

Contemporary Trends of Corporate Environmentalism in Iron Industry, With Special Reference of West Bengal, India

Bipasha Mridha Ghosh

Department of Humanities and Science, (Env. Sc Department), NSHM College of Management and Technology

Abstract- India has been proficiently imbibing the conception of corporate environmentalism since time immemorial. It is preferred to study the contemporary trends of corporate greening in reference of iron industry because Iron and steel making in India have a history of more than 125 years and it is one of the leading industries. With the assistance of GAP analysis, environmental management practices of Iron Industries are studied in fine points to drawing the contemporary corporate environmentalism scenario. Findings show that Indian corporate environmentalism is the blend of Indian and European practice and Environmental Management System (EMS) is a fusion corporate environmentalism. Moreover following this pattern India's iron industries are performing well.

The significance of the study is fabricated, in enlightening a latest fashion of corporate environmentalism in India, which might be a better inspiration and more efficient to catalyze corporate environmentalism.

Index Terms- Corporate environmentalism, Environmental Ethics, Fusion corporate environmentalism, GAP Analysis.

I. INTRODUCTION

Corporate environmentalism is a practice of the industry for betterment of the environment. It has brought a revolution in corporate behaviors since early nineties throughout the world. Corporate environmentalism has two facets orientation and strategies. (Banerjee, 2003)

Environmental orientation is the recognition by corporate managers of the importance of environmental issues facing their firms. A firm's environmental orientation, usually expressed in mission statements, may be focused internally or externally (Banerjee 2002).

Internal environmental orientation reflects a company's internal values, principles of ethical behavior, and commitment to environmental protection. External environmental orientation refers to the aspects of a firm's environmental orientation that affect its interaction with external constituencies, such as financial or community stakeholders. Environmental strategy is the extent to which environmental issues are integrated with a firm's strategic plans. Thus, we define "Corporate environmentalism as the recognition of the importance of

environmental issues facing the firm and the integration of those issues into the firm's strategic plans".¹

India has created; it's the legendary and exclusive model of corporate greening irrespective of its financial situation. It believes, that corporate environmentalism is more value driven than wealth. In western world, corporate greening is rooted in processes of growing international political engagement, market integration, and transnational social communication. Contradicting the westernized corporate greening, Indian model is genuinely embedded by environmental value and ethics along with political, social and technical factors.

Technology or policy devoid of ethics could be atrocious for civilization. Green washing is frequent peripheral manifestation of it and consequences are environmental accident and pollution. Entire events have chronic and acute impact on communal and individual wellbeing. Unfortunately, entire world including India is imitating the western perception of corporate environmentalism, by ignoring indigenous conception. Study of evolutionary conduit of Indian corporate environmentalism is instructive and it reveals the practice of Indian corporate from historic period.

Primarily Corporate environmentalism had religious influence in between the western concept merge with the Indian thought and congregated after post independence era with latest moral fiber. Convergence of the different concept had created a novel model which is coined here as, "Fusion Corporate Environmentalism" (FCE). Differing from the references of economic liberalization, Indian literatures succeed to theorize, specify, and identify the underlying pathways through which corporate greening had been step to India. Secondly, precedent research had paid inadequate consideration to the role of external pressures, and their relationship to internal constraints, in explaining uneven patterns of corporate environmentalism (Dasgupta 2000), here the lacunae has been taken care by GAP analysis. To precede further article has been fragmented. Primarily, it has started with introduction, next to it objectives followed by theoretical background in literature review. Secondly, the research design and methodology is outlined and explain the cause of preference of iron sectors.

Third, it has documented recent trends and patterns of corporate environmentalism in the Indian iron industry sectors, in reference with West- Bengal. Fourth, has attempted to explain

¹ "Corporate Environmentalism: Antecedents and Influence of Industry Type"
Subhabrata Bobby Banerjee, Easwar S. Iyer, & Rajiv K. Kashyap, Journal of Marketing, April 2003, page 106

recent dynamics of corporate environmentalism, identifying the proximate drivers of greening both outdoor and domestic factors by the questionnaire survey with relevant parameters. Lastly it has discussed the reasons and the results of questionnaire by GAP analysis. Finally, it has concluded with a discussion of the wider implications of the findings.

