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Navigating Towards Environmental Responsibility: A Study of Green Accounting In the Indian Context

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ABSTRACT

Green accounting is also termed as environmental accounting and is associated with the environmental services and goods. It considers the costs as well benefits which arise through environmental protection and depletion of the existing capital. It integrates the economy, society and the environment. Incorporating green accounting system in the national economic accounts could facilitate to measure the sustainability. Environmental sustainability is a major concern with increasing Global Warming. One of the best ways to portray the companies' responsibility is by following green accounting practises and disclosure. Green accounting is a path for expansion. By using this as a tool, many of the environmental costs can be reduced by proper decision making and also by implementing greener technologies. Green accounting plays a major role in the corporate social responsibility (CSR) of a firm. . The organizations must take initiative to implement green accounting in all the levels of the organization. The government must take strict actions is the environmental norms are not followed and also penalties must be imposed for it. The responsibility towards the environment has become one of the most important factors in the corporate social responsibility of a firm.

Keywords— Green accounting, Environmental sustainability, Corporate social responsibility

INTRODUCTION

Most of the times the organizations fail to take into consideration, that the activities carried on by them may eventually deplete the natural resources and also pollute the environment. According to Wikipedia, Green accounting is the type of accounting which tries to combine the environmental costs along with the financial cost which would lead to the final results of the operations of the company. Green accounting is not made compulsory by the central or the state government and also there are no clear-cut policies regarding the environment protection. On the other hand, when the company is gaining something from the environment, it must also take into account the costs of the environment. Of course, the renewable resources can be used in plenty, But the non-renewable resources once used, cannot be gained back. However, environmental accounting does not only consider the depletion of the environment plus, but the environmental pollution caused by the company is also not specifically accounted for. The emergence of corporate environmental reporting (CER) in India has been an important development, both for better environmental management and overall corporate governance.

Global awareness of stakeholders on corporate environmental performance has already made traditional reporting redundant. Corporate houses run into the risk of loss of faith of their stakeholders, if in future, environmental performance information is not included in their main stream reporting. As per Indian Constitution, Article 51A of Directive Principles "It shall be the duty of every citizen of India, to protect and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures."

The constitutional provisions are backed by a number of laws - acts, rules, and notifications like Factories Act 1948; Forest (Conservation) Act 1980; Air (Prevention and Control of Pollution) Act 1981; Water Biomedical waste (Management and Handling) Rules 1998; Municipal Solid Wastes (Management and Handling) Rules, 2000; Ozone Depleting Substances (Regulation and Control) Rules 2000; Noise Pollution (Regulation and Control) (Amendment) Rules 2002; Biological Diversity Act 2002. The Department of Environment was established in India in 1980 to ensure a healthy environment for the country. This later became the Ministry of Environment and Forests (MOEF) in 1985. The EPA (Environment

Protection Act), 1986 came into force soon after the Bhopal Gas Tragedy and is considered an umbrella legislation as it fills many gaps in the existing laws.

LITERATURE REVIEW

1. According to Nasir Zameer Qureshi "Environmental Accounting and Reporting: An Essential Component of Business Strategy" tells that Green accounting is an essential component of business strategy, describes the environmental component of the business strategy, producing the required performance reports and recognizing the multiple skills required to measure, compile and analyze the requisite data. Special emphasis of the research is on generation of reports and their standards, for the range of business and regulatory purposes.
2. According to Greenham, T "Accounting was also accused of contributing to the escalation of escalation of environmental damage and ecological crisis and social crisis. The reason, because the financial statements that are the output of the accounting process and the basis of consideration in the assessment and decision-making of the parties only provide financial accounting information, while social and environmental accounting information tends to be ignored or misguided in accounting treatment, recording and reporting"
3. According to Dr. Minimol M.C and Dr. Makesh K.G "Green accounting and reporting practises among Indian corporate, has developed a model specifying 6 aspects to be covered to measure the performance of the company. It has also studied the level to which environmental reporting is actually practised in India.
   The green accounting is at a nascent stage in India at corporate as well as national level. It has 3 faces: physical accounting, monetary valuation and integration with economic accounting. This study helped find out the parameters upon which companies does green accounting."
4. According to Maniparna SyamRoy "It throws light on the fact that the conventional indicator (GDP) cannot be the right indicator for sustainable development and that green accounting is a better means for that. But it has been further explained here that due to inadequate knowledge available there are data gaps in case of green accounting."
5. According to Haripriya Gundimeda.Pavan Sukhdev. Pushpam Kumar. Rajiv Sinha. And Sanjeev SanyA "It argue the case for Green Accounting for India (i.e. a framework of national accounts and state accounts showing genuine net additions to wealth) and to present a preferred methodology and models to reflect natural capital and human capital externalities in India's national accounts, measuring as depreciation the depletion of natural resources and the future costs of pollution, and rewarding education as an addition to human capital stock".

