

An Effective Implementation of Environmental Audit

(A Case Study of Hindustan Copper Ltd.)

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Abstract:

Environmental Audit on the other hand refers to verification and assessment of environmental measures in an organisation. As financial audit for financial accounts, environment audit is needed for environmental accounts checkout. Today, more and more companies that have been hit with a safety fine, or simply want to be proactive and reduce their risk, are implementing environmental audits as part of their regular routine. The present study was based on primary as well as secondary data. Primary data is collected through head offices or interviewing of executive officers of concern departments. On-line library system has also been used to access the secondary information from books, journals and previous research reports. The present study shows that the research aimed at presenting various theoretical and legal considerations relating to environmental audit practices in large Indian companies. This study presents important findings of the study and makes some suggestions and recommendations based on them. It is hoped that these observations and suggestions would be of immense use to investors, creditors, employees, government and other stakeholders.

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INTRODUCTION

Business organisations should contribute towards the development and protection of natural and environmental resources. Activities directed towards alleviating or preventing environmental deterioration (pollution) i.e. air, water, noise pollution, conservation of scarce resources and the disposal of solid waste are included in the social performance of companies.

ENVIRONMENTAL ACCOUNTING

While environmental accounting can be 'corporate-focused', it should also be appreciated that environmental accounting can also be undertaken at a national or regional level. The practice of including the indirect costs and benefits of a product or activity, for example, its environmental effects on health and the economy, along with its direct costs when making business decisions.

CONCEPT OF ENVIRONMENT AUDIT

We are familiar with the term 'audit' in the sense of examination of financial accounts and records. Environmental Audit on the other hand refers to verification and assessment of environmental measures in an organisation. As financial audit for financial accounts, environment audit is needed for environmental accounts checkout.

NEED OF ENVIRONMENT AUDIT

Why do companies conduct environmental audits? Simply stated because it's the best way to specifically identify which environmental regulations apply to your facility, make sure the company is in compliance with all of the requirements and avoid costly and unnecessary fines. Today, more and more companies that have been hit

with a hefty fine, or simply want to be proactive and reduce their risk, are implementing environmental audits as part of their regular routine.

Hindustan Copper Ltd.

Hindustan Copper Ltd. is a Government-owned corporation in the Central Public Sector Enterprise under the Ministry of Mines, Government of India. HCL is the only vertically integrated copper producer in India engaged in a wide spectrum of activities ranging from mining, beneficiation, smelting, refining and continuous cast rod manufacturer.

Hindustan Copper Ltd. (HCL), a public sector undertaking under the Union Mines Ministry, has been conferred the status of Mini-Ratna (Category-I) on August 8, 2008. The board of directors will now have operational freedom to implement various strategic objectives to pursue growth.

The Company markets copper cathodes, copper wire bar, continuous cast copper rod and by-products, such as anode slime (containing gold, silver, etc.), copper sulphate and sulphuric acid. In normal practice, more than 90% of the sales revenue is generated from cathode and continuous cast copper rods. In concluded financial year 2016-17, as per provisional estimates, the Company has earned a net profit of Rs 61.94 crore against a sales turnover of Rs 1216.94 crore.

Hindustan Copper Ltd. is fully committed to the concept of operating in an environment friendly atmosphere. In addition to the environmental protection measures that were in-built with the original project, additional steps have been taken to conform to all the regulatory standards prescribed by the Pollution Control authorities.

Environmental auditing has become a valuable tool in the management and monitoring of environmental and sustainable development programmes. The information generated from audit exercises provides important information to many different stakeholders.

Environmental auditing is a management tool which simply inspects the environmental management activities performed by the industries or organizations and makes them aware of new cleaner technology. For the impact of industries and their product on natural resources and environmental quality, it is necessary to have "Environmental Audit" to ensure sustainable industrial development.

Governments, all over the world, have formulated laws and regulations to correct and cure the past violations of good environmental practices. The term auditing is known to us in financial accounts and records are examined. Environmental audit is for the impact of the industries and their products on natural resources and environmental quality.

REVIEW OF LITERATURE

Before starting the present research work, an extensive review of literature from different sources, concerning with the topic of this study has been carried out which is given hereunder.

According to Kevin Oldham, Jack Stanton, Matt Bilderbeck and Jessica Spinetto (2017) adopting the principle that it is better to self-regulate than to be regulated. Voluntary accreditation schemes have been introduced by a range of high-hazard industries to lift safety and environmental performance. Both industries and regulators need to know if such programmes are effective.