II. OBJECTIVE OF THE STUDY

To establish the view that corporate environmentalism in India is more value driven and imperative than wealth and wants to study the contemporary trends in corporate greening in iron industry, to find out the climax situation of corporate environmentalism in India in respect to iron industry of West Bengal. It also aims to explore a holistic approach towards sustainable industrial proliferation and to circumvent industrial contamination by providing a greener and sustainable civilization.

III. LITERATURE REVIEW

The Indian Corporate Environmentalism

Ethics is assumed to mean a moral philosophy prescribing what is right and what is wrong. In other words it states how the world ought to be rather than describing how it is. Environmental ethics prescribes what is right because it is good for the environment, which means that it is good for the earth and for creation. What is good for the earth and creation is good for humanity although it may not necessarily follow that what is good for humanity is good for the earth and creation.² This is the identification of nineteenth century's western world, contradictory to it the Indian ancient text establish that its' environmental ethic is deeply entrenched. To provide confirmation of the thought, a historical expedition is indispensable. Vedic tradition had evoked in the prayer "Sarvatra Sukhinah Santu, Sarve Shanty Niramaya" means "let all be happy here and let all enjoy full health". It was the concern for the Vedic sages for universal well being. The earthly life constituted the central concern for the Vedic Aryans. Ancient literatures of India, like Rig Veda, Atharva Veda etc. reflect the Indian tradition of environmentalism.

O purifying Earth, you I invoke!
O patient earth, by sacred Word enhanced
Bearer of nourishment and strength, of food and ghee
O earth, we would approach you with due praise! (Atharva Veda XII.1.29)³

² Asia-Pacific Perspectives on Environmental Ethics. Bangkok: UNESCO Bangkok, 2008., vi + 108 pp.1. Philosophy. 2. Biodiversity. 3. Environmental ethics. 4. Bioethics. 5. Asia and the Pacific. ISBN 978-92-9223-218-4 (Electronic version)

³ "Environmental Ethics of Indian Religious Traditions" by Purushottama Bilimoria: An abridged version of this essay was published as 'Indian Religious Traditions'. In David E Cooper and Joy A Palmer (eds.) Spirit of the Environment Religion, Value and Environmental Concern. London and New York: Routledge, 1998, pp. 1-14

Vedic literature (1500–500 BC) has proved that, nature has been considered by Indians' as divinity or mother. It is perchance an astonishing trait of the Indian tradition. The primeval Indian community (500 BC–550 AD) had accepted that they could neither direct the nature nor impede unjustifiably. The sovereign of the ancient episode was really influenced by Buddhism. Samrat Asoka, the great emperor of India had performed role of business proliferators and environmental conservator evenly well. In Kushan dynasty, exclusively during Kanishka, there had been escalation in foreign trade and import, and advance of art. Gupta period was also noteworthy, for foreign trade. During Vikramaditya, propagation of the Indian trade and protection of environmentalism was given uniformly accentuate. Followed by the golden period of Indian history, Pal dynasty, Pallav emperor, Chalukya, Rajput, each and every one was the armament of environment, even Mughal's were the affectionate for nature, they attuned with Indian civilization and endow with safeguard to the environment. Samrat Akbar, Sahajahan had an enormous pose in affluent of Indian industry but by no means in destroying the environment.