RESEARCH METHODOLOGY

Statement of the problem

In recent years, the pursuit of sustainable development has led to increased interest in green accounting as a means to measure, manage, and report on environmental performance. However, despite its potential benefits, the field of green accounting faces several significant challenges and unresolved issues. These include the lack of standardized frameworks and methodologies for measuring environmental costs and benefits, the difficulty in valuing non-market environmental assets, the limited integration of environmental information into financial accounting systems, and the need for greater transparency and accountability in corporate environmental reporting. Addressing these problems is crucial to advancing the effectiveness and credibility of green accounting practices and ensuring their contribution to sustainable development goals.

Need For Study

Many companies do not give much importance towards environmental accounting when compared to its financial accounts. The natural resources are depleting rapidly and hence keeping an account of the environmental costs would help in using resources efficiently and abide by the environmental policies. The need for this study was to make people understand and aware about the importance of environmental accounting/environmental reporting in companies so that there would be better sustainability as well as to understand the corporate social responsibility of the companies towards the environment.

Research Gap:

1. Lack of Comprehensive Frameworks
2. Limited Empirical Studies
3. Sectoral Variations
4. Data Availability and Quality
5. Integration with Financial Reporting

Research Objectives:

- To familiarize the theoretical back ground of Green accounting system
- To understand about the awareness among top accounting professionals about green accounting
- To make a comparative analysis of different green accounting practises of select companies.
- To analyze the level of achievement attained by the companies by incorporating green accounts.

Sample of population

For some studies, the population may be small enough to warrant the inclusion of all of them in the study. But a study may entail a large population which cannot all be studied. That portion of the population that is studied is called a sample of the population. A sample in this study is, therefore, a smaller group 3 - 4 of elements drawn through a definite procedure from an accessible population. The elements making up this sample are those that are actually studied. The sample of the population of this study stood at 100 working professionals.

Sampling Method

A stratified random sampling procedure was used for selecting the participants in this study. This technique was employed to ensure a fairly equal representation of the variables for the study. The stratification was based on different working top accounting professionals. Within each section, selection of staff was by simple random sampling.

Data collection method

a) Primary Data

Primary data was collected and an exploratory study using a survey method was conducted to understand top accounting professional's perception towards environmental accounting and its implication. This research study was conducted through questionnaire. The research study was targeted to working accounting professionals.

The primary data was collected and administered using a well – structured questionnaire. **Likert's scale of agreement** (Strongly agrees Agree, Neutral, and Disagree and strongly disagree) and **Dichotomous Questions** was used. The data collected was classified and tabulated for analysis in accordance with the objectives of the study.

b) Secondary Data

Secondary data refers to information that has been previously collected by someone else for purposes other than the current research project. This data can come from various sources such as government publications, research studies, industry reports, and online databases. Researchers often use secondary data because it is readily available and can provide valuable insights without the need for primary data collection. The study has collected data from the secondary sources such journals, books, and research studies.

Hypothesis

A hypothesis is an educated guess about what you expect to happen in a research study. It's based on existing knowledge or theory and serves as the starting point for investigation. By testing hypotheses, researchers can gather evidence to support or refute their proposed explanations for observed phenomena. Hypotheses play a crucial role in guiding the scientific research process, helping researchers to systematically investigate and understand the relationships between variables in their field of study.

