

# AN ANALYTICAL PARADIGM OF ENVIRONMENTAL SUSTAINABILITY IN CSR OF OIL SECTOR PSUs

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**Abstract** Corporate social responsibility is an indispensable part of any company's operations in which the issue of environmental sustainability is significant, yet less prevalent, while carrying out CSR activities. This paper aims to underline and examine the expenditure on environmental sustainability pertaining to CSR by the selected PSUs in the oil sector. The data for six years, from 2014-15 to 2019-20, have been taken from the sample of five companies having the Maharatna and Navratna status. The framed hypotheses on intra- and inter-company, along with overall comparisons, have been tested using the Kolmogorov-Smirnov Z test and Kruskal-Wallis test, respectively. The null hypothesis in each case has been accepted, which indicates that there has been no significant difference in CSR expenditure towards environmental sustainability compared yearly, mutually, and collectively. The companies have been found to contribute less than they ought towards the concerned area, considering their nature and utilisation of resources. It has been recommended that the area of environmental sustainability be given due diligence, and further suggestions have been given for the protection and preservation of the environment.

**Keywords:** Corporate Social Responsibility, Companies Act, 2013, Environmental Sustainability, Public Sector Undertakings, Oil Industry

## INTRODUCTION

Corporate social responsibility is a common practice among companies, which helps them be socially accountable not only to themselves, but also to their stakeholders, and majorly, to the public. Practicing corporate social responsibility makes companies aware of the impact they have on every facet of society, namely social, environmental, and economic (4). In the words of UNIDO, "Corporate Social Responsibility is a management concept whereby companies integrate social and environmental concerns in their business operations and interactions with their stakeholders. CSR is generally understood as being the way through which a company achieves a balance of economic, environmental and social imperatives ("Triple-Bottom-Line Approach"), while at the same time addressing the expectations of shareholders and stakeholders (20)". Corporate social responsibility (CSR) towards the indigenous surroundings is an idea of leading business operations, as per which the organisations, in strict consistence with the law, and keeping in mind practices

that actually make profits, deliberately think about the effects of their business choices on the environment. Such a methodology adds to working on personal satisfaction and executing the idea of developing sustainably.

In India, according to Section 135 of the Companies Act, 2013, companies that fall within a certain criteria have to allocate 2 per cent of their average net profits of three years towards practicing CSR activities (8). Moreover, this section also keeps getting revised on a regular basis through various Companies Amendment acts every year. While environmental sustainability is generally a piece of corporate social responsibility, CSR does not just emphasise sustainability. For some, organisations treating the environment well is significant, and this worth might be reflected in their CSR programmes. Environmental sustainability has now been transformed into the key issue for corporate financial development, environmental administration, and local area improvement. Disregarding ecological issues can prompt debasement and diminution of natural resources, which could demonstrate inconvenience to both the corpo-

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rate business and the general public (4). Among ten significant parameters of CSR activities, the fourth item alludes to activities explicitly identifying environmental sustainability. The wide regions include guaranteeing environmental sustainability, environmental equilibrium, assurance of vegetation, animal welfare, agro-forestry service, protection of natural resources, and keeping up with the nature of soil, air, and water. This is the most reassuring component among other scheduled activities under the CSR. The action can contribute essentially towards safeguarding the ecology and the environment.

The oil industry, like any other industry, impacts the environment at various levels. The crucial impact comes in the form of unnatural waste disposal in huge volumes in the surroundings. The execution of a waste management plan can be the best way to reduce or get rid of the negative impact of waste disposal. In the course of recent years, the oil business has put more noteworthy accentuation on limiting the environmental effect of its tasks in every one of the fundamental periods of a hydrocarbon repository life, from evaluation to development of field, from manufacturing and recuperation to reservoir decommissioning.

In line with that, this study highlights and examines the CSR initiatives along with expenditure towards environmental sustainability by the oil sector public undertakings in India, which are the companies of significance affecting the environment and the ecology around them.

