Organizational LCA (O-LCA) for activities in the Norwegian defence sector

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The Defence Research Institute (FFI) prepares annually an environmental greenhouse gas account for the activities in the Norwegian defence sector [1]. The emissions of greenhouse gases are determined in accordance to requirements in the ISO 14064 Greenhouse gas protocol. The account includes all direct activities from fossil fuel use (scope 1), emissions from energy and electricity use (scope 2) and the emissions from work travels (scope 3). Emissions from other indirect upstream and downstream activities are not included. For a large organization as the military with substantial procurement of goods and services, these outputs may be a significant part of the overall environmental impact.

Organizational LCA (O-LCA) is a compilation and evaluation of the inputs, outputs and potential environmental impacts of the activities associated with the organization adopting a life cycle perspective. By conducting an organizational LCA these indirect assets will be included in the assessment of the organisation's environmental impact, **Virhe. Viitteen lähdettä ei löytynyt.**.

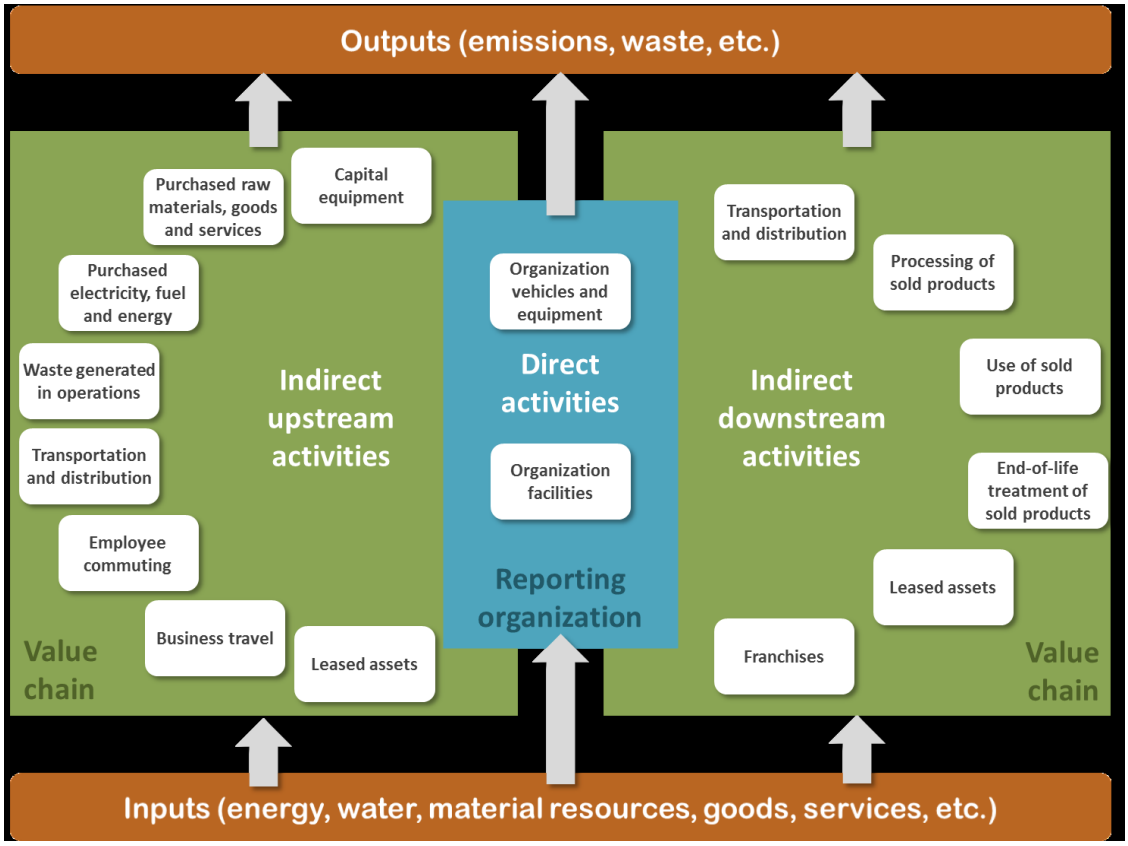

Figure 1. Including indirect upstream and downstream activities in an organizational LCA (source www.setac.org)

The paper describes the result of a project with the aim to quantify all the greenhouse gas emissions from the Norwegian armed forces in a life cycle perspective. To do so, a hybrid LCA approach was used, combining physical emission data from the environmental report with economic data from the sector's annual economic report.

Life cycle emissions for scope 1 and 2 data were achieved by combining the physical data with emission characterization factors given in the Econinvent 3.3 LCA database. Life cycle emissions for scope 3 data were achieved by combining the economic data of various procured goods and services with corresponding emission characterization factors identified in previous reports [3].

The results showed that when only the direct emission from the greenhouse gas account were included [1], the greenhouse gas emission were dominated by fossil fuel use (scope 1) and particularly the use of fossil fuel in aircrafts and in naval operations.

However, by adding the indirect emission originating from production of goods and services (scope 3) this gave a significant contribution to the overall emissions. The results may call for an increased attention on stringent environmental criteria for procurement in to effectively reduce the total greenhouse gas emissions in the entire value chain.

1. References

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