In ancient and primary medieval period India was prominent in world trade atlas as well as used to follow corporate environmental ethics. In post medieval period, after the intrusion of British had sown the seed of environmental annihilation. Now it has been transformed to a gigantic form and started to spread its branches ruthlessly in different corner of the country. Western culture, masked the glorious Indian heritage of environmental conservation, majority Indians are blindly following the footprint of westernized environmental ethics.⁴

The Environmental Ethics

Environmental ethics is the discipline in philosophy that studies the moral relationship of human beings to, and also the value and moral status of, the environment and its nonhuman contents. It covers: (1) the challenge of environmental ethics to the anthropocentrism (i.e., human-centeredness) embedded in traditional western ethical thinking; (2) the early development of the discipline in the 1960s and 1970s; (3) the connection of deep ecology, feminist environmental ethics, and social ecology to politics; (4) the attempt to apply traditional ethical theories, including consequentialism, deontology, and virtue ethics, to support contemporary environmental concerns; and (5) the focus of environmental literature on wilderness, and possible future developments of the discipline.⁵

Broadly, we can classify, the environmental ethics in three different groups, like - Eco centric- considered all biotic and abiotic factors of environment; Bio centric- i.e- this thought mainly give emphasis on conservation of biotic resources and third type ie;- Anthropocentric – it generally considered that all resources of nature has been provided by God, for betterment of the human being and they are having every right to utilize the environment.

⁴<http://en.wikipedia.org/wiki>

⁵ <http://plato.stanford.edu/entries/ethics-environmental/>, search date 2.05.12

The Corporate environmentalism in Europe

The corporate environmentalism was new-fangled in Europe. The western literature reveals that environmentalism as well as corporate environmentalism also new born in so called western developed world. Corporate environmentalism was started in Europe in mid nineties. In book, 'Heresy To Dogma" (Andrew J. Hoffman, 2001) it was clearly mentioned; that the evolutionary path of corporate environmentalism and it was from **1960 to 1970** that was the period of **Industrial environmentalism**, which was emerged from chemical industry in early 1960s, around the issue of pesticides and for the oil industry in the mid 1960s around the issue of automobile emission and oil spills. Yet despite growing external criticism, industry remained fundamentally unencumbered and was allowed to establishing its own conception of what environmental management meant. The Government intervention was viewed as unnecessary and environmentalist concerns were viewed as exaggerated and not scientifically based. As, such, environmental management was handled primarily as an operating line function within firms and it used to treated as internally directed problem solving. It was considered an ancillary aspect of conducting business.

1970 – 1982 was the era for regulatory environmentalism. In 1970, the organizational field was radically altered with the formation of the EPA. The agency quickly became arbiter of environmental rules and norms, negotiating on the one side with industry and on the other environmental activities.

1982-1988, this period was known as "Environmentalism as social responsibility". This is the major restructuring of the organizational field occurred in 1982 with President Regan's and Ann Burford Gorsuch's failed attempt to rein the activities of EPA. Throughout this period, industry adopted an increasingly cooperative stance towards government, as it once again saw itself as part of the solution, not part of the problem. Within the firm environmental management evolved to internally directed "Managerial compliance". Moving beyond merely technical responses, managerial structures were developed to achieve emissions compliance, while environmental responsibilities began to diffuse throughout the organization.

1988-1993, specifically the beginning in 1988, the organizational field witnessed the introduction of three new influential group of actors, investors and competitors. Furthermore, the power balance between the industry moved to a proactive stance on environmental protection and it once again saw the problem as one it could handle itself.⁶

⁶ "transforming sustainability strategy in to action: the chemical industry", by Beth Beloff, Marianne lines, Dickson Tanzil, Page -395

The evolution conduit of western world is diagrammatically represented in figure-1.

