# Exercise 4b.1: Defining basic steps in a lifecycle assessment

## Estimated time requirement: 10 minutes

### Introduction

Lifecycle Assessments (LCAs) is a framework for assessing the environmental impacts of product systems and decisions from raw material acquisition through the end of life. A simplified lifecycle of a product typically starts with the extraction of raw materials, followed by production, distribution, consumption/use and the end of life. Typical environmental impacts analysed as part of LCAs can include (but are not restricted to) greenhouse gas emissions (e.g. measured in CO2-equivalents), water requirements (e.g. in $m^3$), land use requirements (e.g. in $km^2$) and energy requirements (e.g. in kWh).

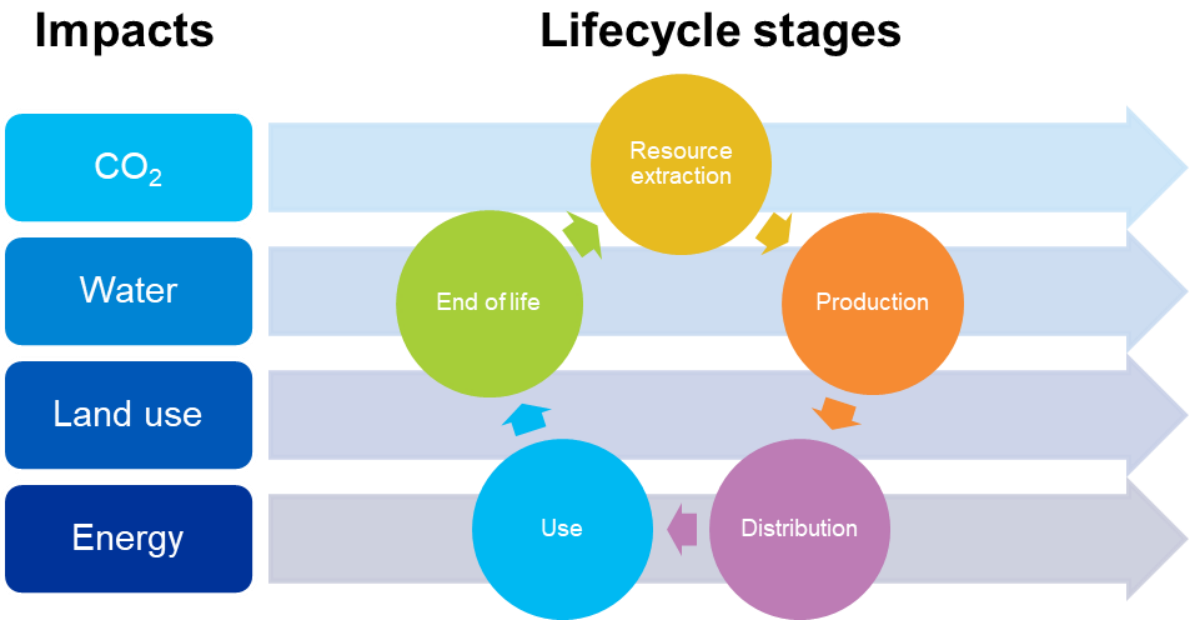


**Figure 1:** Conceptual framework of a simplified LCA

According to the standard "ISO14044:2006 Environmental management — Lifecycle assessment — Requirements and guidelines", LCAs are conducted in four steps. In step 1, the goal and scope of the LCA are define. In step 2, a lifecycle inventory analysis is conducted. Step 3 comprises the actual lifecycle assessment, followed by interpretation (step 4). Details steps are displayed in the figure below.

