

# Carbon Accounting: Current Practices, Opportunities and Challenges

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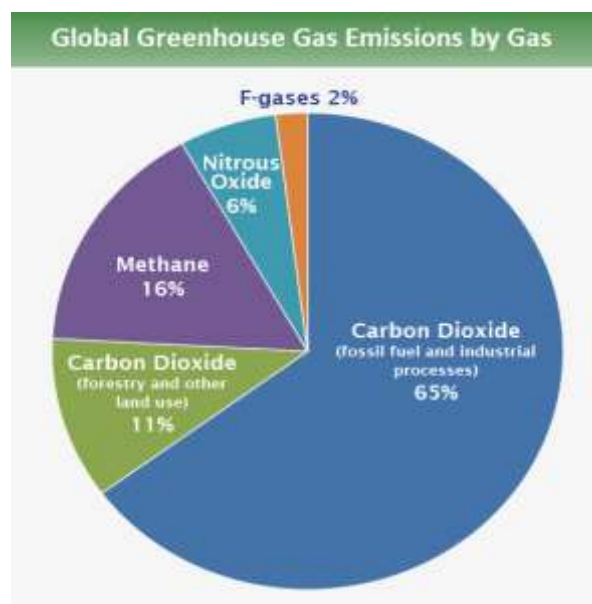
## Abstract

This article reviews current corporate carbon accounting practices, future research opportunities in this field, explores challenges, and suggests remedies to address those challenges. This research utilises secondary data, including article reviews, and examines various greenhouse gas protocols and frameworks, such as the GHG protocol, ISO, GRI, and sustainability reports. This study highlights the current carbon accounting practices, opportunity of research in this field, challenges of carbon accounting and finally remedies to over with these challenges. At last, we conclude that carbon accounting has many benefits and challenges too. A company must implement carbon accounting as sustainability is become essential.

**Keywords;** Carbon Accounting, Green Accounting, Green Practices

## Introduction

Over the past decades, climate change has become a global issue that affects human life. To address this issue, many countries have taken various actions. There are many gases present in the atmosphere that affect human adversity. According to IPCC 2014, these gases are:



Sources: (Climate Change 2014: Mitigation of Climate Change — IPCC)

According to this, carbon dioxide plays a wider role. Therefore, it is crucial to reduce greenhouse gas emissions. “Carbon accounting is the process of measuring and tracking greenhouse gas emissions produced by individuals, organisations and a country over a given period of time. It involves quantifying greenhouse gas (GHG) emissions and assigning them to specific sources or activities, such as transportation, energy use, and production processes (Syam et al., 2024). Various actions are taken to reduce carbon emissions, like; Kyoto Protocol, Carbon Neutral etc. resulting in the implementation of the GRI, BRSR, ISO 14064, and sustainability reporting frameworks. These frameworks suggest guidelines for measuring and reporting greenhouse gas emissions (International Standards for Carbon Accounting), (Carbon Accounting Standards), (GHG Protocol). The primary objective of these initiatives is to reduce carbon emissions and ensure sustainability in the worlds.

Despite these protocols and frameworks, various organisations are facing many challenges in implementing greenhouse gas practices.

This article explored these challenges and suggest some remedies to mitigate those challenges, so that a company can implement carbon accounting.

### **Literature review**

There are various literatures which we study. Some of these are briefly studied here; (Chaudhuri & Kumar Barman, 2019), emphasized carbon accounting role in supporting global climate policies and improving carbon related disclosures. The study explored that there is absence of a specific international accounting standards for carbon reporting. The study highlighted the need for harmonized guidelines to ensure comparability and reliability of emission data. (Sen et al., 2011), indicated significant variation in environment reporting practices across industries like oil, steel, mining and cement and raised the need for harmonised environmental practices. (Shaheen et al., 2024), showed growing global emphasis on sustainability. The literature also highlighted the environmental cost to the implementation of carbon accounting. The literature identified challenges.

Reports - (GHG Protocol), (GRI), (BRSR), (ISO 14064-1:2018 - Greenhouse Gases)

### **Research methodology**

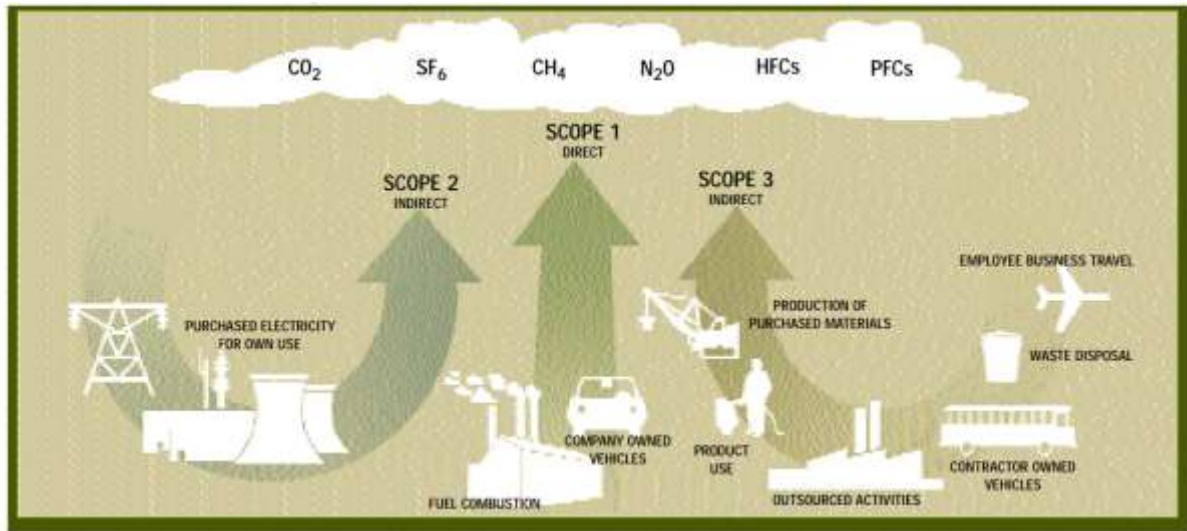
This research article based on secondary data. The data is collected from various reports and research articles which are related to the study.