Hypothesis on primary data

In the context of primary data analysis, hypothesis testing serves as a statistical tool to make inferences about population parameters based on sample data. Let's explain how hypothesis testing is used with primary data in the context of testing the impact of government policies on Green Accounting on a company's performance:

1. Formulating Hypotheses: As discussed earlier, we formulate the null and alternative hypotheses based on the research question. In this case:

- \(H_0 \): The implementation of government policies related to Green Accounting has not resulted in a significant improvement in the company's performance.

- \(H_1 \): The implementation of government policies related to Green Accounting has led to a significant improvement in the company's performance.

2. Data Collection: Primary data is collected from the company both before and after the implementation of government policies on Green Accounting. This data could include various performance metrics such as profitability, efficiency, environmental impact, etc.

3. Data Analysis:
- Calculate summary statistics: Compute descriptive statistics such as mean, standard deviation, and median for the performance metrics both before and after the implementation of policies.

- Perform hypothesis test: Use appropriate statistical tests to compare the means or other relevant measures of performance before and after the implementation of policies. Commonly used tests include:

- Paired Samples t-test: This test compares the means of paired observations (e.g., performance metrics before and after policy implementation) to determine if there's a significant difference.

- Wilcoxon Signed-Rank test: If the data does not meet the assumptions of the t-test (e.g., normality), this non-parametric test can be used to compare paired observations.

- Regression analysis: If there are multiple factors influencing performance, regression analysis can be employed to assess the impact of government policies on Green Accounting while controlling for other variables.

4. Interpreting Results:
- Evaluate the p-value: The p-value indicates the probability of observing the data if the null hypothesis is true. If the p-value is less than the chosen significance level (e.g., 0.05), we reject the null hypothesis in favor of the alternative hypothesis, suggesting that the implementation of policies has led to a significant improvement in performance.

- Consider effect size: In addition to statistical significance, consider the practical significance or effect size of the observed difference in performance metrics before and after policy implementation.

5. Drawing Conclusions: Based on the results of the hypothesis test and effect size, draw conclusions regarding the impact of government policies on Green Accounting on the company's performance. If the null hypothesis is rejected, it implies that the policies have had a positive effect on performance. Otherwise, it may indicate that the policies did not lead to a significant improvement, or further investigation may be needed.

Overall, hypothesis testing provides a systematic framework for analyzing primary data and making informed decisions based on statistical evidence regarding the impact of government policies on Green Accounting on a company's performance.

On the basis of primary data
To know whether there is a positive impact on awareness and implementation of Green Accounting.
NULL HYPOTHESIS (H0) :- There is no significant difference in the level of awareness and implementation of Green Accounting practices before and after the interventions.
ALTERTNATIVE HYPOTHESIS (H1):- There is a significant increase in the level of awareness and implementation of Green Accounting practices after the interventions.

Table 5.4 :- Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	128.205[a]	25	<.001
Likelihood Ratio	35.148	25	.086
N of Valid Cases	103		

a. 29 cells (80.6%) have expected count less than 5. The minimum expected count is .01.

Dependent Variables: Awareness and implementation of Green Accounting practices.
Independent Variable: Time (before vs. after interventions).

Interpretation:
Rejecting the Null Hypothesis: If the p-value obtained from the hypothesis test is less than the chosen significance level (e.g., $\alpha = 0.05$), we reject the null hypothesis. This suggests there is sufficient evidence to conclude that the interventions had a significant positive impact on awareness and implementation of Green Accounting practices.

Failing to Reject the Null Hypothesis: If the p-value is greater than the chosen significance level, we fail to reject the null hypothesis, indicating that there is insufficient evidence to conclude that the interventions had a significant impact.

Conclusion :-Based on the results of the hypothesis test, draw conclusions regarding the effectiveness of the interventions in promoting awareness and implementation of Green Accounting practices. If the null hypothesis is rejected, it implies that the interventions were successful in achieving their objectives. If not, further investigation or alternative interventions may be necessary.