## REVIEW OF LITERATURE

The pyramid for corporate social responsibility, comprising of the economic, legal, ethical, and philanthropic responsibilities of the business, in order, portrays that the business must be profitable, abide by the law, be ethical, and be the one that takes initiatives to live up to the expectations of the society (Carroll, 1991). Corporate social responsibility is not just merely “giving and receiving”, and extends beyond charity. CSR comprises developing the community sustainably by becoming a part of their growth (Srinivasan, 2007). The concept of corporate social responsibility deals with the activities of the organisations carried out in the interests of society, in which they take charge of their responsibility towards their stakeholders, community, and environment (Prasad, 2009). The listed firms supersede the non-listed firms in terms of accountable business practices and the performance of the companies financially (Mishra & Damodar, 2010). The society, industries, and governments are encouraged to safeguard our planet, due to the awareness related to the emerging environmental sustainability (Rocca & Viberti, 2013). The growth story of India would have been said to be earmarked by the milestone of clause 135 relating to CSR, which is a very significant feature of the Companies

Act, 2013 (Ghuman, 2013). The economic, legal, and ethical obligations have been emphasised more, compared to philanthropy, by the companies (Fadun et al., 2014). Environmental sustainability may not be in a primacy in the context of CSR for the companies. It has been remarked that mandatory provisions were necessary for CSR and that may result in increased contribution towards environment and various other activities (Verma & Kumar, 2014). The social and environmental information has been disclosed in the annual reports by all the companies, and has reflected a raising trend over the years. The companies have been found to be focused more on community related matters, compared to environmental activities (Hossain et al., 2015). Even after making CSR contributions mandatory, many companies have failed to contribute a minimum of 2% of average profits towards CSR. It has been suggested that companies should strive to grab the stage of smart utilisers to satisfy stakeholders and society’s interest concurrently (Sai, 2017). The manufacturing industries have been found to spend more towards environmental sustainability, in comparison with service industries. This may help those industries in enhancing profitability, earn monetary reward, and have an advantage over the competitors (Krishnan, 2018). In the context of environmental sustainability, it has been stated that this area has not been emphasised enough, as much attention has been paid towards health and sanitation, education, and so on. Further, the results of hierarchical clustering reflected a similar tie-up of sports and culture and environmental sustainability into a single cluster. It has been asserted that it is high time that environmental sustainability be given adequate consideration, rather than focusing only on health and sanitation and other areas (Banerjee & Pulikkamath, 2019). However, irrespective of the sector, every company has prioritised environmental disclosures (Kikwiye, 2019). The areas of environmental protection and welfare of the differently abled should be viewed as areas of importance by the banks, and should be addressed on a priority basis while carrying out CSR activities (Kumar, 2019). Indian businesses realised that they have to look not only at the economic dimension of their companies, but also at its ecological and social impact, to move towards sustainable development. Many large corporations are now taking steps to improve their environmental and social performance through the use of volunteer initiatives (Patel, 2020). The corporate social responsibility towards environmental sustainability has a crucial role to play in building a green corporate image and competitive advantage in the market. It has been suggested that corporate sustainability is addressed proactively by the way of forward-looking managerial actions (Alam & Islam, 2021). The regulations and legislations back the CSR programmes of modern times to a great extent, and theoretically, the companies’ performance in terms of corporate social responsibility is largely influenced

by its internal and external elements, which is illustrated in institutional and stakeholder theory, respectively. The alignment of corporate social responsibility with corporate sustainability paves the way for a systematic base, to enhance environmental sustainability (Lartey et al., 2022).

## RESEARCH GAP

On the basis of the literature and research reviewed, it has been observed that several studies have been carried out keeping in mind the CSR initiatives and practices of the companies; however, no study has exclusively focused on the variable of environmental sustainability. Moreover, this study has emphasised the public sector undertakings of the oil industry, which includes the organisations of social importance, where no study has considered the same type of organisations on the aforesaid variable. Furthermore, this study talks about CSR expenditure quantitatively and the foundation of the study has been given a quantitative approach, while the studies reviewed have been given a qualitative approach over the perspective of CSR. Lastly, this study considers the latest data and period for the analysis and evaluation of the CSR expenditure towards environmental sustainability, keeping the Companies Act, 2013, as the base. Thus, to fill the research gap, a study entitled 'Environmental sustainability in the pursuit of CSR – An analytical study of selected oil sector PSUs' has been carried out, and the results have been extracted on the basis of the analysis and findings observed.

## RESEARCH METHODOLOGY

### Objectives of the Study

- To measure and examine the quantum of CSR expenditure towards environmental sustainability by the oil sector public sector undertakings.
- To compare the performance of sampled oil sector companies, in terms of CSR expenditure towards environmental sustainability, individually and among each other.
- To render suggestions for further improvement in CSR towards environmental sustainability by the oil sector public sector undertakings.

