Environmental Accounting and Reporting - An Analysis of Indian Corporate Sector

By Dr. V K Gupta*

The present paper is based on an exploratory study to have an understanding of the nature and extent of environmental reporting and accounting practices followed by Indian Corporate and to determine the factors or attributes that drives the companies to adopt these practices. An attempt has been made to analyze the published annual reports of the selected companies in India to examine their disclosure practices regarding the environmental issues. It also examines the type, length and location of the disclosure in these reports. An ‘Index of environment disclosure’ listing 23 items of information has been used to find out the actual disclosure practices in these companies. The paper also describes the theoretical considerations relating to environmental accounting. The study founds that very few companies in India are voluntarily disclosing the environmental issues in their Annual reports. The attributes such as high polluting industries, size of the company, High Debt to equity ratios and environment performance have positive impact on the environment disclosure. The reason behind the poor disclosure in environmental issues in India was found to be a lack of environmental legislations compelling the companies in disclosing the same in companies’ annual reports.

Key Words: Environment Accounting, Reporting, Environmental Legislations, India

1. Introduction

The modern accounting is not only concerned with record keeping and reporting of information to the investors but it aims at fulfilling the information needs of a wide range of internal and external stakeholders. It is now considered as a service activity. “Its function is to provide quantitative information primarily financial nature about economic activities that is intended to be useful in making economic decision”¹Since late eighties, due to growing public concern about the alarming impact of industrial activities on nature companies are under pressure from both Government and society to reduce adverse impacts of their activities on the environment

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The performance of an Organization is now being judged not only on the basis of its financial results, but also with regards to its contribution to protect and improve the environment. Environmental issues have become an important variable in the models used by the investors and creditors to determine the risk associated with their investment. In the evolving scenario, the need for accounting and reporting on the environment has been largely felt. As a result accounting of environmental issues and their disclosure in the environmental issues and their disclosure in the annual reports or by other medium has became an important part of corporate accounting and reporting systems.

The Main Objective of the Study is to examine The Environmental Accounting and Reporting (EAR) Practices Followed by Corporate Sectors in India. To ascertain the extent of mandatory and voluntary disclosure of environment information in the annual report and to assess the need for a specific regulatory framework (including accounting guidelines, principles and standards) in the area of EAR. An attempt has also been made to analyze the impact of selected company and industry specific variables on these practices.

2. Environmental Accounting and Reporting

2.1 Environmental accounting

Environmental accounting is defined as the identification, compilation, estimation and analysis of environmental cost information for better decision-making within the firm. It can be defined as “The generation, analysis, and use of financial and non-financial information in order to optimize corporate, environmental and economic performance, achieving a sustainable business (Bennett and James 1998 a p.33) the ultimate objective of environmental accounting is to clearly indicate the environmental cost of each process, separating the non-environmental costs from the environment costs. Therefore implementing an environmental accounting system can provide more accurate information for analysis options (Mein-chin 2002) because environmental accounting ensures that management decisions are made with knowledge (BDO 2002).

EA is a field that is emerging and developing (CICA 1997). Its goal is “the identification, measurement and communication of the costs from an entity’s actual or potential impact on the environment (CICA 1997 p.4). To include environmental information in the accounting system of a company is one way to start to include sustainable development in everyday business decisions.

A very important function of environmental accounting is to bring environmental costs to the managers; therefore, motivating them to identify ways to reduce and avoid economic costs related to the environment and at the same time reduces the company’s environmental impact (USEPA 1998 b).
2.2 Need for Environmental Accounting

Despite the importance accorded to environmental information in business financial reporting and decision-making in the literature, in a comprehensive study Epstein (1995) concluded that most companies do not know the scope of their environmental costs. As a result, they do not know what causes those costs. It is generally agreed that, decades ago, the lack of understanding of the eventual environmental impacts of products and services together with the related liabilities caused companies to ignore the consideration of those impacts in their calculation of product costs.

"Traditional accounting is limited when it comes to measuring natural wealth. Accountants measure assets, earnings; one year behind the times...Jet pilots don't use rearview mirrors. If we want to account for the environment, we have to look forward. Accountants need to develop new ways to account for natural resources."