2. To know whether the govt policies in respect of Green Accounting has benefitted the working of the company.
To assess whether government policies related to Green Accounting have benefited the functioning of a company, we can frame a hypothesis test as follows:

Variables:
Dependent Variable: Company performance metrics (e.g., profitability, efficiency, environmental impact).
Independent Variable: Time (before vs. after the implementation of government policies on Green Accounting).
Null Hypothesis (H0): There is no significant difference in the company's performance before and after the implementation of government policies on Green Accounting.
Alternative Hypothesis (H1): There is a significant improvement in the company's performance after the implementation of government policies on Green Accounting.

Table 5.8:- Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	133.574	30	<.001
Likelihood Ratio	45.181	30	.037
N of Valid Cases	103		

A significance level of less than 0.01, often expressed as "<0.01", indicates a very high level of statistical significance. In statistical hypothesis testing, this value suggests that the observed result is highly unlikely to have occurred by random chance alone. An asymptotic significance level refers to the significance level as the sample size becomes very large, assuming certain conditions hold true. In practical terms, a significance level of <0.01 asymptotically suggests that even with increasingly large sample sizes, the observed result remains highly statistically significant. In summary, a significance level of <0.01 asymptotically indicates a robust and highly significant finding in statistical analysis.

A questionnaire is a research instrument consisting of a series of questions designed to gather information from respondents. It is a structured data collection tool used in survey research to systematically collect data on various topics, such as attitudes, behaviors, opinions, preferences, and demographic characteristics. A survey was being conducted by using collecting opinions from top accounting professionals who are in service and practicing their profession.

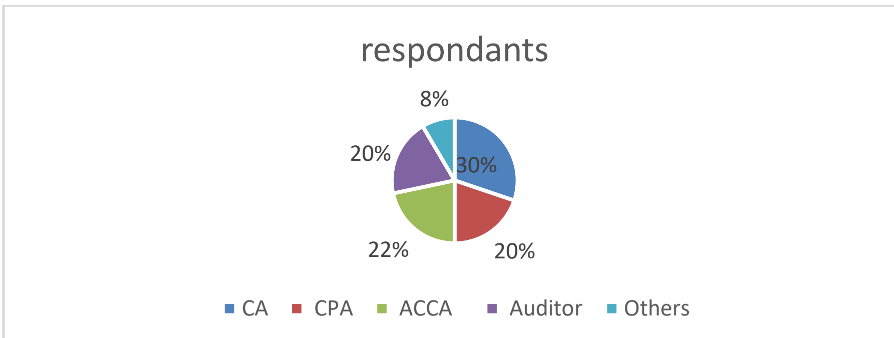
1. Which of the following accounting professionals you belong to ?

- CA
- CPA
- ACCA
- Auditor
- Others

TABLE NO: 01
TITLE OF THE TABLE: Qualification of the top accounting professionals

Qualifications	Responses	%
CA	32	30.2%
CPA	21	19.8%
ACCA	23	21.7%
Auditor	21	19.8%
Others	9	8.5%

CHART NO: 01
TITLE OF THE CHART: Qualification of the top accounting professionals

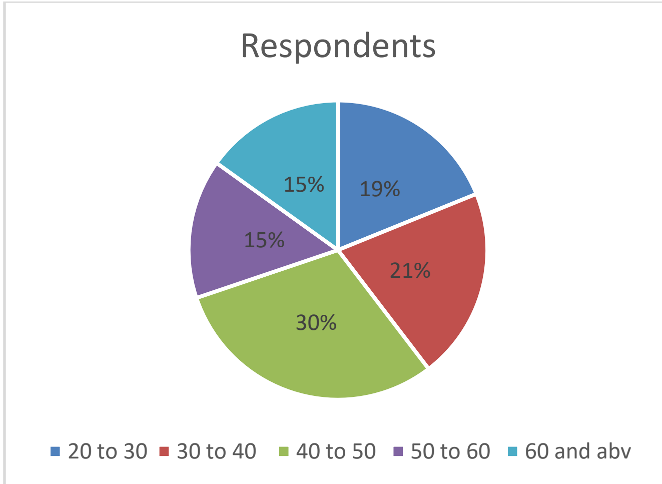


INTERPRETATION
The primary data was collected from a sample of
100 respondents who are certified top working accounting professionals. There are 32 individuals in this sample who are certified Chartered Accountancy resulting to 30% of total samples There are 21 individuals in this sample who are Certified public accountant, resulting to 20% of total samples There are 23 individuals in this sample who belong to ACCA resulting to 22% of total samples There are 21 individuals in this sample who are Auditors resulting to 20% of total samples. There are 09 individuals in this sample who belongs to others category resulting to 8% of total samples