### Hypotheses of the Study

#### Intra-Company Comparison

$H_{01}$  – There is no significant difference in the CSR expenditure towards environmental sustainability of individual oil sector companies since 2014-15 to 2019-20.

$H_{11}$  – There is a significant difference in the CSR expenditure towards environmental sustainability of individual oil sector companies since 2014-15 to 2019-20.

#### Inter-Company Hypothesis

$H_{02}$  – There is no significant difference in the CSR expenditure towards environmental sustainability among the sampled oil sector companies.

$H_{12}$  – There is a significant difference in the CSR expenditure towards environmental sustainability among the sampled oil sector companies.

#### Overall Comparison

$H_{03}$  – There is no significant difference in the CSR expenditure towards environmental sustainability of sampled oil sector companies over the years.

$H_{13}$  – There is a significant difference in the CSR expenditure towards environmental sustainability of sampled oil sector companies over the years.

### Sampling and Data Collection

The sample of five oil sector public sector undertakings for the period of six years, from 2014-15 to 2019-20, has been taken for the purpose of the study.

- Bharat Petroleum Corporation Limited
- Engineers India Limited
- Hindustan Petroleum Corporation Limited
- Indian Oil Corporation Limited
- Oil India Limited

The sample has been considered on the grounds of their Maharatna and Navratna status, and all the considered companies have been leading, determining units that pave the way in the oil industry.

For the purpose of the study, secondary data have been taken into consideration, which have been collected through annual reports, CSR reports, and the national CSR portal of the government. Moreover, various books, research papers, articles, and blogs have been referred for supplementary knowledge, and the information is presented and analysed in the study.

### Tools and Techniques

The data have been measured using percentages and mean, and have also been presented through tables. The

inferences drawn on the basis of the data have been detailed descriptively and further analysis has been performed on the data to test the relevant hypotheses. The hypotheses, developed in alignment with the objective of making intra-sector comparison, have been tested using the Kolmogorov Smirnov test, considering the uniformity in CSR expenditure over the years. On the other hand, the hypotheses on inter-sector comparison and overall comparison have been carried out using the Kruskal Wallis test, since there are more than

two independent categorical groups having independent observations measured on the ordinal scale.

## DATA ANALYSIS AND INTERPRETATION

- *CSR Expenditure towards Environmental Sustainability*: The details of the CSR expenditure incurred towards environmental sustainability by the PSUs in the oil sector have been shown in Table 1.

**Table 1: CSR Expenditure towards Environmental Sustainability**

Name of the Company	2014-15		2015-16		2016-17		2017-18		2018-19		2019-20		Average Expenditure	
	Amt (Cr.)	%	Amt (Cr.)	%	Amt (Cr.)	%	Amt (Cr.)	%	Amt (Cr.)	%	Amt (Cr.)	%	Amt.(Cr.)	%
BPCL Ltd.	3.297	9.71	2.766	2.89	2.2	2.42	0.668	0.40	1.41	0.79	33.64	9.73	7.33	4.32
EIL Ltd.	1.34	7.83	0.17	1.21	0	0	2.15	14.55	1.37	13.64	0	0	0.84	6.21
HPCL Ltd.	0	0	0	0	16.58	15.34	25.27	16.11	31.77	19.88	0	0	12.27	8.56
IOCL Ltd.	0	0	40.57	25.89	45.34	21.19	25.27	16.11	86.37	17.6	75.37	18.09	45.49	16.48
OIL Ltd.	5.8	4.35	0.08	0.09	2.03	1.87	0.84	0.84	1.56	1.17	0.87	0.69	1.86	1.50

Source: Calculation on the basis of the data from annual reports of the companies.

## OBSERVATIONS

- As per Table 1, IOCL has performed better than other companies, in terms of contributing towards environmental sustainability in the six-year aggregate, with an average expenditure of ₹45.49 Cr., with an average percentage of 16.48%.
- In BPCL Ltd., the proportion of the total expenditure in the corresponding year has fallen drastically from 2014-15 to 2018-19 by 91.86%, but increased in 2019-20 to 9.73%.
- EIL Ltd. and HPCL Ltd. have a mixed approach towards environmental sustainability in the six-year period, as EIL Ltd. and HPCL Ltd. have not contributed in two and three years, respectively. In the remaining years as well, the quantum of expenditure out of the total expenditure has not exceeded 20% in any year.
- IOCL Ltd. has been good in terms of contribution towards environmental sustainability, with an average

expenditure of ₹45.49 Cr. and an average percentage of 16.48% in the six-year aggregate.