Environmental accounting forms that part of accounting that deals with environmental concerns. Although it is indivisible from financial and managerial accounting, it addresses specifically the environmental costs related to information systems that permit data collection and analysis, performance follow up, decision making and accountability for the management environmental risk and costs (Environment Canada 1997)

2.3 Need of Environmental Accounting at Corporate Level

It helps to know whether corporation has been discharging its responsibilities towards environment or not. Basically, a company has to fulfill following environmental responsibilities.

- Meeting regulatory requirements or exceeding that expectation
- Cleaning up pollution that already exists and properly disposing of the hazardous material.
- Disclosing to the investors both potential & current, the amount and nature of the preventative
- Measures taken by the management
- Operating in a way that those environmental damages do not occur.
- Promoting a company having wide environmental attitude
- Control over operational & material efficiency gains driven by the competitive global market.
- Control over increases in costs for raw materials, waste management and potential liability
2.4 Purposes for which EA are useful

- Assessment of annual environmental costs / expenditure
- Budgeting
- Business Planning process
- Calculating costs and savings of Environmental projects
- Cleaner production and eco-design projects
- Design and implementation of environmental management systems
- Developing of environmental performance measures, evaluation, indicators, and benchmarking
- Ensuring that environmental performance management systems are integrated into the business management systems (including performance appraisal exercises)
- External disclosure of environmental expenditure, investments and liabilities
- External environment or sustainable reporting
- Incorporating environmental considerations into the capital budgeting decision
- Investment appraisal, calculating investment options
- Other reporting of environmental data to statistical agencies and local authorities
- Participation in strategy formulation
- Product costing or pricing
- Setting quantifies performance costing.
- An environmental accounting system contributes to maximizing shareholder value.

More importantly, it contributes to the preservation of the environment and the creation of a better world.

2.5 Scope of Environment Accounting

The scope of Environmental Accounting (EA) is very wide. It includes corporate level, national & international level. The following aspects are included in EA

1. From Internal point of view investment made by the corporate sector for minimization of losses to environment. It includes investment made into the environment saving equipment/ devices. This type of accounting is easy as money measurement is possible.

2. From external point of view all types of loss are indirectly due to business operation/activities. It mainly includes:

b. Depletion of nonrenewable natural resources i.e. loss emerged due to over exploitation of nonrenewable natural resources like minerals, water, gas, etc.

c. Deforestation and Land uses.

This type of accounting is not easy, as losses to environment cannot be measured exactly in monetary value. Further, it is very hard to decide that how much loss was occurred to the environment due to a particular industry. For this purpose approx idea can be given or other measurement of loss like quantity of non-renewable natural sources used.

2.6 The framework of Environmental accounting

Because no standard have yet been developed in environmental accounting. Different authors propose different frameworks (Rees 1995) although some guidelines have started to be proposed for example in Japan (Ministry of Environment 2002). In any case the motivation to develop an environmental accounting system is the same in all cases, to provide the foundation to improve the environmental and financial performance for a certain organization (Deegan 2003). There is some basic structure that is agreed on by most authors, which divides environmental accounting into three categories (Bartolomeo, M. 1998) Burritt et al 2002, karvonen 2000, Lanen 1994, Jasech 2001, and Schaltegger et al 1996)

1. External environmental accounting

2. Environmental Management Accounting (EMA)

3. Other Environmental accounting

2.6.1 External environment accounting: mainly implies generation of financial reports for external audiences using GAAP

2.6.2 Environmental Management Accounting (EMA): helps to determine the true environmental costs in a company, helping management to make capital investment decisions, costing determinations, process / product design decisions, performance evaluations and other business decisions.