This research paper presents a comparative case study of safety and environmental performance for a voluntary industry-led accreditation programme (Aircare) in the New Zealand agricultural aviation sector.

The study by Wen-Kuei Wu, Hui-Chiao Chen and Yi-Xiu Huang (2015), aimed to develop and test a model of antecedents and consequences for marketing audits (MAs). The research used a mail survey and a partial least square (PLS) method to test the hypotheses. Drawing on a sample of Taiwanese firms, the results show that (a) a greater

environmental munificence indicates that less MAs are implemented, (b) a proactive business strategy contributes significantly to the implementation of MAs, (c) MAs can contribute significantly to marketing performance, and (d) MAs mediate the relationship between environmental factors and marketing performance.

Rob Gray and Sue Gray (2011) in their work mentioned that there continues to be many attempts to articulate what is meant by Human Rights but Griseri and Sepella's (2010, p.176) adaptation of Leighton et al. (2002) as "entitlements that one holds by virtue of being a human being" takes us to the heart of the matter.

According to Günther Ortmann (2010), rules and standards are considered to be of vital importance for the functioning not only of organizations but of societies as well. The difficulties and paradoxes associated with the concept of rules and rule-following are analyzed much more frequently in the context of philosophy than of social science. In this study, author has drawn on the writings of Wittgenstein and Derrida to examine four particular characteristics of rules and standards:

Perez-Sanchez *et al.* (2003) identify customers as the main drivers behind the implementation of environmental management tools, followed by legislation.

Nutek (2002) identifies the most important driving forces behind environmental work in small enterprises. They are in order of importance, (1) management commitment, (2) consumer demands, (3) reduced resource consumption, (4) competition, (5) coercive legislation, (6) demands on subcontractors and (7) future legislation.

The above literature shows that a limited research work has been done in the area of environmental auditing and there is no research work has been done to find out the outcomes of the guidelines. Keeping this fact in view the present topic has been selected for the research.

OBJECTIVES OF THE STUDY

1. To find out the emerging opportunities for environmental audit in India.
2. To assess the driving forces for implementation of environmental audits in large scale industries.
3. To determine the strengths and weaknesses of environmental auditing practices carried out by large-scale industries.
4. To assess the barriers to successful implementation of environmental audits in their operations.
5. To determine the role of internal auditor in environmental audit.
6. To make recommendations for effective implementation of environmental auditing in large scale industries.

HYPOTHESES

The present study is based on the following hypotheses:

- H01 *The Company under study are not following the environmental audit practices systematically.*
- H02 *There is no sufficient scope of applying environmental audit practices in the company under study.*
- H03 *There is no significant difference in the environmental audit practices adopted by the company under study.*

SCOPE OF THE STUDY

Large scale manufacturing companies comprise the population of interest in this research. The manufacturing sector shall be of interest because of its impact upon the environment. The sampling frame shall be the Joint Stock Company The rationale for selecting the sample from the

companies included in the list that they should have at least begun to address the issue of environmental protection. The companies would be expected to have an environmental management system which, at a minimum, addressed regulatory compliance. Private companies shall be excluded from this research because of the lack of availability of financial information. The greatest polluters shall be chosen. It would be also expected that companies reporting the greatest quantities of releases and transfers of toxics were more likely to have implemented some form of environmental management to address environmental issues than were companies reporting low releases and transfers. One reason for this theory would be the belief that the greater polluters would be more concerned with assuaging the environmental concerns of their stakeholder groups.

RESEARCH METHODOLOGY

Data Collection: The present study is based on primary as well as secondary data.

Primary data is collected through head offices or interviewing of executive officers of concern departments of Hindustan Copper Ltd. Data relating to environmental audits have been collected from books, journals and documents in the libraries. On-line library system has also been used to access the secondary information from books, journals and previous research reports. Sources of data have been indicated in the text and the tables. A detailed bibliography is also given at the end of this thesis.

Data Analysis: After the collection of data, they have been redrafted in proper formats and analysis has been made accordingly. Due to the exploratory nature of this research, the primary methods have been descriptive techniques. Hypotheses have been tested by applying appropriate test of significance.