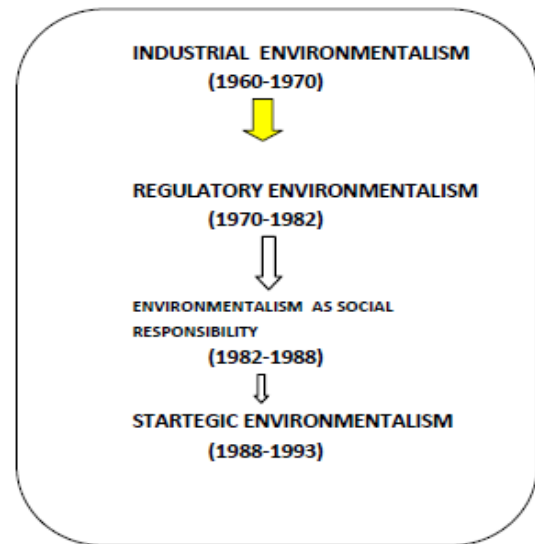


Figure 1- Evolution of CEVM in Western World

The Practice and Process of Iron Industry in India

A brief pre-history of iron and steel making in India will provide a good linkage. The iron and steel making in India dates back 480 BC when Indian archers used arrows tipped with Indian Steel. Iron pillar of Dhar near Indore in the State of Madhya Pradesh (about 321 AD), iron pillar of Kutab Minar near Delhi (about 400 AD), iron beams of Sun temple of Konark in Orissa (13th Century AD) are some of the examples of ancient India. A suspension bridge in Kashmir used iron manufactured in the state of Madhya Pradesh in 1830. Bengal Iron works at Kulti near Asansol in the state of West Bengal, which was subsequently renamed as Bengal Iron and Steel Company, after change-over of hands, used to produce iron during 1874-1889.

The other prominent steel manufacturers during pre-independence period are – Indian Iron and Steel Company (1922), Mysore Iron and Steel Works (1923), and Steel Corporation of Bengal (1937).

After independence in 1947, five major integrated steel plants were setup under public sector. India adopted the Basic Oxygen Process and it was started in West Bengal from Durgapur Steel Plant (1991-). India's use of BOP is 54%, and it is comparable to many leading steel manufacturers in the world like United States and Republic of Korea. It is better than Mexico and Egypt. However, 14% steel is still produced using the obsolete Open Hearth Process in India. This has reduced the overall competitiveness of Indian steel manufactures in the global platform. Out of the major steel producers in the world, only erstwhile USSR countries still use Open Hearth furnaces for making 33% of its total production, followed by India (14.3%) and Peoples Republic of China (4.9%). As regards the use of Electric Arc Process, which is 32%, India is placed somewhere in the middle.⁷

⁷ Development and implementation of environmental strategies for steel industry, *Int. J. Environmental Technology and*

regulations to combat environmental degradation. Study of Iron sector is important for two reasons. First it has the diversity of firms among the sectors. Second, it is one of the oldest industries of Bengal.

Fieldwork has been done from December 2011 to March 2012 to provide the empirical data for this study. The research is empirical, done in-depth, semi-structured interviews with a range of domestic stakeholders. These comprised interviews with business and environment managers from firms for steel (N=10) and these are DSP (Durgapur Steel Plant), ASP(Alloy Steel Plant), Zindal India (Expansion Project -II), Shyam Steel, Sodepur Engineering Ltd, Rashmi Metals Pvt. Ltd., Ma Amba Sponge Iron Pvt. Ltd, Sova Ispat Ltd, Shyam Metalics Pvt. Ltd., Sri Ramrupai Balaji Steels Ltd. These industries are combination of the integrated and sponge iron plant and these are selected to find out heterogeneity among iron industries.

Their responses were supplemented—as well as cross-checked—with interview data from: (1) suppliers of technologies and environmental management services (2) government ministries and departments (3) environmental regulators at the central and state levels and (4) environmental nongovernmental organizations .Additional data originated from a range of published and unpublished literature.