- OIL Ltd. has contributed the lowest, in terms of expenditure towards environmental sustainability, in all the years of the period, with an average contribution of ₹1.86 Cr., with an average proportion of 1.50% in the six-year aggregate.

## Intra-Company Comparison

For intra-company comparison, it is considered that the CSR expenditure in percentage towards environmental sustainability of an individual oil sector company is the same over the years, from 2014-15 to 2019-20. This implies that the expenditure in percentage is uniformly distributed. We can test whether there expenditure in percentage is uniformly distributed or not, by applying one-sample Kolmogorov Smirnov test using IBM SPSS 22.

**Table 2: Result of One Sample Kolmogorov Smirnov Test for Sampled Oil Sector Companies**

Companies	N	Uniform Parameters		Kolmogorov-Smirnov Z	P-Value
		Minimum	Maximum		
BPCL	6	0.40	9.73	0.979	0.293
EIL	6	0.00	14.55	1.021	0.248
HPCL	6	0.00	19.88	1.225	0.100
IOCL	6	0.00	25.89	1.116	0.166
OIL	6	0.09	4.35	1.018	0.251

Source: Calculation on the basis of the data from annual reports of the companies.



From Table 2, it has been found that the p-values for all the companies is greater than 0.05. This implies that at 5% level of significance, null hypothesis is accepted. Therefore, expenditure in percentage is not uniformly distributed for all the companies over the period 2014-15 to 2019-20. Hence, there is no significant difference in the CSR expenditure towards environmental sustainability of all the individual oil sector companies over the years.

### Inter-Company Hypothesis

Using IBM SPSS22, the Kruskal Wallis test is applied to test whether the companies show any difference in the CSR expenditure pattern from 2014-15 to 2019-20. For this analysis, expenditure towards environmental sustainability in percentage from 2014-15 to 2019-20 has been calculated for the sampled oil sector companies.

**Table 3: Mean Ranks of the Companies**

Company	N	Mean Rank
BPCL Ltd.	6	14.67
EIL Ltd.	6	13.50
HPCL Ltd.	6	14.33
IOCL Ltd.	6	23.33
OIL Ltd.	6	11.67
Total	30	-

Source: Calculation on the basis of the data from annual reports of the companies.

Table 3 depicts that the mean rank is the highest for IOCL Ltd., and OIL Ltd. holds the least rank during 2014-15 to 2019-20. This implies that IOCL Ltd. has performed the best in terms of CSR expenditure towards environmental sustainability, in comparison to other oil sector PSUs, while Oil India Limited has shown the poorest performance among all, in contributing towards environmental sustainability.

**Table 4: Results of Kruskal Wallis Test for the Companies**

	Chi-Square	Degree of Freedom	P-Value
Overall	6.408	4	0.171

Source: Calculation on the basis of the data from annual reports of the companies.

Table 4 shows that since the p-value is greater than 0.05, the null hypothesis is accepted at 5% level of significance. Hence, there is no significant difference in the expenditure towards environmental sustainability of sampled oil sector companies from 2014-15 to 2019-20.

### Overall Comparison

Using IBM SPSS22, the Kruskal Wallis test has been applied to test whether the companies show any difference in the year-wise CSR expenditure towards environmental sustainability of sampled oil sector companies, from 2014-15 to 2019-20.

**Table 5: Mean Ranks of the Years**

Year	N	Mean Rank
2014-15	5	12.20
2015-16	5	13.90
2016-17	5	16.90
2017-18	5	18.00
2018-19	5	19.40
2019-20	5	12.60
Total	30	

Source: Calculation on the basis of the data from annual reports of the companies.

From Table 5, it has been found that the mean rank is highest in 2018-19 and the least in 2014-15. This implies that the public sector companies in the oil sector, in aggregate, have performed the best in contributing towards environmental sustainability in 2018-19, while there has been the poorest performance towards environmental sustainability in 2014-15.