Period of Study: The study mainly covers the current and relevant period i.e., from 2013-14 to 2018-19 for which the data became available from different sources within reach.

LIMITATIONS

The research has been mainly limited to publicly-held companies, operating in manufacturing industry categories, which reported their environmental attributes. All other entities and industries have been excluded from the research.

An external analyst has to function under various constraints and limitations. Since the researcher has to depend heavily upon published reports and secondary data, one of the limitations lies in the quality of the accounting data. Further, the techniques and tools of investigations have also inherent limitations, e.g. financial data are the mixture of convenience and convention. Another limitation to be faced is the non-availability of desired information regarding the working style of key persons and their efficiency. They posed to be extremely busy. They preferred to brush the interviewer aside. They were miser and niggardly in discussing relevant matters. Lastly, the study is a subject to general human limitations.

ENVIRONMENT & POLLUTION CONTROL MEASURES

In Hindustan Copper Ltd, the ambient air quality is regularly monitored at mines, process plants and residential areas at all units as per pollution control board guidelines/standards. Environmental audits have also been carried out at all plants through an independent outside agency. The agency has given recommendations that would assist the Company to further improve the existing environmental management plans. The environment cell of the Company is in the process of implementing those recommendations in phases taking into account the availability of the funds.

The range of air quality around the various mines of the Company given in Annexure-I is well within the standards and limits as prescribed by the pollution control board.

Effluent treatment facilities installed at the units of the Company have been working satisfactorily during the year and meeting regulatory norms as prescribed by the Pollution Control Boards. Discharged process water is being recycled after treatment thus conserving the water.

Solid waste from plants and hospitals are also safely disposed off or stored as per the guidelines prescribed by the pollution control boards.

Company promotes several environment friendly activities by planting trees, improving house keeping, cleanliness, hygiene and safety through several programmes round the year. The Company has planted about 657 acres of the land with different types of flora around the mining areas at different

units thus maintaining the green environment. Various species are : Acacia nilotice (Babul), Delbergia Sisso (Shisham), Amaltas, Pipal and Bargad.

Analysis of Environment Audit in the Company under Study

The ambient air quality is regularly monitored at the company mines, process plants and residential areas at all units as per pollution control board guidelines/standards. Environmental audits have also been carried out at all plants through an independent outside agency. The range of air quality around the various mines of the Company is well within the standards and limits as prescribed by the pollution control board.

Water Sampling Locations

S.No.	Location	Station No.	Type	Distance from nearest lease boundary (km)	Significance
1.	Ajit Sagar Bandh	SW1	Surface Water	8 km E	Only perennial surface water source in the study area.
2.	Mine Discharge Kolihan Mines	E1	Effluent	Within mine lease	Mine discharge water quality to assess its suitability to reuse.
3.	STP Effluent KCC	E2	Effluent	8 km NE	Effluent characteristics at outlet of STP at KCC.
4.	Bore well in Kolihan Mine Lease	GW1	Ground water	Within mine lease	Represents drinking water source at mine site.
5.	Kolihan Nagar	GW2	Ground water	2 km SE	Represents ground water quality in Kolihan township. Down gradient w.r.t. the mine.
6.	Kharkhara Village	GW3	Ground water	3.5 km NW	Represents ground water quality outside the sub watershed in which the mine lease falls.
7.	Khetri Nagar	GW4	Ground water	8 km NE	Represents ground water quality in Khetri nagar.

Now results of surface water analysis of these locations are given in following Tables:

The result of analysis of surface water is given in above table. The result has been compared with the

standards specified in IS: 10500 (1993) as well as Water Quality Criteria specified by Central Pollution Control Board.

Effluent treatment facilities installed at the units of the Company have been working satisfactorily

during the year and meeting regulatory norms as prescribed by the Pollution Control Boards. Discharged process water is being recycled after treatment thus conserving the water.

Solid waste from plants and hospitals are also safely disposed off or stored as per the guidelines prescribed by the pollution control boards.

The ambient air quality results of the company, when compared with National Ambient Air Quality Standards (NAAQS) of Central Pollution Control Board (CPCB), indicate that maximum readings of RSPM (PM10) are on slightly higher side in a few samples; however, the average values are well below the prescribed standards of NAAQS at most of the locations.

The results show that the surface water meets the criteria specified in IS: 10500. When compared with Water Quality Criteria specified by Central Pollution Control Board, the water source point meet the criteria specified for Class B, C, D and E.

