if such control charts are reported in the Sustainability Reports.

2.6. Environmental Laws Compliance

GRI – Sub	Reporting Requirement	Technology Improvement	Significant Investment	Process Improvement	Significant Investment
307-1-a	Non-compliance with environmental laws	No	No	Yes	May be

Table – 7– Process Improvement Opportunities in Environmental Laws Impact Area

This is a typical opportunity where a systematic Process Improvement can be used for process compliance. Based on the environmental laws, using the process mapping tools one needs to map all the compliant and non-compliant areas. Use of tools such as FMEA, Revised process mapping, Quality documentation, Control Plan etc. will be extremely helpful in these cases.

2.7. Supplier Environmental Assessment:

GRI – Sub	Reporting Requirement	Technology Improvement	Significant Investment	Process Improvement	Significant Investment
308-1-a	Percentage of suppliers screened using environmental criteria	No	No	Yes	No

Table –8– Process Improvement Opportunities in Supplier Environmental Assessment Impact Area

Once again this is an information disclosure requirement. However, invariably companies will have to prepare a systematic plan for covering all of their suppliers for assessment and arriving at improvement plan for the respective suppliers. Companies can pursue an ‘Umbrella’ project which covers multiple smaller improvement projects.

Area	Potential Process Improvement Opportunities
Emission	2
Energy	5
Water	1
Waste	4
Material	2

Table – 9– Potential Process Improvement opportunities

IV. CONCLUSIONS:

The assessment of Process Improvement opportunities in driving the GRI Standards demonstrate that companies need not be shy of actively pursuing process improvements on various performance measures. Technology Improvements are absolutely necessary and cannot be avoided. However, these technology improvements come with a price tag. The process improvements would relatively require lower investment for the organizations. Technology Improvement projects will have limitations whereas, process improvements in every Sustainability Standard metrics can be turned in to continuous improvement initiatives.

The process improvements would also result in to savings for the organizations which would turn it in to a win-win for organizations.

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