One key element of EA is the recording of information, not only in monetary units ( MU) but also in physical units (PU) ( UN CSD 2001: and Deegan 2003). This
concept is not new to traditional accounting in order to improve materials, efficiency managers have always faced the challenge of recording PU using a traditional accounting system (Horngren and Foster 1987)

2.7 Limitations of Environmental Accounting

EA suffers from various serious limitations as follows:

1. There is no standard accounting method.
2. Comparison between two firms or countries is not possible if method of accounting is different which is quite obvious.
3. Input for EA is not easily available because costs and benefits relevant to the environment are not easily measurable.
4. Many business and the Government organizations even large and well managed ones don’t adequately track the use of energy and material or the cost of inefficient materials use, waste management and related issue. Many organizations, therefore, significantly underestimate the cost of poor environment performance to their organization.
5. It mainly considers the cost internal to the company and excludes cost to society.
6. EA is a long-term process. Therefore, to draw a conclusion with help of it is not easy.
7. EA cannot work independently. It should be integrated with the financial accounting, which is not easy.
8. EA must be analyzed along with other aspects of accounting. Because costs and benefits related to the environment itself depend upon the results of the financial accounting, management accounting, cost accounting, tax accounting, national accounting, etc.
9. The user of information contained in the EA needs adequate knowledge of the process of EA as well as rules and regulations prevailing in that country either directly or indirectly related to environmental aspects.

2.8 Environment Management Accounting

Environment Management Accounting (EMA) is the identification, collection, estimation, analysis, internal reporting, and use of materials and energy flow information, environmental cost information, and other cost information for both conventional and environmental decision-making within an organization. For companies that have the goals of saving money, especially environmental costs, and reducing environmental impacts, EMA provides essential information for meeting those goals
Accounting for the costs of past, present, and future environmental activities is becoming increasingly important. The overall known environmental liability is currently estimated to be 2%-5% of GNP. There are 4 basic types of environmental liability: soil contamination, groundwater contamination, surface water contamination, and air emissions. Four factors drive the industry's trend toward accrual accounting of cleanup liabilities: regulatory requirements, legal requirements, acquisition and divestiture proceedings, and good business practice. Several pronouncements apply to accounting for environmental issues.

Environmental considerations have attracted national attention and are becoming a strategic focus at many companies. Accountants and the accounting profession have contributed much to this environmental challenge (KPMG Peat Marwick, 1996).

The critical factor in environmental accounting is the identification of environmental costs. The United States Environmental Protection Agency (EPA) provides a framework for identifying environmental costs and divides these into four categories, namely, conventional company, potentially hidden, contingent and image/relationship costs.

The first two categories - conventional company and potentially hidden costs - are costs that have actually been incurred and are carried in the books of accounts of the company. The third category - contingent costs - are costs that have not yet been incurred and are only potential in nature. However, financial accounting standards mandate the recognition of these contingency costs. The fourth category - image and relationship costs - is costs that have affected the company, but are neither readily quantifiable nor recognized in the books of the company.

The implementation of a complete and detailed environmental accounting system can be complex, highly technical and expensive task. But the scope of environmental accounting can be as complete or limited as the organization decides (Deegan 2003). One of the characteristics of environmental accounting is that it can be implemented in stages. A business can start with a basic environmental accounting.

3. Literature Review

Studies on Environmental reporting in India

Gautam and Bora (Pramanik A.K, pp 320-333) studied 25 organizations from Assam and found that 13 of them did not have any concern for environmental information disclosure. 9 Companies disclosed descriptive type information, covering space from one fourth of a page to one page only. 2 Organizations
presented this information pictorially along with description. Only one company gave some financial information on environment in social accounts attached to the annual report. It was concluded that environmental information disclosure by majority of the companies in Assam was confined only to the making of generalized statements with reference to protection of environment, pollution control, conservation of energy, and raw material. The felt that quality of disclosure was so poor that users could not use it in decision-making.

Kumar P (Environmental Accounting; An Indian Panorama) examined the Indian Scenario towards environmental disclosures by taking a random sample of 6 giants of Indian corporate sector. As regards the accounting and reporting aspects of environmental protection, sample companies made policy statements in their annual reports. Such information was given in the Chairman’s report or Director Report in the form of statements. Particulars on Conservation of energy were given by all the selected companies; but no information was given on the expenses incurred, targets set and achieved in respect of natural resources. The study concluded that the environmental reporting in India was limited to little more than a sentence or two each in the annual report.

Eresi (Inf Disclosure in Annual reports, Charted Accountant 1996) in his study of annual reports of 68 companies for the years 1991-92 and 1992-93 tried to find the number of companies which disclosed information on environmental matters. The survey showed the disclosure of information on energy conservation by all the companies, as it was a statutory requirement. Among others the pollution control occupied the first place followed by protection of environment and raw material conservation. However the annual reports gave only positive information. It was found that companies generally adopted qualitative (descriptive) form of disclosure except some companies (20 percent), which used pictorial presentation.