The result of analysis of ground water have been compared with the drinking water quality standards specified in IS:10500 and it was found that all the ground water quality parameters meet the prescribed norms.

From the results, it is obvious that all the ground water quality parameters meet the drinking water standards. In two samples (GW3 & GW4), Chloride, Fluoride and Sulphate exceed the Desirable Limits but are within the Permissible Limits. In one sample (GW4), total hardness is higher than the maximum permissible limit. It may be due to presence of calcium in the host rock. It is more obvious with the fact that concentration of Calcium and Magnesium is also exceeding the corresponding desirable limits. However, Ca and Mg are well within the maximum permissible limits. Both the samples (GW3 & GW4) are from outside the sub watershed in which the mine lease falls.

The results of effluent analysis have been compared with the General Standards for discharge of environmental pollutants to Inland Surface water as

prescribed by MoEF vide notification dated 19th May, 1993 and amendment in December, 1993 and it was observed that the effluent discharge meets the prescribed norms.

In order to have an idea about the existing noise levels in the mining area, noise monitoring has been carried out at six locations. In addition, work zone noise was monitored at four locations. Ambient noise levels were monitored during post monsoon session. At each ambient noise monitoring station, noise level was recorded at hourly intervals for 24 hours continuously by operating the noise-recording instrument for fifteen minutes during each hour. At work-zone noise monitoring stations, the same procedure was followed but for 8 hours (i.e. one shift).

The summarized result of ambient noise monitoring have been compared with MoEF norms (Noise Regulation & Control - Rules, 2000). Ambient noise levels are within the norms at all stations, except at Khetri more due to attribution of traffic noise from adjacent roads (SH-17 and SH-26). In day time, the impact is more because of the commercial activity in the vicinity.

To assess the quality of soil in and around the mining area, soil samples were collected from five locations during the monitoring season for physico-chemical analysis. In the tested soil samples, availability of Nitrogen and Potassium vary from medium to high while Phosphorus is high in all the samples. Organic carbon content is either low or medium. These results show that in the tested soil samples calcium and magnesium constitute most of the exchangeable cations whereas proportions of exchangeable sodium and potassium are relatively low.

In all the soil samples, micro-nutrient levels, especially that of iron and copper are relatively high while zinc is relatively low. It indicates the soils are very rich with respect to micro nutrient. Excessive micro-nutrients are detrimental to plant growth as excess of one more micro-nutrients adversely affects

the uptake of other micro-nutrients. Excess of copper affects uptake of molybdenum, another micro-nutrient. Excess of Zinc, Manganese and Copper affect Iron uptake. Thus, due to the antagonistic effect of some micro-nutrients, uptake of other nutrients is adversely affected which hampers plant growth i.e., the fertility of soils in the study area is low.

This environmental audit analysis of the companies under study shows that Hindustan Copper Ltd, a public sector company has violated pollution control limits somehow although on an average limit remained in control.

FINDINGS AND CONCLUSIONS

The environment encompasses the interaction of all living species, climate, weather and natural resources that affect human survival and economic activity. Business organisations should contribute towards the development and protection of natural and environmental resources. Activities directed towards alleviating or preventing environmental deterioration (pollution) i.e. air, water, noise pollution, conservation of scarce resources and the disposal of solid waste are included in the social performance of company.

Accounting and reporting for the environment has become an important dimension of corporate external information system in 21st century. The increasing pressure on companies to be responsible to the society has influenced them to operate in an environmentally responsible manner. As various stakeholders demand greater disclosure of environmental impacts and performance, a large number of companies, all over the world, have started reporting on these issues.

Audit is an assurance function, attesting the accountability of information furnished by the businesses to the stakeholders, with established reporting standards, though within the sphere of audit, one can offer the related services of review, agreed upon procedures and compilation services.

In many countries, disclosure of some environmental information (in or outside the financial statements) has also been made mandatory. However, various research findings have shown that, in the absence of any accounting standard or guideline on the issue, this disclosure generally lacks quality and consistency in reporting. A more disciplined approach, therefore, is required for accounting and reporting of environmental information to improve its quality.

This research aimed at presenting various theoretical and legal considerations relating to environmental audit practices in large Indian companies. This study presents important findings of the study and makes some suggestions and recommendations based on them. It is hoped that these observations and suggestions would be of immense use to investors, creditors, employees, government and other stakeholders.