V. RESULT

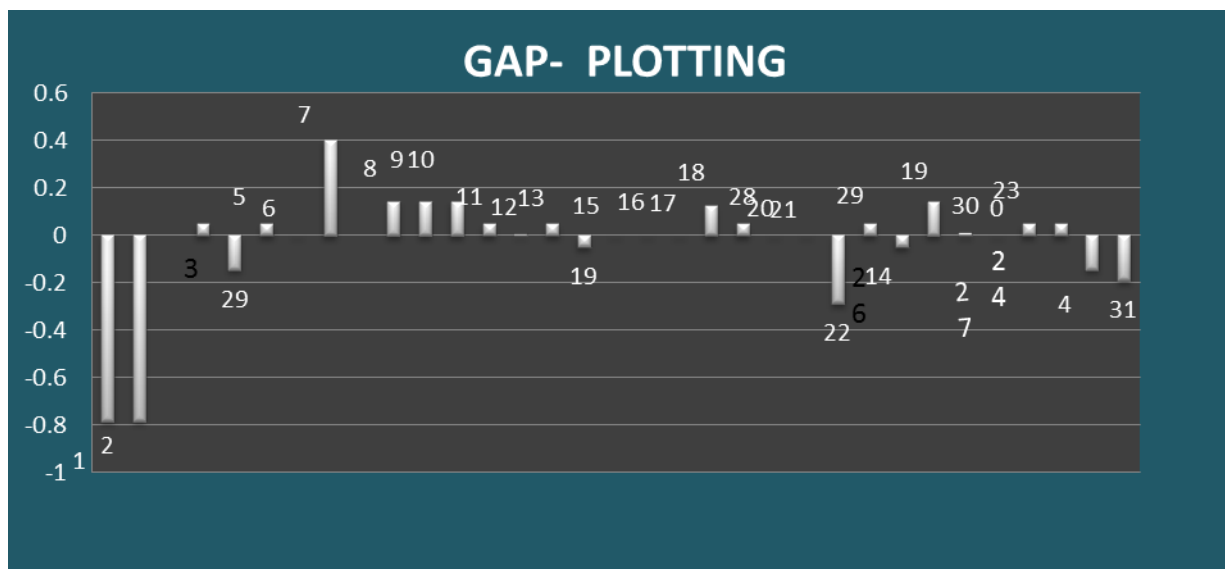
In reference to **Table-1 & 2** (Referred : Appendix-1) While analyzing the mean importance rating, one would conclude that resources should be focused on those areas which are given higher ratings. The higher ratings were given to attributes no. 1,2, 8, 13, 17, 18 and 19. These include conserving resources, implementing environmental management system, developing environmental knowledge and skill development through training, enhancing solid waste utilization and improving recycling, conducting environmental risk assessment and

environmental energy plans. Looking only at the performance scale, one would conclude that emphasis should be given on those areas that are in need for improvement. For this study, these attributes are 6, 11, 14, 15, 22, 28, 29, 30, and 31. These include identifying EPIs and its benchmarking with best practices, promoting green procurement and green marketing, promoting research and development, improving complaint handling system, developing green belt, considering design for disassembly, reusability and recyclability, improving communications with external and internal agencies and enhancing investment on environment, enhancing investment on environment and conserving flora and fauna. Analyzing the tables- 1&2 it is clear although a mass awareness is rising still there are some aspects where integrated steel plants performances are better than the others (sponge iron factories). It reflects that heterogeneity is persisting in the different areas and among intra industries

VI. GAP ANALYSIS

Gap analysis is the method for checking performance of the parameters and importance of the factors.

Table-3(Referred: Appendix-1) also shows the performance gaps (performance minus importance) of the 31 individual environmental attributes. Seven (7) attributes do not have any gap; these are attribute number 6, 15, 16,17,20,21, and 27. Sixteen (16) positive gaps have been identified. The largest positive gap exist for environmental attributes no is 7 ie. improving measurement, data collection, communication, documentation and it enabled services. In eight (8) cases the gap is negative where performance is below importance. The largest negative gap identified in case of 1(Conserving resources raw materials, energy, water, etc.) and 2 (Implementing pollution prevention). Gap- analysis has been represented by figure-2.



VII. CONCLUSIONS

The rationale of this paper is to discover the contemporary trend of corporate environmentalism in India in special reference to iron Industry. End of the study, observations are that corporate environmentalism in India is highly influenced by bio-centric and eco centric view of environmentalism, and in post independence era a trend is growing for a fusion corporate environmentalism, which is the mixture of western and Indian concept and apt for pollution control as well as for mass awareness. Subsequently it has tested that view in reference to Iron industries in India, specifically in West Bengal.

