

1.

ISO 14000 is more than just a management framework. Specific standards under the ISO 14000 umbrella provide standards for environmental auditing and labeling, environmental communication, and greenhouse gas reporting. In the 1990s, entities around the world began to work on an analogous set of standards to promote high-value environmental management systems through improved management frameworks and indicators (ISO 14000), with the first version in 1996 and the most recent in 2015.

2.

**Goal and scope definition:** The goal and scope are statements of intent for your study, and part of what we will refer to as the study design parameters (discussed below). They explicitly note the reason why you are doing the study, as well as the study reach. I

**Inventory Analysis:** In the inventory analysis phase, you collect and document the data needed (e.g., energy use and emissions of greenhouse gases) to meet the stated goal and scope.

**Impact assessment:** In the impact assessment phase you transition from tracking simple inventory results like greenhouse gas emissions to impacts such as climate change.

**Improvement Analysis (Interpretation):** Finally, the interpretation phase looks at the results of your study, puts them into perspective, and may recommend improvements or other changes to reduce the impacts.

3.

#### SDPs list

- (a) **Goal:** it relates to goal and scope phase and it should be clearly stated. Before starting a LCA project, we need to consider four items: (1) the intended application, (2) the reasons for carrying out the study, (3) the audience, and (4) whether the results will be used in comparative assertions released publicly.
- (b) **Function Unit:** it should be very important at all four stages of LCA analysis, in other words, it must be a clearly and quantitatively defined measure relating the function to the inputs and outputs to be studied. In addition, it will be easy to make comparison with appropriate function units.
- (c) **Product System:** It is the definition of the relevant processes and flows related to the chosen product life cycle that lead to one or more functions. It can show a clear framework to audience and provide a logic guideline for researchers.
- (d) **System Boundary:** It notes which subset of the overall collection of processes and flows of the product system are part of the study, in accordance with the stated study goals.
- (e) **Inventory Inputs and Outputs:** It relates to Inventory analysis phase and needs to explicitly note the inputs and/or outputs we will be focusing on in our analysis. And system boundaries need to be justified. Beyond the visual display and description of the boundary used in the study, we should also explain choices and factors that led to the boundary as finally chosen and used.
- (f) **Impact Assessment:** We need to use other methods that have been developed in conjunction with LCA to help assess impacts. And to ensure that at a glance a reader can appreciate decisions that you have made up front before having to see all of your study results.

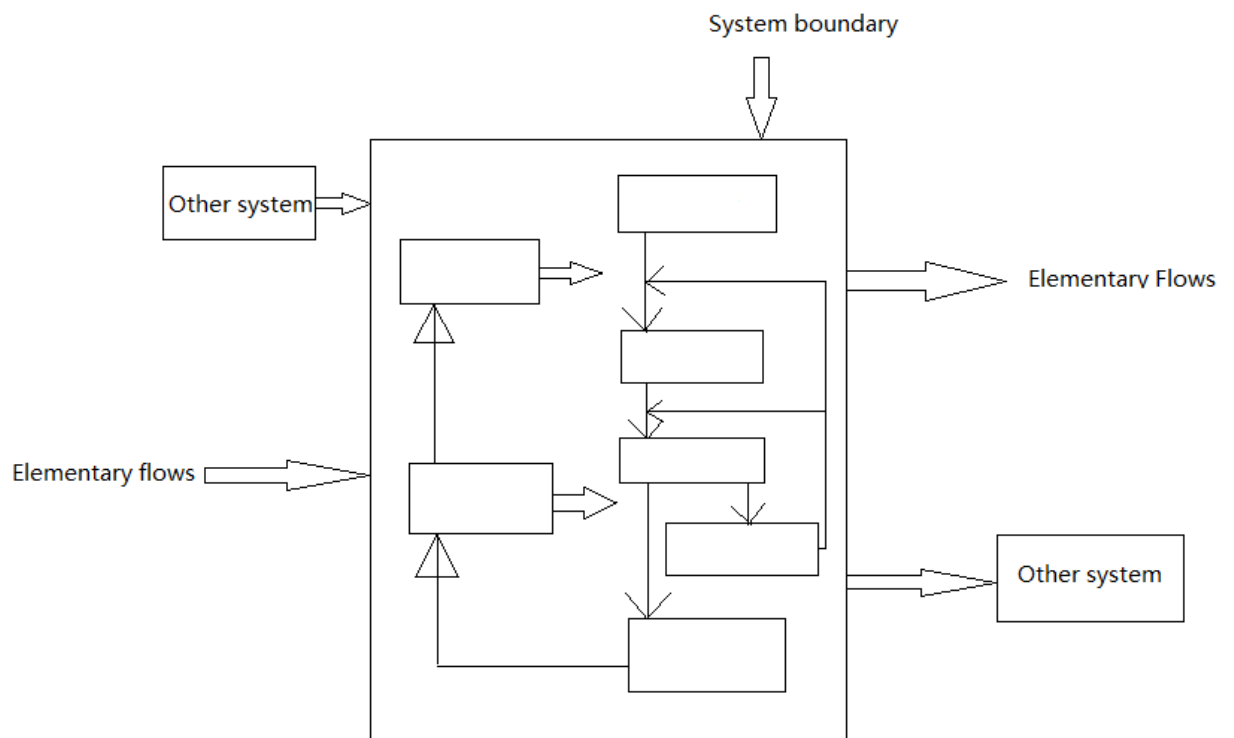
4.

Product system	Function	Functional Unit	LCI Result
Print book	Collect 100 pages of printed text	1 print book contained	$CO_2$ emissions per print book produced
Prorable flash memory drive	Storing electronic content	1 gigabyte store memory	Energy per gigabyte
E-book reader	Storing and displaying book content in a digital way	1 book stored	$CO_2$ emissions per reader bought
Automobile	Providing transporting	1 mile driven	$CO_2$ emissions per a mile driven

5.

Product	Function	Function unit
Organic/Conventional food	Boost energy	1 kg food eaten
Gasoline/Fully electric car	Transportation	1 mile drive
Concrete/Asphalt	Make construction stable	1 <i>kg</i> material
Buying books at a store/online	Provide reading	One book bought
Steel/Aluminum	Prevent wind	1 <i>kg</i> material
Window steel/PVC	Create a close system	1 $m^2$ material
Disposable/Reusable cloth diapers	Keep baby cleaning	One diapers changed

6.



7.

