Green Accounting – Quantification and It's Associated Challenges

- Banerjee S.*, Thakur A. A.**
*Assistant Professor, **Assistant Professor & Vice Principal,
G. E. Society's RNC Arts JDB Commerce and NSC Science College, Nashik
Savitribai Phule Pune University, Pune

Green accounting, is an essential framework for tracking the costs and benefits associated with environmental impacts. However, its adoption faces significant hurdles. This paper explores the key challenges faced by businesses, governments, and non-governmental organizations in implementing & quantifying green accounting, and discusses potential solutions to overcome these barriers.

Green accounting, also known as social accounting, plays a crucial role in promoting sustainable practices by integrating environmental costs and impacts into financial decision-making. However, despite its potential, several challenges hinder its widespread adoption and effectiveness. Key obstacles include the lack of standardized methodologies for quantifying environmental impacts, the complexity of measuring and valuing natural resources, and the absence of universally accepted accounting frameworks. Additionally, businesses often face resistance due to the perceived high costs and resource-intensive nature of implementing environmental accounting systems. The lack of awareness, technical expertise, and regulatory support further impedes the transition toward sustainable accounting practices. These challenges create significant barriers, limiting the potential for green accounting to drive meaningful environmental change. Addressing these obstacles requires a concerted effort from governments, businesses, and accounting professionals to establish clear guidelines, incentivize sustainability, and foster collaboration in overcoming the complexities associated with green accounting.

Key Words :- Green Accounting, Environmental Change, Environmental Impacts, Sustainable Practices.

INTRODUCTION:-

Green accounting goes beyond traditional financial accounting by incorporating environmental considerations into the valuation process. It involves identification, measurement, and allocation environmental costs, integrating them into business decisions, and communicating this information to stakeholders.

Environmental awareness and the need for green accounting are growing at an alarming pace today. Accordingly the business entities are also coming up with new ideas and other eco-friendly measures to have an valuable outcome for the present as well the future. Green accounting or environmental accounting is a new and fast-growing branch

of study that aims at accounting for environment and its sustainability together. In India, green accounting is still at a nascent stage.

Green accounting enclose accounting for environmental assets, the costs associated with them and the monetary quantification of results that the organization has on the environment.

REVIEW OF LITERATURE :

Dr. Minimol M.C and Dr. Makesh K.G(February 2014)1, in their research paper, 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.

Dr. R. K. Tailor (July-Sept., 2017)[2], in a study the impact of green accounting on sustainable development, tries to analyse green accounting in an Indian concept. Growth cannot be measured only in monetary terms. Green accounts emphasises inclusion of environmental costs into the accounts of the company. This will help us know the environmental impact the company is making. But this has a lot of problems. For example the natural stock accounting is difficult when the stock is not usually sold in market, either to know the change in stock level or the flow of stock. Next depreciation of natural capital is accounted for as income. A nation that has plenty of resources may show a considerable increase in performance in the initial years but will later on face the problem of sustainability.

The research paper Green accounting for sustainable development: Case study of industry sector in West Bengal authored by **Maniparna Syam Roy (2017)[3]**, 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. Thus this paper takes into account water and air resources as industrial source of West Bengal as the source of data for study to illustrate the methodology and data types that can help provide the balance between green accounting system of the state and the country as a whole for the formulation of sustainable development-oriented policy. limited literature is available on social and environmental accounting in emerging and developing nations.

NEED OF THE STUDY:

The need of the study aims at making the people as well as the companies aware about the concept of green accounting. As there is no awareness, the benefits and advantages of this rising concept is unknown to all. The same will also help in regenerating and improving the environmental conditions prevailing currently in India. This will also become one of the major basis considered by the stakeholders, especially the investors and customers

while investing in the company. And on top it helps in sustainable development of the environment. So the benefits from the environment will be enjoyed by future generations as well, which will in return help in nation's growth and prosperity.

STATEMENT OF THE PROBLEM:

The statement of the problem can be classified as:-

- Assigning monetary values to green assets and services (like clean air, water, or ecosystem services) can be difficult and imperfect.
- The societal values for green goods and services are uncertain and changes abruptly.
- There's a need to raise awareness about the importance of green accounting among businesses and stakeholders. .
- There's a risk that green accounting may be viewed primarily as a compliance tool rather than a driver of sustainable practices.
- Ensuring that green costs are properly considered in business decision-making requires changes in corporate culture and practices.
- By identifying and quantifying an organization's greenhouse gas emissions, carbon accounting helps to understand how specific activities contribute to global warming.