Environmental strategies were evaluated using GAP analysis. This analysis has been used to make recommendations regarding priorities and resource allocation for ensuring continual improvement in environmental performances. According to this study, environmental strategies of the Iron firms are moderate to highly appreciable and they are giving concentration for the conservation and other environmental aspects also. As per assessment, it appears that the current environmental strategies are quite dynamic and depend primarily upon the concerns of various stakeholders. The findings of the study states that the companies have implemented proactive environmental strategies for most of the key environmental attributes. Considerable research efforts is required to move ahead understanding of how a proposed GAP tool can be better integrated into core management processes. Since environmental strategies evaluation, including its prioritization, is a rapidly evolving practice, there is a lot of scope for leading corporate to develop more innovative approaches, but considering the all pros and cons it can be concluded that Indian **"Fusion Corporate Environmentalism"** is a new concept and it could enlightened the others to achieve success in holistic environmental management and be a better beacon for the other developing countries.

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AUTHORS

First Author – Bipasha Mridha Ghosh, Phd Scholar, M.phil and MSC in Environmental Science, NSHM college of Management and Technology , email address : bipasha.mghosh@gmail.com

Correspondence Author – Bipasha Mridha Ghosh, email address : bipasha.mghosh@gmail.com, mob:+9109832216905

TABLE-1- MEAN IMPORTANCE TABLE

SL No	Environmental Management Practices	IMPORTANCE										
		E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	MI
1	Conserving resources (raw materials, energy, water, etc.).	4	3	3	4	2	2	2	2	2	2	3.2727273
2	Implementing pollution prevention/ clean technologies and promoting environmental innovation	4	3	3	4	2	2	2	2	2	2	3.2727273
3	Robust system for ensuring legal compliance.	3	2	3	3	2	2	2	2	2	2	2.3
4	Assessing environmental impacts.	3	3	3	3	2	2	2	2	2	2	2.4
5	Reducing emissions, discharges, and noise attenuation.	3	3	3	3	2	2	2	2	2	2	2.4
6	Identifying EPIs and its benchmarking with best practices.	2	3	3	2	2	2	2	2	2	2	2.2
7	Improving measurement, data collection, communication, documentation, and IT enabled services.	4	3	3	4	2	2	2	2	2	2	2.325
8	Implementing Environmental Management System (EMS) and Improving	4	3	3	4	2	2	2	2	2	1	2.5
9	Environmental Audits.	3	3	3	3	2	2	2	2	2	1	2.3
10	Developing new products using Eco-design and Design for Environment.	2	2	2	2	2	2	2	2	2	1	1.9
11	Promoting green procurement and green marketing.	2	2	2	2	2	2	2	2	2	1	1.9
12	Conducting environmental cost accounting.	3	2	2	3	2	2	2	2	2	1	2.1
13	Developing environmental knowledge and skill development through training.	4	3	3	4	2	2	2	2	2	1	2.5
14	Promoting research and development.	3	3	1	3	2	2	2	2	2	3	2.3
15	Improving complaint handling system.	3	3	2	3	2	2	2	2	2	2	2.3
16	Reducing spillages, leakages and wastages, and improving housekeeping.	3	3	2	3	2	2	2	2	2	2	2.3
17	Conducting effective operation and maintenance of pollution control systems.	4	3	2	4	2	2	2	2	2	2	2.5
18	Enhancing solid waste utilisation and improving recycling.	4	3	2	4	2	2	2	2	2	2	2.5
19	Conducting environmental risk assessment and environmental emergency plans.	4	3	2	4	2	2	2	2	2	2	2.5
20	Reducing environmental impacts during transportation, packaging, and dispatch.	3	3	1	3	2	2	2	2	2	2	2.2
21	Improving hazardous and toxic release management.	3	3	1	3	2	2	2	2	2	2	2.2
22	Developing green belt.	3	2	1	3	2	2	2	2	2	2	2.1
23	Formulating clear objectives and long-term environmental plans.	3	2	1	3	2	2	2	2	2	2	2.1
SL No	Environmental Management Practices(Contd. Table-1)	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	MI
24	Earmarking well-defined environmental responsibilities.	3	3	2	3	2	2	2	2	2	2	2.1