**Table 6: Results of Kruskal Wallis Test for the Years**

	Chi-Square	Degree of Freedom	P-Value
Overall	2.945	5	0.708

Source: Calculation on the basis of the data from annual reports of the companies.

Table 6 shows that since p-value is greater than 0.05, the null hypotheses are accepted at 5% level of significance. Hence, there is no significant difference in the year-wise CSR expenditure towards environmental sustainability of sampled oil sector companies.

### FINDINGS AND SUGGESTIONS

Environmental sustainability has been a significant parameter of corporate social responsibility and is very crucial for oil sector companies, due to their intervention with the environment by way of their activities to a great extent. The observations from the data and further analysis reveal

that BPCL reflects volatility in its CSR expenditure towards environmental sustainability, while EIL, HPCL, and IOCL have a mixed approach towards spending on environmental sustainability, as either they have spent a reasonable amount towards environmental sustainability or have not spent any amount at all in a few years. OIL has reflected the poorest performance towards environmental sustainability, with minimal expenditure on it in pursuit of CSR. These factors reflect that despite accountability and responsibility of the oil sector towards environmental sustainability, the companies in this sector do not emphasise this parameter much, as the average contribution of any company has not exceeded 20% of the total contribution in the six-year aggregate. On the analysis of the detailed expenditure, it has been found that there is a confined approach in providing towards environmental sustainability in CSR, and areas like agro-forestry, animal welfare, and protection and enhancement of flora and fauna have not been taken into consideration much. Moreover, on testing the relevant hypotheses developed for making intra-company, inter-company, and overall comparisons, the null hypotheses have been accepted under all the conditions. This implies that there is no significant difference in CSR expenditure towards environmental sustainability in any company individually, thus reflecting the uniformity in the expenditure over the years. Moreover, in inter-company comparison, IOCL has been found to perform the best and OIL has been found to perform poorly. However, there has not been a significant difference in CSR expenditure among the companies from 2014-15 to 2019-20. The overall comparison reflected that the best CSR performance towards environmental sustainability has been observed in 2018-19, while the least performance in terms of CSR expenditure was in 2014-15. In addition, there has not been a significant difference in the CSR expenditure towards environmental sustainability over the years, from 2014-15 to 2019-20.

The rising concerns of environmental sustainability has been a prevailing condition in the nation and worldwide. While looking at the approach of oil sector public sector undertakings, it has been realised that there is much need to lay more emphasis on this area, and the quantum of expenditure towards environmental sustainability needs to be expanded proportionately. Moreover, there has been the rising issue of extinction of various species of plants and animals in the nation. Thus, it is important to protect and conserve the environment before it is too late. It has been suggested that companies work on the area of animal welfare and protection of flora and fauna, rather than being focused on a single approach of contribution, to ensure environmental sustainability. The oil industry can work on environmental sustainability by reducing usage of freshwater, by way of improving the efforts of water recycling and reusing water in

their functioning and operations. Moreover, the recycling of already utilised oil, and improving and organising processes efficiently can lead to decreased cost and energy expenditure, resulting in reducing the overall use of carbon. The creation of digital oilfields and greater purchase and use of renewable sources of energy can be taken into consideration to ensure safer and sustainable decisions and operations.

## CONCLUSION

Corporate social responsibility activities and practices have been the core in the functioning of the companies, as it is a continuous commitment to carry out operations sustainably, in terms of economy, society, and environment, in alignment with the benefits of the stakeholders. The public sector undertakings, which include the organisations of national importance, have been responsible for their conduct in their environment. The push of CSR in public sector is on comprehensive development, sustainable development, and enhancing potential, with due regard for the financial necessities of the ignored and minimised segments of the society. The oil sector companies have been the enterprises which affect the environment in various ways, such as through emissions, waste disposal, depleting natural resources, and so on. The parameter of environmental sustainability has been a crucial factor of CSR activities, and has been an alarming area for the companies, as well as the surroundings. It has been observed that oil sector companies do not pay much heed to the area of environmental sustainability in the pursuit of CSR. However, they are required to emphasise on it due to the growing concern of environmental protection and conservation. Moreover, it is necessary to take care of the environment in which the company operates. Thus, it has been concluded, that the companies need to take environmental sustainability into consideration, including other important CSR parameters, while dealing with corporate social responsibility expenditure and practices, as per the Companies Act, 2013.

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