Shah (et al. Pramanik A.K, pp140-144) analyzed reporting on environmental protection activities by public limited companies in India. The study was based on 50 annual reports published by various large and medium size companies in different industries, mainly those with affected environment. The companies disclosing on environmental aspects mainly focused on pollution control measures, conservation of energy, effluent treatment, safety arrangements, achievements and awards and activities like forestation and community health services. Hardly any company report on failure regarding environmental protection or damage caused by the company to the environment and society. Thus most of the companies avoided negative reporting. The study concluded that companies had taken reporting on environmental more a statutory obligation and less as a social responsibility. The provisions of law on reporting of
environmental information are not enough to procure true and fair information about the effect of companies operations on environment.

**Pradhan and Bal (Ibid pp313-320)** collected primary data of a sample of 80 executives during 1997-98, with the help of a structured questionnaire containing 36 questions. The purpose of the study was to examine the perceptions of corporate managers on corporate environmental reporting. Majority of them agreed that a company should disclose information on its environmental policy, environmental audit report, quantifiable future goals and targets on environmental issues, disposal of toxic or hazardous substances and on environmental spending.

**Roy (Environment Management and Audit 2000)** conducted a study to examine the Indian practices in respect of environmental disclosure in Corporate annual reports. He took a sample of 55 companies including both private and public sector companies by considering the annual reports for 3 years 1987, 1991, and 1996. He observed that the common practice followed by Indian companies in both the sectors over the years regarding environmental disclosure was to offer descriptive information and itemize the same in Director’s report. A few companies disclosed information through notes, schedules and a separate social account. He found that the proportion of companies giving this information in the public sector was more than in the private sector.

**Vasal administered (Indian Journal of accounting 1998)** a study on 144 companies in 1998 and found that 50 percent and 22.2 percent of the companies in the public and private sector respectively disclosed information on their environmental impact through their annual reports. Moreover the practice of preparing stand-alone environmental reports was yet to rake roots in India.

A review of studies on environmental accounting reveals that there are only a few reported works on the issue. However, in India, no study seems to have been published on environmental accounting. Some of the existing surveys in different countries (e.g., Surma and Vondra, 1990; Wilmhurst and Frost, 1996; Stanko et al., 1990) examined the existence of environmental accounting systems and policies in the corporate sectors. Most of the existing attempts on the issue were quite general in nature and did not focus on the specific issues involved in accounting for environmental information (like expensing and capitalization of environmental costs, depreciation of environmental assets and recognition and measurement of environmental liabilities). Majority of them did not evaluate the need for a separate conceptual framework or the standards on the issue. The factors determining the disclosure are also not mentioned in the above papers. The
role of accounting in improving environmental performance of an organization is also required to be understood.

The present exploratory paper attempts to overcome most of the limitations of the existing works and would make a significant contribution to the existing Knowledge in the area and help in bridging the gap in the existing available literature.

4. Data Analysis

The present study is exploratory in nature. It is based on secondary data. Annual Reports of Top 50 companies as listed in National Stock Exchange of India (NSE) were studied for 3 consecutive years i.e. 2007-08, 2008-09, 2009-10 have been examined to analyze their environmental disclosure practices. The secondary information for analyzing the data has been obtained from various databases like PROWESS, Capital line, India Info line and the web sites of the respective companies. An ‘Index of environment disclosure’ listing 23 items of information has been used to find out the actual disclosure practices in these companies (UN-ICAI Seminar report, ICAEW, U.K1992).