OBJECTIVES OF THE STUDY:

The primary objective of undertaking this research study is to analyse the impact of environmental accounting practises on the overall performance of the company. The primary objectives of the study are supported by the following:

a) To study the green projects & sustainability practises followed by select automobile companies.
b) To study the comparative analysis of different green accounting practises of these automobile companies.

HYPOTHESES:

Organizations that invest in environmental accounting and management systems experience a positive impact on their financial performance, indicating that environmental investments are sound business decisions.

RESEARCH METHODOLOGY:

The collection of data consists of secondary method of data collection. The secondary data is collected from various research papers, journals and articles on the subject concerned. The study is company specific. We have selected 5 esteemed companies who follow green accounting which are as follows:

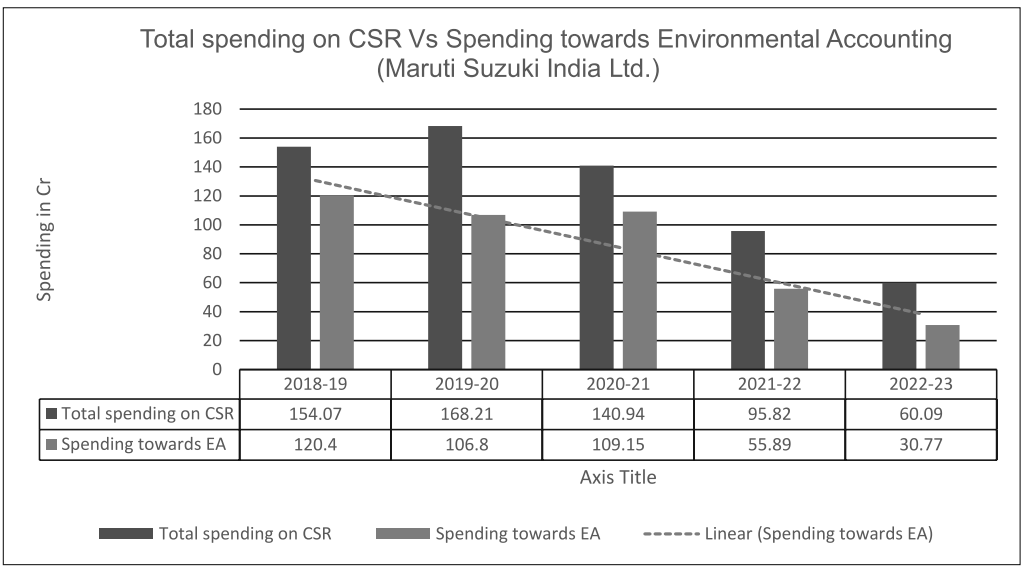
Here are 5 Indian automobile companies that are actively investing in green technologies and electric vehicles, representing a potential "green" investment opportunity: **Maruti Suzuki, Tata Motors, Mahindra & Mahindra, Bajaj Auto, Hyundai Motor India.**

Here's a detailed look at these companies:

Company Name	Description	Key Green Initiatives
Maruti Suzuki India Ltd	India's leading passenger car manufacturer.	Focusing on hybrid and electric vehicles, expanding EV portfolio.
Tata Motors Ltd	A major player in both passenger and commercial vehicles.	Developing electric vehicles (EVs) and investing in EV infrastructure.
Mahindra & Mahindra Ltd	Known for its SUVs and commercial vehicles.	Expanding its EV portfolio and investing in green technologies.
Bajaj Auto Limited	A leading two-wheeler manufacturer.	Exploring electric two-wheeler options and investing in green technologies.
Hyundai Motor India Ltd	A major player in the passenger car market.	Focusing on electric vehicles and hybrid technologies.

I. MARUTI SUZUKI INDIA LIMITED[4]:

Maruti Suzuki is investing ₹450 crore in renewable energy projects over three years, including a biogas plant in Manesar, using food waste and Napier grass, and expanding solar power capacity, aiming for greener manufacturing and operations as declared on 5 June 2024 with Business Standard.