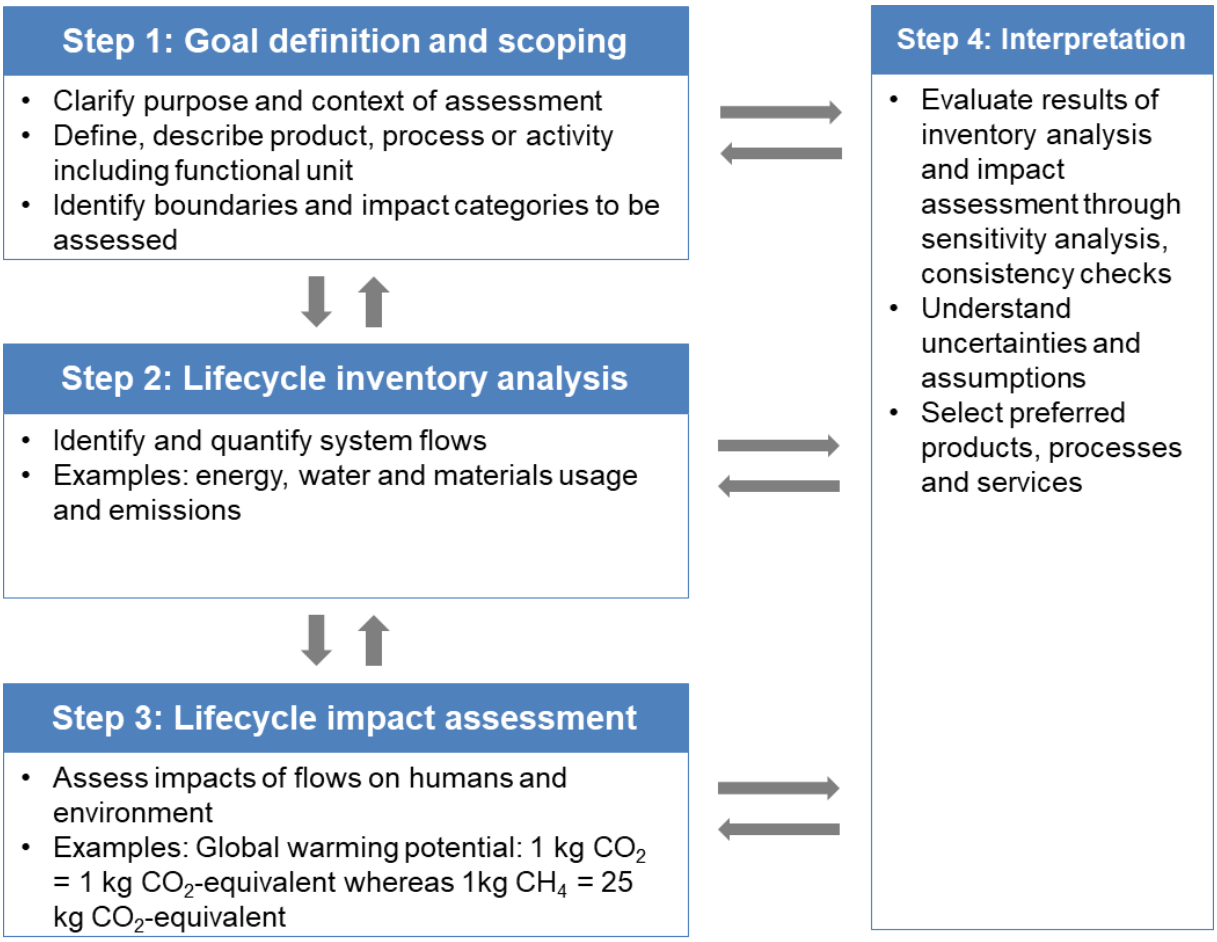


**Figure 2:** Steps and activities in a simplfied LCA

## Task

Please form groups of 2-3 people and examine the template on the next page. Using the example of a comparative LCA for two mobile phones of your choice, please define the activities in steps 1-4 by referring back to the terminology presented earlier (e.g. functional unit, impact categories). Think of fictional examples in each step and capture your thoughts by using the templates displayed in figure 3 below. Note that quantities (e.g. CO2-equivalents) can be entirely fictional and will be discussed with the entire course upon completion. Finally, discuss where you expect the largest impacts to occur.