Such as books on accounting, social responsibility reporting, environmental accounting and reporting: views and recommendations of various professional accounting Bodies and committees on social and environmental Reporting: and articles published in this area, have been consulted in determining the items for inclusion in the index. A small survey of the annual reports has also been made for this purpose as they are considered to be the most widely used and popular mode of disclosing any relevant information (Gray et al, 2001). These items have been classified Under 7 major groups. The rationale for grouping this lies in the fact that a decision maker/user of environmental information cannot evaluate the environmental performance of a company from individual items. After developing the index, various worksheets have been prepared for every company for all the three years, detailing the environmental information reported by it. An attempt has been made to examine the places of this disclosure in the annual report, its type and length. Thus mainly the quality of environmental disclosure have been checked in this study.
# Index of Environmental Disclosure

## Items of information

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<td>• Environmental budget</td>
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<td>• Environmental Auditing</td>
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<td>• Legal compliance</td>
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<td>• Awards obtained for environmental protection</td>
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| 2. Prevention or repair of environmental damage                |
| (e.g. reusing disposable material: waste management)          |

| 3. Aesthetic improvement                                      |
| (e.g. Tree plantation)                                        |

| 4. Pollution control measures                                  |
| • Statutorily required                                         |
| • Voluntary                                                   |

| 5. Conservation of natural resources                           |
| • Statutorily required                                         |
| • Voluntary                                                   |

| 6. Environmental accounting                                   |
| • Environmental costs                                          |
| • Environmental liabilities and assets                         |
| • Significant accounting and reporting practices               |
| • Extraordinary items                                          |

| 7. Project planning management                                  |
| • Environmental management                                    |
| • Environmental risk management                                |
| • Accident and emergency response                             |

| 8. Social costs                                                |
| • Impact of organizational activities on environment           |
| • Significant environmental risks not required to be disclosed legally |

| 9. Any Other                                                  |
4.1 Analysis of Reports

4.1.1 Extent of Disclosure

The analysis shows that about one-fifth of the companies have disclosed the item “broad environmental objectives” in the year 2007-08 and the number of companies disclosing the same has increased during 2010. Generally these objectives are given in 2-3 lines either on the front page of the annual report or in the company’s mission or vision statement. A few companies publish their environmental objectives separately in the annual report. Item ‘specific targets’ has been disclosed by less than 6 percent companies. More than one half of the companies have disclosed their environmental policies in the 2008-09. A large majorities of these companies disclose these policies only to show their commitment towards environmental goals. But most of the times this information is given in a few lines only in the Directors report. The companies are mentioning ‘environmental management system (EMS) which has been increased in 2009 as compared to 2007. An important reason for this increase could be a significant growth in the number of companies obtaining ISO 14001 certificates these days. Most of the companies have only given figures of significant amount spent for environmental purposes in a particular year in Directors report. Only a few concerns have separately recognized this amount in the Profit and Loss account as green belt development or horticulture expenses. Many few companies has reported “any significant accounting or reporting policies” or ‘extraordinary items’ in the annual report. This shows that in India, quantitative/financial reporting on Environmental issues is still at the infancy stage. It has been seen from the annual reports that most polluting companies disclose more environmental information than the entities in the less polluting industries. Mostly the Companies from ‘Aditya Birla’ house and those belonging to ‘Ambanis’ disclose detailed information on these issues.

In general concerns belonging to large industrial houses discloses more on the issues as compared to the ‘non group companies’ Same is the case with Big companies as compared to small ones as the last companies have the capability to spend more for social causes. They can also easily bear costs involved in preparation and dissemination of this information.

In a nutshell some of the companies voluntarily disclose information on environmental policies, objectives, legal compliance and measures taken for pollution control. However, only a negligible number discloses environmental accounting information on project planning, and management and social costs.
4.2.2 Type of Information Disclosed

The common practice followed by the companies regarding environment disclosure is to offer descriptive information in the annual reports. This trend is increasing over time. But the companies that disclose financial information on environmental issues do not include do not provide any item-time wise break up of expenditure or its accounting treatment in these reports. However some companies have given elaborate information through charts and tables on pollution levels or emission of pollutants. Thus, majority of companies disclose only qualitative/descriptive information on the environment in the annual report. Though a few companies have started reporting quantitative/financial figures on the issue, the information provided is generally brief and lacks specific details. Moreover there is no consistency in this kind of reporting.

4.2.3 Place of environmental Disclosure

The environmental information can be disclosed at various places in the annual report like the main body of financial statements, Directors report and separate section in this report. From our analysis we found that most of the companies make environment disclosures in the Directors report only. However some companies report this information in separate environmental sections in the annual report. The purpose is to provide detailed information on the issue as well as to highlight the organization’s commitment towards special goals. No Company (except two) has disclosed environmental information in the main financial statements or its footnotes or in separate annexure to it. Some companies use other locations also for environment disclosure like first page of the annual report, Chairman’s message and booklets attached with the annual reports. Thus majority of the companies disclose voluntary information on environment in the Director’s report, in addition to the statutorily required information in its annexure.