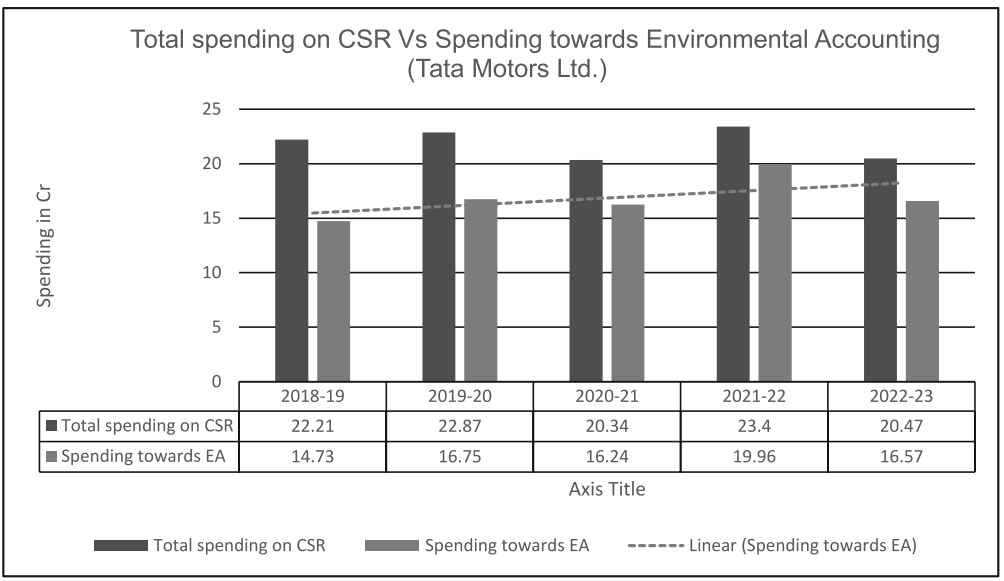
Source - https://www.mca.gov.in/content/csr/global/master/home/ExploreCsrData/company-wise.html - Accessed on March 29, 2025.

Here's a more detailed look at Maruti Suzuki's green initiatives.

- ₹450 Crore Investment in renewable energy.
- In FY24, the company invested ₹120.8 crore in renewable energy projects, including a biogas plant in Manesar.
- Focusing on Biogas and Solar Power.
- Maruti Suzuki has initiated operations at a biogas plant at its Manesar facility, harnessing food waste and Napier grass resources.
- The company expanded its solar capacity to 43.2 MWp in FY 2023-24 and is on track to add more solar capacity to its Manesar and Kharkhoda plants. Maruti Suzuki is also working on two greenfield manufacturing sites in Kharkhoda, Haryana, and Gujarat.

II. TATA MOTORS INDIA LIMITED[5] :

In FY24 Tata Motors India Limited collectively touched 10.03 lakh citizens via its community programmes. the partnerships flourished, paving a path for stronger relationships and a sustainable impact. Aarogya, our healthcare initiative, improved the health of 85 per cent of malnourished children from unprivileged communities.



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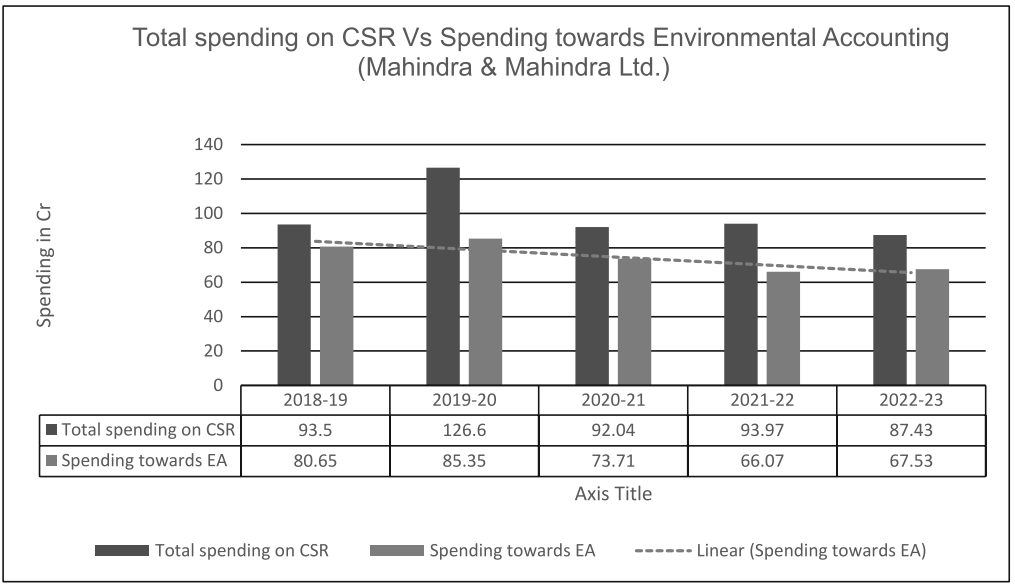
- Tata Motors released its 10th Annual Corporate Social Responsibility (CSR) Report, detailing its efforts to improve the lives of over 1 million people in FY24. The report, was titled "Building Together a Million Dreams", underscored the company's strategic interventions across 94 aspirational districts in 26 states and 8 union territories, with more than 40% of beneficiaries belonging to SC and ST communities.
- This was implemented in tribal areas of Maharashtra and later on expanded to other plant locations, IVDP reduced migration by 20% and increased average household

income by 60%. Notable success included transforming the Navapara village in Gujarat, wherein 190 households adopted fishery as a primary livelihood.