### **Current practices of carbon accounting**

Many international frameworks and standards provide principles and methodology for greenhouse gas quantification. The brief discussion of some -

### **GHG (Greenhouse Gas) Protocol**

The GHG Protocol is the most widely adopted framework for quantifying greenhouse gas emissions. It was developed by the (WRI) World Resources Institute and the (WBCSD) World Business Council for Sustainable Development in 1998. It divides carbon emissions into three scopes.



Source: (Climate Change 2014: Mitigation of Climate Change — IPCC)

Scope	Emission Type	Sources	Example
Scope 1	Direct Emissions	Sources owned or controlled by the organisation	Fuel burned in company-owned vehicles
Scope 2	Indirect Emissions	Sources controlled by the organisation	Steam, heating, and cooling
Scope 3	Other Indirect Emissions	Sources uncontrolled by the organisation	Value Chain Emissions

(source: Author Compilations)

### ISO 14064-1:2018

Provide guidance at the organisation level for quantification and reporting greenhouse gas emissions and removals (ISO 14064-1:2018 - Greenhouse Gases).

### GRI (Global Reporting Initiative)

GRI is a multi-stakeholder approach to define and refine the global best practices for sustainability reporting (GRI - About GRI).

### Opportunities for future research

As we saw carbon emission is become a global major issue and every country focus to mitigate their carbon emissions because it is harmful for everyone. Hence, This topic is evolving as many countries set target for carbon neutrality.

### Challenges in the implementation of carbon accounting

#### Diverse Reporting Practices

There is diversity in financial accounting and reporting practices for carbon emissions reductions. So, it is the biggest challenge in front of standards setters, firms, investors and auditors on how to report carbon emissions (Kumar & Firoz, 2020).

### **Less Practical Rules**

(Xu, 2023) Founded that Current accounting standard-setting bodies need more practical rules concerning the measurement and quantification of carbon emissions which shows that currently we have fewer practical rules for carbon accounting.

### **Lack of Carbon Accounting Standards and frameworks**

Main challenge in implementing carbon accounting is the absence of globally accepted standards or frameworks. Existing frameworks such as GRI, ISO, SASB provide general directions but differ in scope and metrics (Shaheen et al., 2024).

### **Data collection and measurement complexities**

It is difficult for a company to collect carbon emission data because there are many processes follow when a product made. So, it is difficult to collect carbon emission data. Secondly, it is very difficult to track scope 3 emissions because this is indirect emissions.

### **High implementation cost**

The implementation of green accounting considered high implementation cost because if a company want to do it, they need to trained their employees and also significant investment in technology.

### **Resistance to change**

Employees are already satisfied with their work and if a company make some changes and adopt something new, it is possibility that employees will resistance it.

### **Difficult to Quantifying long term benefits**

Carbon accounting and green accounting results will show in future but investors are focus more on present. So, it is difficult to company to quantify its long-term benefits and do investment in green accounting.

### **Remedies to prevent these challenges**

- To address the challenge of Diverse reporting practices, a company should adopt frameworks given on global level, like; GRI, ISO.
- It is found from literature that in carbon accounting we have fewer practical rules. So, it is essential on world level to make more practical rules to adopt this.
- There are many carbon accounting standards and frameworks available on international level but it is essential to make a harmonized standard and framework on world level.
- To address the challenge data collection and measurement complexity, company should adopt new technologies.
- Company should hire employees who already have knowledge about carbon accounting to address the challenge of high implementation cost.
- Company should convey the long-term benefits of a company for implementing carbon accounting.

### **Conclusion**

Carbon accounting is becoming hot topic nowadays because every country now focuses on sustainability.

For achieving the goal of sustainability, it is essential to reduce carbon emissions. Along with that carbon accounting has many benefits explored by (Shaheen et al., 2024), carbon accounting improved regulatory compliances that reduced the risk of fine and penalties related to environmental laws. Secondly, it increases the growth as operational breakdowns are not come when a company follow environmental laws. Thirdly, it enhances the reputation of firm in the market and last it focus on attracting ESG investors. Carbon accounting has several benefits and it also have some challenges in implementation but in today's scenario every county is focused on sustainability, so for a company it is must to implement carbon accounting for long run survival.

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