25	Deploying full-time employees for environmental management.	2	3	2	2	2	2	2	2	2	2	2.1
26	Conducting periodic elaboration of environmental reports.	3	2	2	3	2	2	2	2	2	2	2.2
27	Incorporating environmental criteria in supplier selection.	2	2	2	2	2	2	2	2	2	2	2
28	Considering design for disassembly, reusability and recyclability.	2	2	2	2	2	2	2	2	2	2	2
29	Improving communications with external and internal agencies.	2	2	1	2	1	1	1	1	1	1	1.3
30	Enhancing investment on environment	3	3	1	3	1	1	1	1	1	1	1.6
31	Conserving flora and fauna.	3	3	1	2	1	1	1	1	1	1	1.5

MEAN IMPORTANCE

2.1333333

E1=DSP,E2=ASP, E3=Zindal India (Expansion Project -II), E4= SHYAM STEEL, E5=Sodepur Engineering Ltd. E6=Rashmi Metals Pvt. Ltd., E7=Ma Amba Sponge Iron Pvt. Ltd., E8=Sova Ispat Ltd.,E9=Shyam Metalics Pvt. Ltd. E10=Sri Ramrupai Balaji Steels Ltd.

TABLE-2 MEAN PERFORMANCE TABLE

SL No	Environmental Management Practices	PERFORMANCE										MP
		E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	
1	Conserving resources (raw materials, energy, water, etc.).	4	3	2	4	1	1	1	4	1	2	2.3
2	Implementing pollution prevention/ clean technologies and promoting environmental innovation.	4	3	2	4	1	1	1	4	1	2	2.3
3	Robust system for ensuring legal compliance.	4	2	3	3	3	1	1	3	1	3	2.4
4	Assessing environmental impacts.	2	1	3	3	3	1	1	3	1	3	2.1
5	Reducing emissions, discharges, and noise attenuation.	2	2	3	3	3	2	2	3	2	3	2.5
6	Identifying EPIs and its benchmarking with best practices.	2	2	3	2	2	2	2	2	2	3	2.2
7	Improving measurement, data collection, communication, documentation, and IT enabled services.	3	2	3	4	4	2	2	4	2	3	2.9
SL No	Environmental Management Practices(Contd. Table-2)	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	MP
8	Implementing Environmental Management System (EMS) and Improving	4	2	3	4	4	2	2	2	2	3	2.8
9	Environmental Audits.	3	3	3	3	3	2	2	2	2	3	2.6
10	Developing new products using Eco-design and Design for Environment.	3	1	2	2	2	2	2	4	2	2	2.2
11	Promoting green procurement and green marketing.	1	1	2	2	2	2	2	4	2	2	2
12	Conducting environmental cost accounting.	1	2	2	3	3	2	2	4	2	2	2.3
13	Developing environmental knowledge and skill development through training.	2	2	3	4	4	2	2	3	2	2	2.6

