

Discrete Quantification & Study of Carbon Footprint in Business Sector- Mumbai

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ABSTRACT

A carbon footprint is historically defined as "the total set of greenhouse gas emissions caused by an individual, event, organization, product expressed as carbon dioxide equivalent."

The total carbon footprint cannot be calculated because of the large amount of data required and the fact that carbon dioxide can be produced by natural occurrences. It is for this reason that the journal of Carbon Management, have suggested a more practicable definition: A measure of the total amount of carbon dioxide (CO₂) and methane (CH₄) emissions of a defined population, system or activity, considering all relevant sources, sinks and storage within the spatial and temporal boundary of the population, system or activity of interest. Calculated as carbon dioxide equivalent using the relevant 100-year global warming potential (GWP100).

Greenhouse gases (GHGs) can be emitted through transport, land clearance, and the production and consumption of food, fuels, manufactured goods, materials, wood, roads, buildings, and services. For simplicity of reporting, it is often expressed in terms of the amount of carbon dioxide, or its equivalent of other GHGs, emitted.

The concept name of the carbon footprint originates from ecological footprint, which estimates the number of "earths" that would theoretically be required if everyone on the planet consumed resources at the same level as the person calculating their ecological footprint. However, carbon footprint is one of a family of footprint indicators, which also includes water footprint and land footprint.

Keywords- *Green House Gases (GHG), Carbon Dioxide (CO₂), Methane (CH₄), Unsustainable Energy, Emission characteristics.*

1. INTRODUCTION

A carbon footprint evaluation measures the carbon dioxide produced by burning fossil fuels for electricity, heating, transportation, and the production of consumer goods, among other activities, for a particular residence, business, or other unit of analysis (such as a city). Carbon dioxide is a greenhouse gas. There are two levels of carbon footprint analysis, the primary footprint and the secondary footprint. The primary footprint measures the direct emissions of carbon dioxide (CO₂) from the burning of fossil fuels (coal, oil, natural gas) for domestic energy consumption and transportation. The secondary footprint measures indirect emissions of CO₂ from the lifecycle of products. A number of calculation tools are used to estimate the carbon footprints for both businesses and individual households. Carbon footprint software can also be use determine the total carbon foot print impact.

The management and reduction of business carbon footprints can have a vast impact on tackling climate change than that of individuals, given the greater volume of emissions. It's also a fantastic opportunity to improve the efficiency of your business and your profit margin.

2. PROBLEM STATEMENT

The objective of this project work is to ascertain which of the methods directly or indirectly impact the carbon footprint and have a vast impact on the environment. Though a carbon footprint calculation measures carbon dioxide emissions in order to determine an organization's impact on the environment, it can also be a useful tool for determining how a company can reduce its wasteful outputs. This information can be used in turn to reduce expenditures. A carbon calculation will help a company better understand where its emissions are coming from and where in its operations it is most advantageous to make cuts.

Despite some higher upfront costs that may be required to make the transition to lower emission practices, the long term savings can be substantial. Simple steps, such as decreasing travel, using energy efficient products, and increasing building insulation are all strategies to diminish primary CO₂ emissions.

Customers and employees value organizations that put an emphasis on environmental sustainability and prefer to do business with them. According to a study conducted by McKinsey & Company, large corporations' recognition of this preference drives their initial steps toward improved sustainability. Determining one's carbon footprint is an important first step towards becoming more environmentally responsible.

3. METHODOLOGY

3.1 Step One: Identify a reliable carbon footprint calculator tool and questionnaire for the related study

There are a number of free carbon footprint calculator tools online that require a number of inputs to determine annual CO₂ emissions. Some of these tools to determine what data each tool requires were investigated. A tool that fits the project requirements and that can be populated with information that we are able to measure. Here are a few calculators which were investigated:

- a) Carbon Footprint
- b) EPA Emissions Calculator
- c) Carbon Fund Business Calculator
- d) The Nature Conservancy

Analyzing the above calculator a questionnaire was prepared taking into account the factors that would impact the environment.

3.2 Step Two: Survey various organizations to fill in the data that the calculator requires

Gather information from different organization make a statistical analysis and to fill in to the calculator. This can range from information available on utility bills to the number of people who work at the organization. The more accurate the information, the better an estimate of emissions the calculator tool can make. It's generally easier to gather the information necessary for determining the primary footprint than for the secondary footprint.

3.3 Step Three: Evaluate results

Using the information gathered to populate the tool and calculate the organization's CO₂ emissions. After running the tool, interpret the results, looking at both your primary and secondary footprints.

3.4 Step Four: Develop criteria for reducing emissions

Identify which areas should be addressed right away, and which ones you can address in the long-term. It can be helpful to create a sustainability plan to guide what should be replaced when.

3.5 Step Five: Conclusion on steps to reduce emissions.

Conclusion on what plans can be implemented practically, to follow it closely to implement change to limit both primary and secondary CO₂ emissions. Over the long term these reductions will help to not only cut company costs, but also reduce its overall carbon footprint.

4. REFERENCES

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