2. Which age group you belong to?

- 20 to 30 * 30 to 40 * 40 to 50 * 50 to 60* 60 and above

Age Group	Responses	%
20 to 30	**20**	**19.6%**
30 to 40	**22**	**32.1%**
40 to 50	**32**	**30.4%**
50 to 60	**16**	**14.3%**
60 and above	**16**	**14.3%**



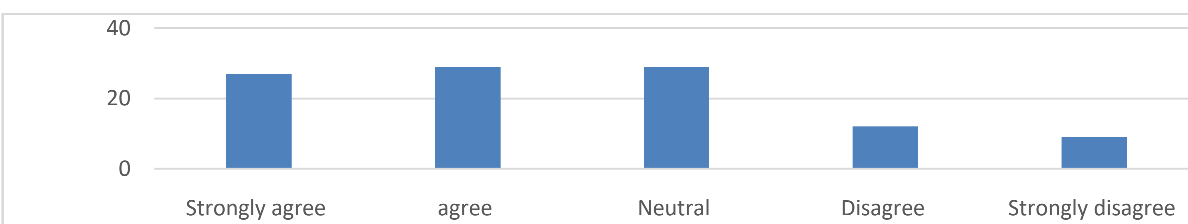
INTERPRETATION

20 – 30: There are 20 individuals in the age group, representing for 19% of the total sample.
30 – 40: There are 22 individuals in the age group, representing 21% of the total sample.
40 – 50: There are 32 individuals in the age group, representing 30% of the total sample.
50 – 60: There are 16 individuals in the age group, representing for 15% of the total sample.
>60: There are 16 individuals in the age group, representing 19% of the total sample.

Opinions	**Responses**	**%**
Strongly agree	27	25.5%
Agree	29	27.4%
Neutral	29	27.4%
Disagree	12	11.3%
Strongly disagree	9	8.5%

3. "There must be more awareness created about environmental accounting" Agree or Disagree

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

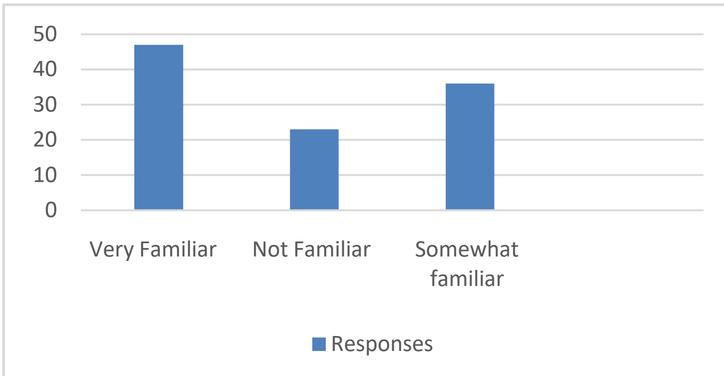


The respondents were asked if more awareness has to be created for environmental accounting and the response was as follows; Here, in the second graph, we can see that 8.5 % of the respondents do not agree about more awareness being created about environmental accounting whereas majority of the respondents which constitute 52.9% of the people, strongly agreed and agreed to the fact that there has to be awareness created everywhere among people and companies regarding environmental accounting since not many of the people know what it actually means and how it actually helps the company as well as the environment and how benefiting it actually is.

