

## Creating a complete picture of your carbon and Ecological Footprint

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When reporting greenhouse gases, it is an accepted standard to report direct emissions from on-site activities and company-owned vehicles (GHG Protocol scope 1 emissions) and indirect emissions resulting from the use of purchased electricity (GHG Protocol scope 2 emissions). In addition some firms report other indirect emissions, so called scope 3 emissions. But since scope 3 of the GHG protocol is optional, it is up to the reporting organization to decide what to measure and report.

Scope 3 includes anything a company could report but is not included in scopes 1 or 2, such as impacts from:

- Business travel
- Outsourced manufacturing
- Transportation services
- Waste disposal
- Goods and services used
- Employee commute
- Etc.

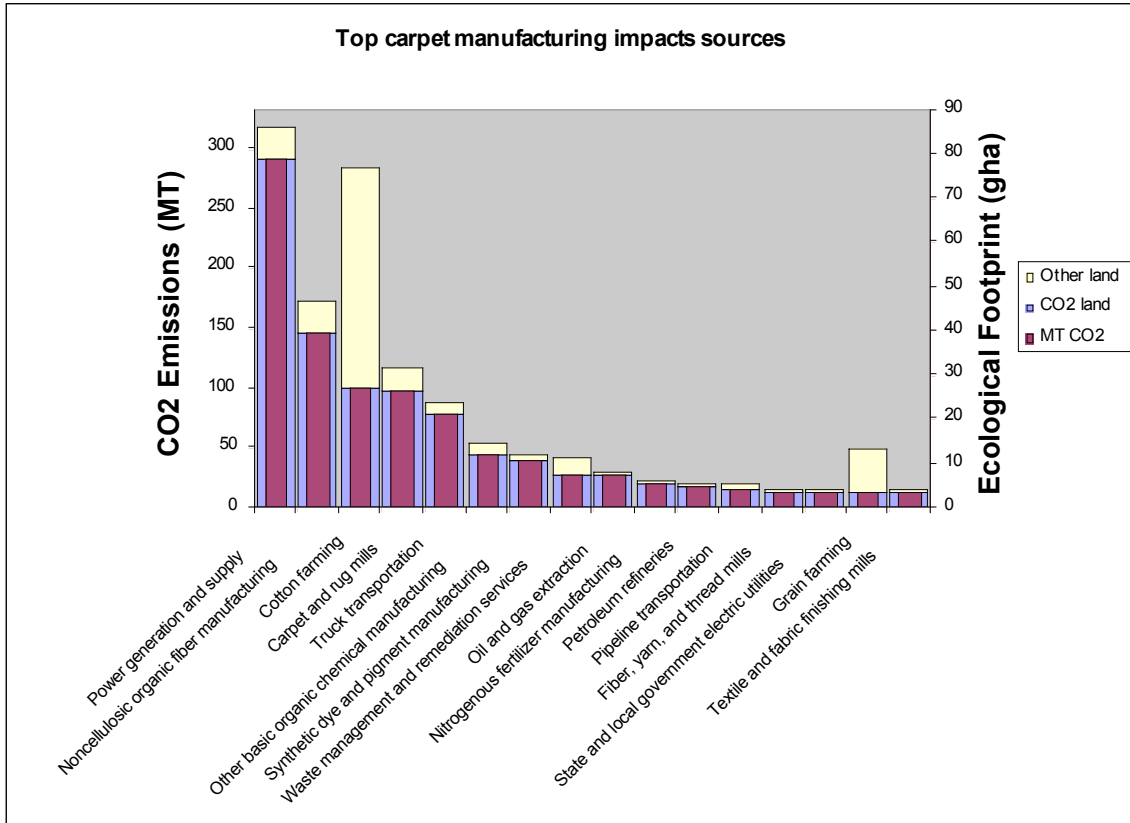
The scope 3 emissions of many organizations are significantly larger than the combined scope 1 and 2 emissions they are required to report under the GHG Protocol. Treating scope 3 emissions reporting as optional is therefore in most cases not sufficient. Any organization that is serious about measuring and addressing their full Global warming and Ecological Footprint impacts will need to build a complete picture of their impacts, at least at a macro-level, in order to identify major areas of supply chain impacts. But how can we create such a picture without breaking the bank? Tracking a supply chain's impact can be a laborious and costly exercise, let alone tracking down the impacts of all the goods and services an organization uses.

Sustainability Planning Partners uses various methods for determining organizations' carbon and Ecological Footprints. The two main methods are Materials flow Analysis (MFA, which includes Life Cycle Analysis) and Economic Input-Output based analysis (EIO). These methods are complementary in their use. MFA requires having a good picture of the physical quantities of materials, energy, and wastes that flow through an organization or organizational unit. EIO requires having a good picture of your expenditures. When determining the Footprint of an organization, performing an EIO analysis may be sufficient for generating a reliable picture of the scope 3 Footprint due to the sum total of all the supply chains that serve the organization. MFA can then be deployed to provide more details about high-impact areas and analyze improvement alternatives.

When performing an Economic Input-Output based analysis, an organization provides a list of all their expenditures in sufficient detail to enable assigning these expenditures to standard commodity groupings. U.S. economy accounts use many hundreds of detailed commodity codes, but in most cases it will suffice to group commodities together into larger buckets, such as paper products, inorganic chemicals, computers, couriers and messengers, motor vehicles, etc., just to name a few. A full list of commodities will be provided for reference when starting on an analysis. Alternatively, the analysts can estimate to which commodity group individual purchases from purchase records or groupings of purchases belong.

The result of an EIO analysis will show the total carbon and Ecological Footprint associated with an organization's purchases of goods and services. It will also provide details as to which supply

chain(s) have the highest impacts and what the sources of those impacts are. For example, an analysis may show that the purchase of new carpets for an office buildings resulted in emissions from electricity generation, fiber manufacturing, cotton farming, trucking, chemicals manufacturing and dye and pigment manufacturing, just to name some of the top 10 emissions sources for carpet manufacturing. A graph showing these emissions as well as the Ecological Footprint resulting from a single supply chain could look as follows (example only, not based on actual data):



The data underlying these graphs can be presented in many ways, including an aggregation of supply chains by product groupings, regional purchase patterns, etc. The Ecological Footprint is presented next to and in proper proportion to CO<sub>2</sub> emissions in order to show the magnitude of the full use of renewable ecological resources resulting from your activities. A typical analysis will provide several graphs that together provide you with a complete picture of the sources of your carbon and Ecological Footprints, as well as providing you with a single number for your overall carbon Footprint and one for your overall Ecological Footprint.

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