

Carbon Foot-printing: A Step to Measure Carbon Emissions

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As concerns about climate change and global warming continue to grow, it has become imperative to find effective ways to measure and monitor carbon emissions. Carbon foot-printing has emerged as a crucial tool in this regard. This article aims to shed light on the concept of carbon footprint, its significance, and its role in mitigating the adverse effects of greenhouse gas emissions.

Defining Carbon Footprint

Carbon footprint pertains to the overall volume of greenhouse gases, predominantly carbon dioxide (CO₂), released directly or indirectly by a person, entity, occasion, or item during its existence. Measured in CO₂ equivalent, this metric allows us to understand and compare the impact of different activities on climate change. Carbon footprints include both direct emissions from burning fossil fuels and indirect emissions associated with the production and consumption of goods and services.

Identify GHG emissions sources



Greenhouse gas (GHG) emissions commonly arise from these source categories:

- ❖ **Stationary combustion:** The burning of fuels in stationary equipment, including boilers, furnaces, burners, turbines, heaters, incinerators, engines, flares, etc.



- ❖ **Mobile combustion:** The burning of fuels in transportation devices, such as cars, trucks, buses, trains, airplanes, boats, ships, barges, vessels, etc.



<p>❖ Process emissions: Emissions resulting from physical or chemical processes, like CO₂ from cement manufacturing's calcinations step, CO₂ from catalytic cracking in petrochemical processing, PFC emissions from aluminium smelting, etc</p>	
<p>❖ Fugitive emissions: Both deliberate and accidental discharges, including equipment leaks from joints, seals, packing, and gaskets, as well as fugitive emissions from coal piles, wastewater treatment, pits, cooling towers, gas processing facilities, etc.</p>	

Carbon Foot-printing Methods

Measuring and calculating carbon footprints involves various methodologies depending on the scope and purpose of the assessment.

The three commonly used approaches are the “operational control” method, the “financial control” method, and the “boundary control” method.

The “Operational Control” Method

The operational control method is a carbon foot-printing approach that focuses on activities an entity directly controls. It evaluates emissions stemming from an organization’s day-to-day operations, such as energy consumption, transportation, and waste management. By analyzing the direct environmental impact of these activities, organizations can identify areas for improvement and implement targeted measures to reduce their carbon footprint.

For instance, this method allows businesses to assess the emissions associated with their electricity usage, company vehicles, and waste generation. Through diligent monitoring and optimizing resource consumption, organizations can effectively lower their carbon emissions and operate in a more environmentally responsible manner.

The “Financial Control” Method

The financial control method is a carbon foot-printing technique that relies on an organization’s financial data. By analyzing the financial statements, including investments, revenues, and expenses, this approach estimates the indirect carbon emissions associated with various financial activities. Indirect emissions may occur throughout the supply chain, but they are financially linked to the organization.

For example, this method enables companies to evaluate the carbon emissions embedded in the products they purchase, the transportation of goods and services, and investments in external ventures. By understanding the full extent of their financial influence on greenhouse gas emissions, organizations can make informed decisions to support low-carbon alternatives and promote sustainable business practices.

The “Boundary Control” Method

The boundary control method takes a broader perspective by considering the entirety of a company’s supply chain and its associated carbon emissions. This approach accounts for greenhouse gas emissions resulting from all stages of production, transportation, and waste disposal involved in the organization’s activities. By adopting the boundary control method, companies can assess the comprehensive environmental impact of their operations and take accountability for the sustainability of their entire value chain.

For instance, this method allows businesses to evaluate emissions generated by suppliers, manufacturers, distributors, and end-users throughout the product’s lifecycle. This holistic view empowers organizations to collaborate with partners to implement environmentally friendly practices and establish a more sustainable supply chain.

Significance of Carbon Foot-printing

Carbon foot-printing plays a crucial role in several aspects of climate change mitigation and sustainability efforts:

- ❖ **Raising Awareness:** By calculating and reporting carbon footprints, individuals, organizations, and governments can raise awareness about the environmental impact of their activities. This facilitates informed decision-making and encourages the adoption of sustainable practices.
- ❖ **Identifying Hotspots:** Carbon foot-printing enables the identification of areas with high levels of emissions, known as "hotspots." This information allows for targeted efforts to reduce emissions in those areas, effectively directing resources toward more sustainable alternatives.
- ❖ **Setting Reduction Targets:** Once the carbon footprint has been determined, it becomes easier to set reduction targets. By quantifying emissions, organizations can establish goals and implement strategies to meet them. This encourages proactive steps towards a low-carbon future.
- ❖ **Enhancing Accountability:** Carbon footprint measurement promotes transparency and accountability. Companies that disclose their emissions demonstrate their commitment to environmental responsibility, allowing stakeholders to make informed choices and hold them accountable for their actions.

Conclusion

Carbon foot-printing serves as an essential tool in understanding and managing carbon emissions. By quantifying the impact of various activities, it guides individuals, organizations, and governments toward more sustainable practices. As global warming and climate change continue to pose significant challenges, measuring carbon footprints will hopefully encourage efforts to reduce emissions and contribute to a greener, more sustainable future.