As environmental auditing is necessary for almost all the companies, it is compulsory to make regular audit whose production process is directly or indirectly connected to environment. Information generated by environmental auditing system assists management in better decision-making. It helps in gaining competitive advantage by minimizing adverse environmental impacts through improved designs, products or processes. But on the other hand, many companies in India do not give environmental information because the disclosure may jeopardize confidentiality in the sensitive areas and thereby, may adversely affect their competitive position.

Today, more and more companies that have been hit with a hefty fine, or simply want to be proactive and reduce their risk, are implementing environmental audits as part of their regular routine. Think of it as preventative maintenance, like checking vehicle's oil, or going to the doctor for a checkup. The idea is to discover and fix any problems before they become more serious and costly. If a company has quality or environmental systems in place, it is already aware of the importance and value of auditing.

Environmental audit is to respond to the expectations of the citizens by providing independent, credible and objective verification of the information provided by government organisation and private organisation with respect to their activities and their impact on the environment.

Environmental audits must be independent, objective, credible and transparent in order to be successful. Audits should also be regular and ongoing, and conducted against a benchmark or initial assessment, generally detailed in environmental plan.

Government tries to ensure that the company's operations are environmentally sensitive and the objectives of the company are not contradictory to its own policies on sustainable development.

India is the first country in the world to make environmental audits compulsory. The government of India, by its Gazette notification [No. GSR 329 (E)] of March 13, 1992, made it mandatory for all industries to provide annual environmental audit reports of their operations, beginning with 1992-93. This required industries to provide details of water, raw materials and energy resources used, and the products and wastes generated by them. These audit reports were to be submitted to the concerned State Pollution Control Boards on or before September 30 every year.

The industries were now to fill a form and submit it to the concerned Pollution Control Boards (PCBs). It made it easy for industries to make statements to the effect that they have taken the requisite steps in compliance with existing pollution control regulations. These statements might not be based on actual audit reports.

An environment audit programme, if designed and implemented conscientiously, can enhance an industry's environmental performance. If an industry sets up its own system in compliance with existing laws, then conducting audits would be a normal and considerably easier procedure. It will expose problems that require action. It improves the

material and energy efficiency of production processes, conserves resources, minimises wastes, provides direct economic benefits to the industry and stimulates growth of the industry as well as the national economy.

HYPOTHESES TESTING

The present study is based on the following null hypotheses:

H01 *The Company under study are not following the environmental audit practices systematically.*

In this study, environmental audit practices of the company have been analyzed for last five years and it was found that the company is systematically conducting the environmental audit at their different plant and working sites on regular basis and reports and statements for same are available on company's websites or links. Hence, this study rejects the hypothesis.

H02 *There is no sufficient scope of applying environmental audit practices in the company under study.*

As the company under study having many plants and production units with large workforce, which are directly connected to environment and it is necessary to check pollution level at their plant and nearby locations. Company having large mining of copper and big plants. For all these, environmental audit practices are necessary to timely know about pollution status of their locations and hence, it can be said that there is sufficient scope of applying environmental audit practices in the company under study i.e., the hypothesis is rejected.

H03 *There is no significant difference in the environmental audit practices adopted by the company under study.*

The present study partially supports this hypothesis as there is no significant difference in the environmental audit practices adopted by Hindustan Copper Ltd, adopted quite different pattern of environmental audit as visualized in the study.

SUGGESTIONS

- It is suggested that environmental audit results should be used by the company managements for identification of areas for improvement to maintain pollution of each kind within permissible limits.
- It is suggested that regulatory governmental authorities should encourage companies to spend more on environment by giving tax benefits, exemptions and preferential treatment to eco-efficient concerns in relation to matters like registration, listing or clearances.
- Companies and professional accountants should be made aware of the benefits of being eco-conscious, e.g., significant social and financial benefits in using eco-efficient processes and technologies.
- Environmental accounting and auditing should be included in the curriculum for production management, environmental engineering, industrial management and specialized professional courses.
- It is suggested that R&D cell of the companies under study would be strengthened with some input of environment management.
- It is suggested that awareness programs should be increased and more incentives are awarded for the people living in company premises and nearby.
- More slogans, charts and phrases would be used at critical points in the company compound, plant units and nearby areas.
- Process, product and marketing meetings should discuss the environmental issues.

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