

## 1.5 SCREENING ANALYSIS OF THE INPUT AND OUTPUT OF THE PRODUCT LIFE CYCLE

Purpose of this screening is to identify areas with possible significant potential for improvement within the life cycle of a product and its design. Similarly to the other forms (1.1, 1.2, 1.3), the focus of this analysis lies only on the identification of the most promising potentials. Therefore, just the most important risks and opportunities should be considered.

### Implementation of this analysis:

- 1) Evaluate inputs (use of natural resources) and outputs (pollution and other risks) within specific phases of the life cycle. For identification of some inputs and outputs, data from the input-output analysis may be used at the level of production process (Form 1.3).
- 2) **Whenever an input or output is significant for a specific phase (in positive or negative terms), write a remark in the relevant cell.** Different colours can be used to differentiate positive and negative impacts, e.g. adding a red background to cells containing remarks about negative impacts and green to cells containing remarks on positive impacts.

**THE GOAL OF THIS ANALYSIS IS NOT TO FILL IN ALL CELLS BUT TO INDICATE AREAS WITH A HIGH IMPACT AND POSSIBLE POTENTIAL FOR IMPROVEMENT WHICH SHOULD BE ANALYSED IN MORE DETAIL IN FORM 1.6.**

### The life cycle phases taken into consideration are:

- **Pre-manufacturing:** production of materials, semi-finished materials and components bought from external suppliers to make up the product, and impacts related to their packaging and distribution from the site of production to the manufacturing plant;
- **Manufacturing:** manufacturing processes at plant, including auxiliary materials, energy consumption, emissions, waste and transportation to and from different manufacturing sites;
- **Distribution:** transport steps necessary to distribute the product to the final users and each type of packaging in which the product is delivered.
- **Use:** of materials, additional products, components or energy necessary to maintain, repair or run the product.
- **End-of-life:** final disposal of the product at the end of its useful life.

Borders between different phases are not strict and shifting from one phase to the other is allowed (e.g. packaging can be considered part of manufacturing OR distribution). However, double counting must be avoided.

- The results of Form 1.5 combined with the TOP 10 table (Form 1.3) can give a preliminary overview of the company situation.

		PRODUCT LIFE CYCLE PHASES				
		Pre-manufacturing	Manufacturing	Distribution	Use	End-of-life
<b>INPUTS</b>	<b>Energy</b>					
	<b>Materials</b>					
	<b>Water</b>					
<b>OUTPUTS</b>	<b>Emissions to air</b>					
	<b>Emissions to water</b>					
	<b>Waste</b>					
	<b>Impact on health</b> direct risks for people and their health and safety					
	<b>Social impacts</b> such as social exclusion, poverty, migration, unemployment, etc. especially in relation to the local community.					

The following table shows examples of questions and possible answers which could be filled into the table. Examples are provided for products made by turned components, which consume energy during the use phase, are made with materials purchased through fair trade/sustainable procurement, and a biodegradable product:

		PRODUCT LIFE CYCLE PHASES				
		Pre-manufacturing	Manufacturing	Distribution	Use	End-of-life
INPUTS	Energy				<p>Here the question could be: "Is energy a significant input for the use phase?" The remark to be written in this cell could be: <b>Negative impact: the product consumes electricity during the use phase. The overall consumption amounts to n kWh</b>".</p>	
	Materials					
	Water					
OUTPUTS	Emissions to air					
	Emissions to water					
	Waste		<p>Here the question could be: "Does waste have a significant impact during the manufacturing phase?" The remark to be written in this cell could be: <b>Negative impact: the product is made by turned components; 15% of the material goes into shavings</b>".</p>			<p>Here the question could be: "Does waste have a significant impact during the end-of-life phase?" The remark to be written in this cell could be: <b>Positive impact: the product is biodegradable and can be turned into n kg of compost in n months</b>".</p>
	Impact on health direct risks for people and their health and safety					
	Social impacts community and its social capital, social exclusion, poverty, migration unemployment, etc.	<p>Here the question could be: "Are there significant social impacts within the pre-manufacturing phase?" The remark to be written in this cell could be: <b>Positive impact due to materials from fair trade used in manufacturing</b>".</p>				

## Further recommendations for utilisation of this form

- A basic knowledge of the sector and of the main impacts along the different life cycle phases (from literature sources or experts) allows the identification and discussion of all relevant aspects of the product life cycle;
- Not all cells of the form have to be filled in (as shown in the example). Focus on important impacts and opportunities. If information on possible significant risks or opportunities for a given cell are not available (for example use of energy in the use phase or production of large amount of waste during pre-manufacturing), leave the cell empty. There is no need for a more detailed investigation of that aspect. In case of serious doubts and a possible influence of the company on the life cycle, collection of additional information may be needed.
- This step of EDIT Value can be accomplished mainly in a qualitative manner. The goal is to identify for each life cycle stage the main inputs and outputs and their importance in terms of environmental impacts. This identification helps to recognise opportunities for significant improvements that may be further investigated.
- If different product types are manufactured in the company, the form should be repeated for the main product types (since inputs and outputs along the life cycle stages can be quite different);
- Positive actions which have already been implemented by the company but also aspects that are not yet considered by the company (i.e. end of life of products, evaluation of environmental performances of suppliers, etc.) can be outlined, and therefore can represent areas of improvement. The relevant aspects will be further investigated in Form 1.6.
- This form also allows to decide if some questions on Form 1.6 will be skipped or simplified (for instance if the use phase of a product is not relevant, all the questions on Form 1.6 related to this phase of the life cycle may be skipped or simplified). In any event, attention needs to be paid to avoid omitting any significant aspects on Form 1.6 merely due to a lack of knowledge on some life cycle stages. It might be practical to combine this analysis with the evaluation of the specific aspects 4.1 to 4.32 of the Form 1.6. This way, the number of questions can be split and repetitiveness is avoided.