- Over 1.7 million saplings were planted in Palghar, thereby benefiting and helping 13,000 farmers and converting 13,000 acres of barren land into productive land. Urban forestry efforts in Pune witnessed 125,000 trees planted, absorbing 300,000 kg of carbon per year.
- A Farmers Producer Group (FPG) in Pune helped tribal families generate 4 crore in revenue from the sale of hirda berries, benefiting over 5,000 families.
- In Jamshedpur, the Malnutrition Treatment Centre has treated 5,500 children annually and expanded its outreach programs. Similar initiatives were introduced in Uttarakhand through Parvarish Kendras.

III. MAHINDRA & MAHINDRA LIMITED[6] :

India's first 100% solar powered resort, Mahindra Kanha was one of the 15 Club Mahindra resorts that generate 48 lakh units (KWh) solar power, 6 Club Mahindra resorts were 'Water Secure' by end 2021, raising rainwater utilisation to 255 million litres across resorts.



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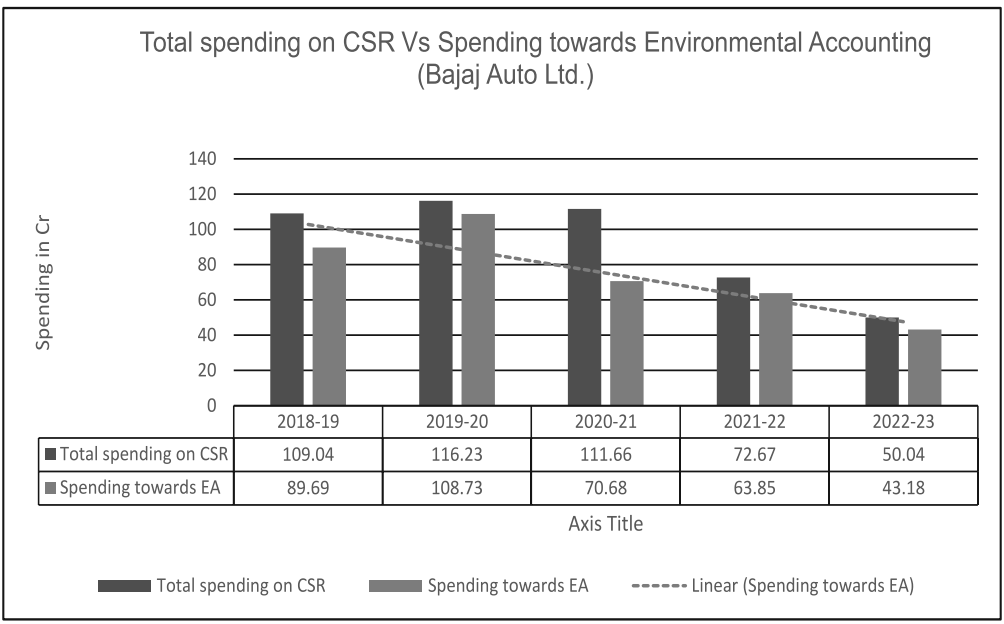
Mahindra & Mahindra has several green projects and initiatives in India, encompassing renewable energy, sustainable buildings, and environmental conservation, with a focus on becoming a "Planet Positive" company. Some key areas and projects:

- A renewable energy Independent Power Producer (IPP) company, part of the Mahindra Group, with operational projects across India, including a 150 MW hybrid solar + wind project in Maharashtra.

- Club Mahindra has implemented solar power in 25 resorts (19% of total resorts) and plans to increase this to 41% by 2024.
- Kanha Resort was the first resort in India to run on 100% renewable energy.
- Mahindra Lifespaces launched its first Net-Zero Energy Project, Mahindra Eden, Bengaluru, certified by the Indian Green Building Council (IGBC) for 'Net Zero Energy Buildings'.
- Mahindra & Mahindra has launched Ultrogen Hybren, a new subsidiary focused on renewable energy operations.