4.2.4 Length of Voluntary Environment Disclosure

Percentage of companies reporting voluntarily on the issue has increased over the period. As observed the companies, particularly those operating in the most polluting industries, might have been pressurized by the interested stakeholders (including investors, creditors, and government) to disclose information on environment. About 40 percent of the companies have made disclosure of less than a half page in their annual reports. The length of disclosure for most companies range from 2-3 lines to a half page. However some large companies gives this information in detail in the separate environmental sections.
5. Findings

From the above analysis the findings can be summarized in the following points:

5.1 Most polluting industries disclose significantly more information on Environment related issues than less polluting industries.

5.2 Extent of environmental reporting in various industries is different

5.3 Companies having foreign association disclose more information on environmental issues than domestic companies.

5.4 Environmental information disclosure is positively related to the size of the Companies.

5.5 Environmental information disclosure by group and non-group companies are different.

5.6 An increase in the profitability influences the reporting on environment positively

5.7 High debt to equity ratios leads to increased reporting on environmental issues.

5.8 The environmental performance of the company also influence positively the extent of reporting.

6. Recommendation

The findings suggest that the main reason for non-disclosure of the environmental information by the Indian companies is its voluntary nature. It is strongly recommended that environmental reporting should be made mandatory in India. Companies in India should be asked to submit the detailed environmental information to the government regarding emission of specific toxic chemicals, pollutants, effluents, damage to the environment and the community health. A clause in the listing agreement may be inserted by SEBI for environmental compliance laws. Companies should calculate and report some specific ratios indicating their environmental performance. These ratios, being relative measure may be used for comparing the performance of the companies on environmental related issues. It is recommended that professional accounting
bodies at national levels should develop a separate conceptual framework on EAR specifying the objectives, general assumptions, qualitative characteristics and guidelines for the companies.

7. Conclusion

The findings of the study reveals that companies are well aware of the facts that environmental issues will affect the business and industry in the near future. They are fully convinced of the need for environmental information. Despite this awareness, there is an absence of external environmental accounting. The companies in India do not have a proper environmental accounting system to determine the environment related costs, benefits, assets and liabilities. Indian companies fail to provide adequate disclosure on the environment. Without any strict accounting pronouncements from the ICAI and disclosure norms by the regulatory authorities, the companies generally provide only statutorily required, qualitative, and positive information on environment. It can be concluded that there is a low level of EAR activity in India. The accounting profession and the companies has yet to respond to these issues and learnt a lot in dealing with the environmental matters in the books of accounts.

8. Limitations of the Study

The study suffers from the following limitations-

Small companies have been excluded from the scope of the work. Some aspects of environmental accounting like social costs and benefits, and their valuation have not been investigated because of the non-availability of the information on the issue. The present work has analyzed environmental information disclosure in the annual report only. Disclosure of environmental report (CER) and internet has not been considered.

9. Scope for Future research

Given the tremendous importance of the environmental issues for social welfare, future research is desired to gain more insights in to the issues raised in the study. Future research in this can be extended to empirical analysis of the figures. A comparative analysis of the environmental reporting systems of the private and public limited companies can help the diversified stakeholders in making the informed decisions. Last but not the least, a study developing ways to recognize and measure social costs and benefits can be another pioneering research area.
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## Appendix

### Name Of NSE 50 Companies

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<th>Company Name</th>
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<td>Reliance Industries Ltd.</td>
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<td>Oil And Natural Gas Corporation Limited</td>
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<td>Reliance Communications Limited</td>
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<td>State Bank Of India</td>
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<td>Steel Authority Of India</td>
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<td>Hero Honda Motors Limited</td>
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<td>Indian Petrochemicals Corporation Limited</td>
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<td>Cipla Limited</td>
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<td>Bharat Petroleum Corporation Limited</td>
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<td>Videsh Sanchar Nigam Limited</td>
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<td>Power Grid Corporation Of India</td>
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