4. How familiar are you with the concept of green accounting?

- Very Familiar
- Not familiar
- Somewhat familiar

Opinions	Responses	%
Very Familiar	47	44.3%
Not Familiar	23	21.4%
Somewhat familiar	36	34%



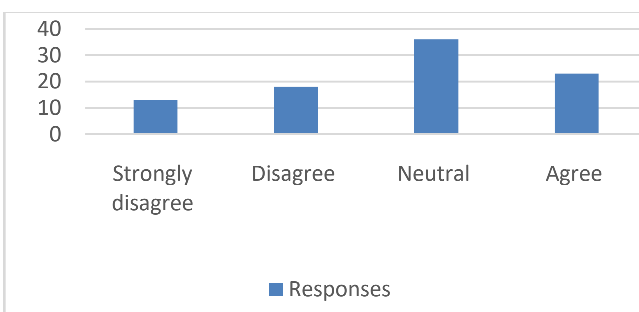
INTERPRETATION

When discussed with the respondents on how familiar are they with the topic of Green Accounting almost half of the respondents (44%) are very familiar with the topic of green accounting whereas 21.4% of them were not familiar of Green accounting concepts. Apart from them there were almost 34% of them who were not completely aware of the concepts but still they were familiar with the term.

5. Should environmental accounting be implemented in all companies?

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

Opinions	Response	%
Strongly disagree	13	12.3%
Disagree	18	17%
Neutral	36	34%
Agree	23	21.7%
Strongly agree	16	15.1%

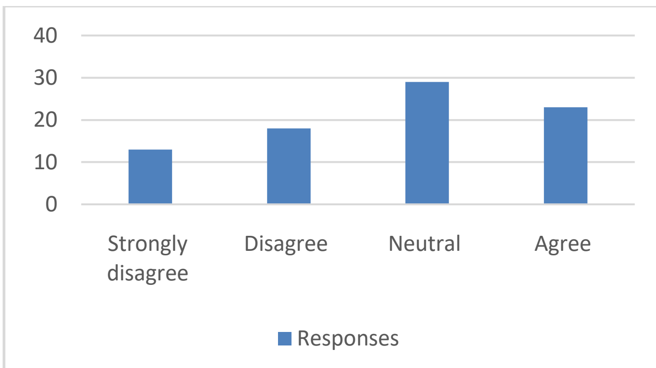


When respondents were asked if environmental accounting has to be implicated in all the companies, 36.8% of the people agreed and strongly agreed that it has to be implicated in all the companies and 34% of them were neutral about it and also, 17% of the people disagreed to it. Through this response we can conclude that, even though very less number of people disagree about environmental accounting being implicated in all the companies, majority of the people think that environmental accounting has to be implicated in all of the companies as it helps the companies to keep track of what it is taking from the environment and what it is giving back in return.

Do you believe that government policies and regulations play a significant role in promoting green accounting practices?

- Strongly Disagree Disagree Neutral AgreeStrongly disagree

Opinions	Responses	%
Strongly disagree	13	12.3%
Disagree	18	17%
Neutral	29	27.4%
Agree	23	21.7%
Strongly agree	16	15.1%

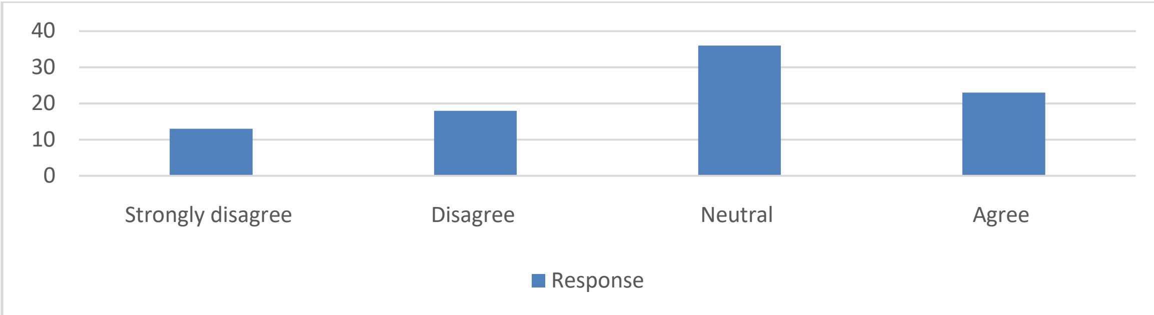


The respondents were asked if implementation of Green accounting would be done actively when implemented through the provisions of Government rules and regulations. The 39 of them agreed to the statement where as 31 of them disagreed to the statement stating that the change in the government policy would not give us much of the positive result

Do you think that there should be more training and education programs on green accounting for businesses and accounting professionals?