IV. BAJAJ AUTO LIMITED[7] :

In an era where environmental sustainability is at the forefront of industrial innovations, Bajaj Auto has launched the world's first CNG bike, the Freedom 125, marking an important advancement in sustainable transportation.



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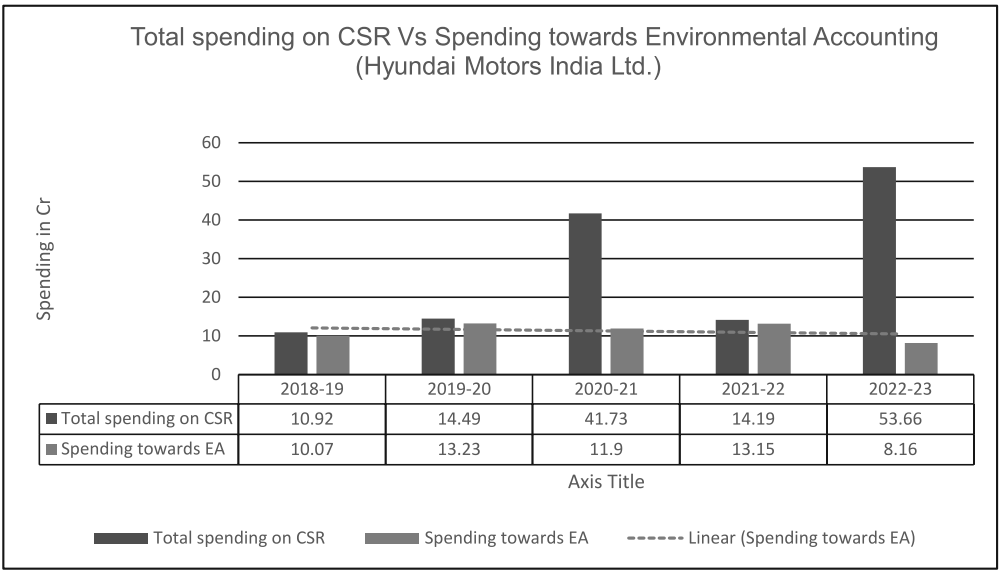
Bajaj Auto focussed on "green" initiatives by developing and promoting CNG and electric vehicles, including the Freedom 125 CNG bike and electric three-wheelers, and partnering with companies like Flipkart to electrify last-mile deliveries.

- Bajaj Auto is expanding its CNG portfolio to include three-wheelers and commercial vehicles, addressing concerns about fuel costs and environmental impact.
- Bajaj Auto aims to achieve 40,000 units of Freedom CNG bike by the end of FY25, expanding its network to over 350 cities.
- Bajaj Auto had assisted in The Satyamev Jayate Water Cup 2018, which covered 100 Talukas from Vidharbha, Marathwada, and Western Maharashtra.

V. HYUNDAI MOTORS INDIA LIMITED[8] :

Hyundai Motor India aims to establish two renewable energy plants in Tamil Nadu, targets 100 per cent renewable energy by 2025. Under an agreement, a 75 MW solar plant and a 43 MW wind power plant will be established to fulfil HMIL's energy requirements through a Group Captive Mode.



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- They are partnering with Fourth Partner Energy Limited (FPEL) to set up two renewable energy plants in Tamil Nadu: a 75 MW solar plant and a 43 MW wind power plant.
- HMIL has signed a Power Purchase and Shareholder Agreement with FPEL to establish these plants, operating under a group captive model with a special purpose vehicle (SPV).
- HMIL has installed a 10 MW rooftop solar plant at its Chennai manufacturing facility and strategically purchases green power from the Indian Energy Exchange (IEX).
- HMIL's manufacturing facility in Chennai is almost self-sustainable in terms of water usage, practicing effective rainwater harvesting, and aims to achieve 100% self-sustenance by 2027.

SCOPE FOR FURTHER STUDY:

Green accounting, in its full-fledged form, is followed by very few Indian companies. The research study focuses on five eminent Indian companies namely; **Maruti Suzuki, Tata Motors, Mahindra & Mahindra, Bajaj Auto, Hyundai Motor India.** which have adopted green accounting practices. Further, the scope extends towards the formulation of a procedural model which can be adopted by the organizations for the incorporation

and implementation of environmental accounting.

Further research in green accounting for automobile companies could focus on the impact of Industry 4.0, the role of environmental management accounting in identifying inefficiencies and cost savings, and the development of new methods for carbon accounting across the supply chain and product life cycle.

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