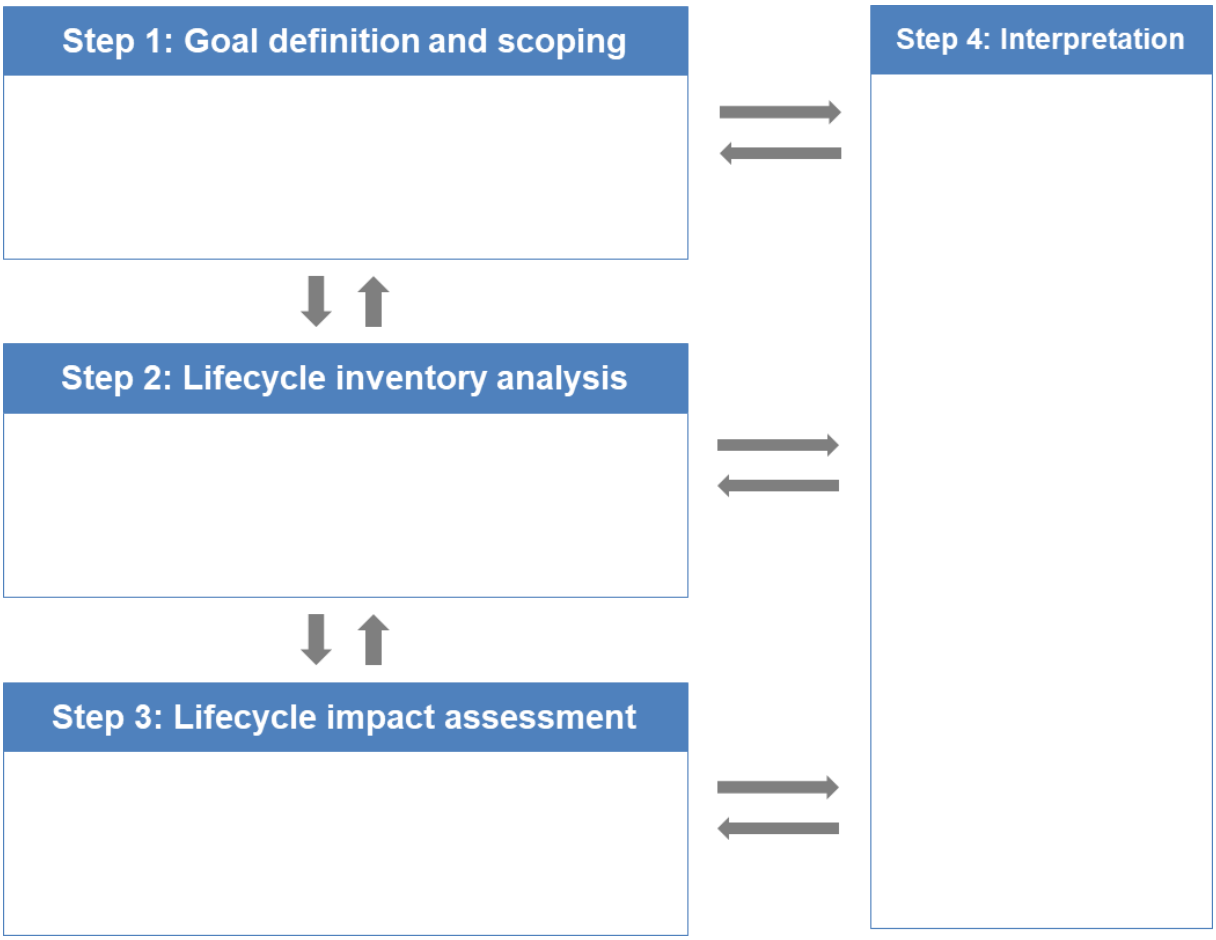


**Figure 3:** Exercise template