14	Promoting research and development.	3	2	1	3	2	2	2	3	2	2	2.2
15	Improving complaint handling system.	2	3	2	3	2	2	2	3	2	2	2.3
16	Reducing spillages, leakages and wastages, and improving housekeeping.	3	3	2	3	2	2	2	2	2	2	2.3
17	Conducting effective operation and maintenance of pollution control systems.	2	3	2	4	2	2	2	4	2	2	2.5
18	Enhancing solid waste utilisation and improving recycling.	4	3	2	4	4	2	2	4	2	2	2.9
19	Conducting environmental risk assessment and environmental emergency plans.	3	3	2	4	4	2	2	2	2	2	2.6
20	Reducing environmental impacts during transportation, packaging, and dispatch.	3	3	1	3	2	2	2	2	2	2	2.2
21	Improving hazardous and toxic release management.	2	3	1	3	3	2	2	2	2	2	2.2
22	Developing green belt.	2	2	1	2	3	1	1	1	1	1	1.5
23	Formulating clear objectives and long-term environmental plans.	3	2	1	3	3	2	2	2	2	2	2.2
24	Earmarking well-defined environmental responsibilities.	3	2	2	3	2	2	2	2	2	2	2.2
25	Deploying full-time employees for environmental management.	3	3	2	2	4	2	2	2	2	2	2.4
26	Conducting periodic elaboration of environmental reports.	3	2	2	3	4	2	2	2	2	2	2.4
27	Incorporating environmental criteria in supplier selection.	2	2	2	2	2	2	2	2	2	2	2
28	Considering design for disassembly, reusability and recyclability.	3	2	2	2	2	2	2	2	2	2	2.1
29	Improving communications with external and internal agencies.	3	2	1	2	1	1	1	1	1	1	1.4
30	Enhancing investment on environment.	2	2	1	2	1	1	1	1	1	1	1.3
31	Conserving flora and fauna.	1	2	1	1	1	1	1	1	1	1	1.1
MEAN PERFORMANCE(MP)												1.1
E1=DSP,E2=ASP, E3=Zindal India (Expansion Project -II), E4= SHYAM STEEL, E5=Sodepur Engineering Ltd. E6=Rashmi Metals Pvt. Ltd., E7=Ma Amba Sponge Iron Pvt. Ltd., E8=Sova Ispat Ltd.,E9=Shyam Metalics Pvt. Ltd. E10=Sri Ramrupai Balaji Steels Ltd.												

SL No	Environmental Management Practices	GAP (MP-MI)
1	Conserving resources (raw materials, energy, water, etc.).	-0.7835498
2	Implementing pollution prevention/ clean technologies and promoting environmental innovation	-0.7835498
3	Robust system for ensuring legal compliance.	0.047619
4	Assessing environmental impacts.	-0.1428571
5	Reducing emissions, discharges, and noise attenuation.	0.047619

6	Identifying EPIs and its benchmarking with best practices.	0
7	Improving measurement, data collection, communication, documentation, and IT enabled services	0.4047619
8	Implementing Environmental Management System (EMS) and Improving	0.1428571
9	Environmental Audits.	0.1428571
10	Developing new products using Eco-design and Design for Environment.	0.1428571
11	Promoting green procurement and green marketing.	0.047619
12	Conducting environmental cost accounting.	0.005
13	Developing environmental knowledge and skill development through training.	0.047619
14	Promoting research and development.	-0.047619
15	Improving complaint handling system.	0
16	Reducing spillages, leakages and wastages, and improving housekeeping.	0
17	Conducting effective operation and maintenance of pollution control systems.	0
18	Enhancing solid waste utilisation and improving recycling.	0.1904762
19	Conducting environmental risk assessment and environmental emergency plans.	0.047619
20	Reducing environmental impacts during transportation, packaging, and dispatch.	0
21	Improving hazardous and toxic release management.	0
22	Developing green belt.	-0.2857143
23	Formulating clear objectives and long-term environmental plans.	0.047619
24	Earmarking well-defined environmental responsibilities.	-0.047619
25	Deploying full-time employees for environmental management.	0.1428571
26	Conducting periodic elaboration of environmental reports.	0.0952381
27	Incorporating environmental criteria in supplier selection.	0
28	Considering design for disassembly, reusability and recyclability.	0.047619
29	Improving communications with external and internal agencies.	0.047619
30	Enhancing investment on environment.	-0.1428571
31	Conserving flora and fauna.	-0.1904762
		0.0180655
E1=DSP,E2=ASP, E3=Zindal India (Expansion Project -II), E4= SHYAM STEEL, E5=Sodepur Engineering Ltd. E6=Rashmi Metals Pvt. Ltd., E7=Ma Amba Sponge Iron Pvt. Ltd., E8=Sova Ispat Ltd.,E9=Shyam Metalics Pvt. Ltd.		

E10–Sri Ramrupai Balaji Steels Ltd.