- Strongly Disagree
- Disagree
- Neutral
- Agree
- Strongly disagree

Opinions	Responses	%
Strongly disagree	13	12.3%
Disagree	18	17%
Neutral	36	34%
Agree	23	21.7%
Strongly agree	16	15.1%



The respondents were on the way to agree upon the fact that the training and education on Green accounting would be helpful for the individuals to understand more in detail.

34% of the individuals are neutral to the topic as this ,might or might not effect the knowledge and implementation of green accounting 29.3 % of the students have totally disagreed to the topic whereas almost 40% of the individuals agree to the statement.

In your opinion, what are the primary benefits of incorporating green accounting in business practices?

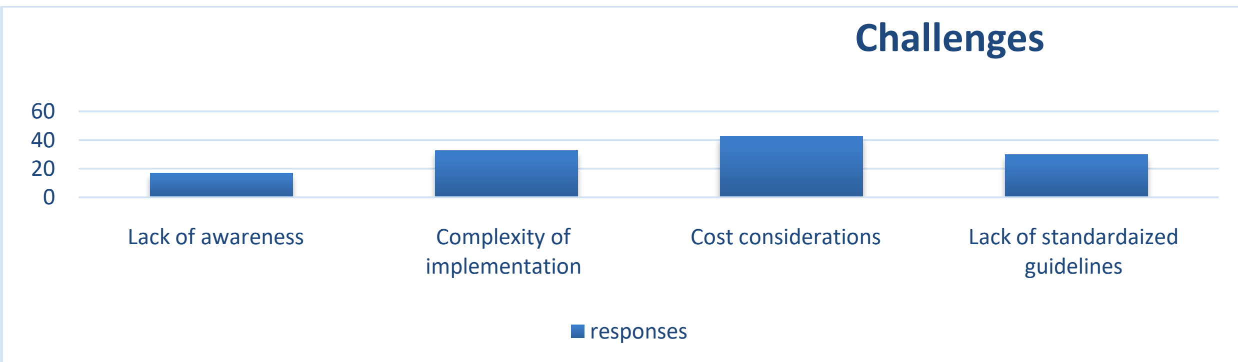
- Cost Savings
- Enhanced resources efficiency
- Improved environmental performance
- Competitive advantages
- Regulatory compliances

Primary Benefits	Responses	%
Cost savings	25	17.5
Enhanced resources efficiency	31	21.7
Improved environment performance	36	25.2
Competitive advantages	38	26.6
Regulatory compliances	13	9.1

What are the main challenges you face in adopting green accounting practices?

- Lack of awareness
- Complexity of implementation
- Cost considerations
- Lack of standardized guidelines
- Others

Challenges	**Responses**	**%**
Lack of awareness	17	12.6%
Complexity of implementation	33	24.4%
Cost considerations	43	31.9%
Lack of guidelines	30	22.2%



FINDINGS

Green accounting in India, like in many other countries, aims to integrate environmental considerations into national economic accounting systems. While I can't provide real-time updates, as of my last update in January 2022, India has been making efforts to incorporate green accounting principles into its economic framework

CONCLUSION

Practices of environmental accounting in India have not been widespread and there is no clarity and transparency regarding policy frame work for national, state and even at company reporting level due to increase in the awareness of stakeholders and other practices, it is to be a segment of financial reporting in India. Most of the organizations distribute the ecological drive in their yearly reports, yet such a training is just ostensible doesn't uncover the data in regards to monetary ramifications and the strategy of expenses of climate, because of its powerlessness to work out the natural liabilities as well as the resources, as far as money related esteem as it may not be imaginable to coordinate all ecological data with the current bookkeeping framework at miniature level.

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