

SIT WITH YOUR GROUP

GUIDE TO SOCIAL IMPACT ASSESSMENT OF A PRODUCT

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CAPSTONE LECTURE

Outline

- Definition of social impacts
- Motivation for social impact assessments
- Social impact assessment process
- Social impact assessment example: ASUS Laptop computer
- Summary of example

What are Social Impact Assessments?

- Social Impacts are defined as the consequences a product has on stakeholders along its lifecycle
- SIAs are then methods to assess the positive/negative social impacts

Social impact assessment motivation

- **Company Image**
 - Child labor involved in making of vehicle batteries
- **Monitor the progress of policy interventions**
 - Evaluate impacts of policies
- **Economic benefits**
 - Interest from customers (willingness to pay)
 - Required by investors

I. Determine the Goal and Scope

II. Perform Inventory Analysis

III. Interpret Results

Social impact assessment example

Example of Laptop social impact assessment [3]

- **Motivation**

- 66% of population in European Union uses a laptop computer
- Production process occurs mostly in countries with low wages
 - Production is most material intensive process
 - Manufacturing involves use of fossil fuels, rare metals, chemical substances and high water use

- **Geographical context:**

- Computers are ordered in Belgium
- Components are produced in China, South Korea and Taiwan
 - Majority of components are produced in China

I. Goal and Scope

Process for the goal and scope

- Define the objective of assessment
- Describe of product(s) being analyzed
- Define the functional unit
- Define the selected lifecycle stages
 - Define the associated activities

Table 1: Goal and Scope Section Summary

Objective of assessment	Design Function	Functional Unit	Lifecycle Stages Considered	Associated Activities

Goal and Scope Definitions

- **Goal:** Why are you performing this social impact assessment?
- **Scope**
 - **Design function:** What is the function of the design/product?
 - **Functional unit:** Unit of reference for analysis
 - **Lifecycle stages considered**
 - **Associated activities**

Product Lifecycle Stages

Associated Activities

Production



Raw material extraction

Processing



Manufacturing, Assembly

Use



Customer use, Maintenance

End of Life



Landfill, Recycling

Example Table 1: Goal and Scope Section Summary

Objective of Study	Design Function	Functional Unit	Lifecycle Stages Considered	Associated Activities
Assess social impacts of laptop computer	Provide desktop computer functionalities in a lightweight and portable package	1 laptop computer	Production	Raw Material Extraction
			Processing	Assembly of components

Team Work - Set your Goal and Scope

Use the next 3 minutes to work in your team on setting your goal and scope.



II. Inventory Analysis

Inventory Analysis Process

- Select stakeholder groups
- Select impact categories
- Select impact indicators

Table 2: Inventory Analysis Section Summary

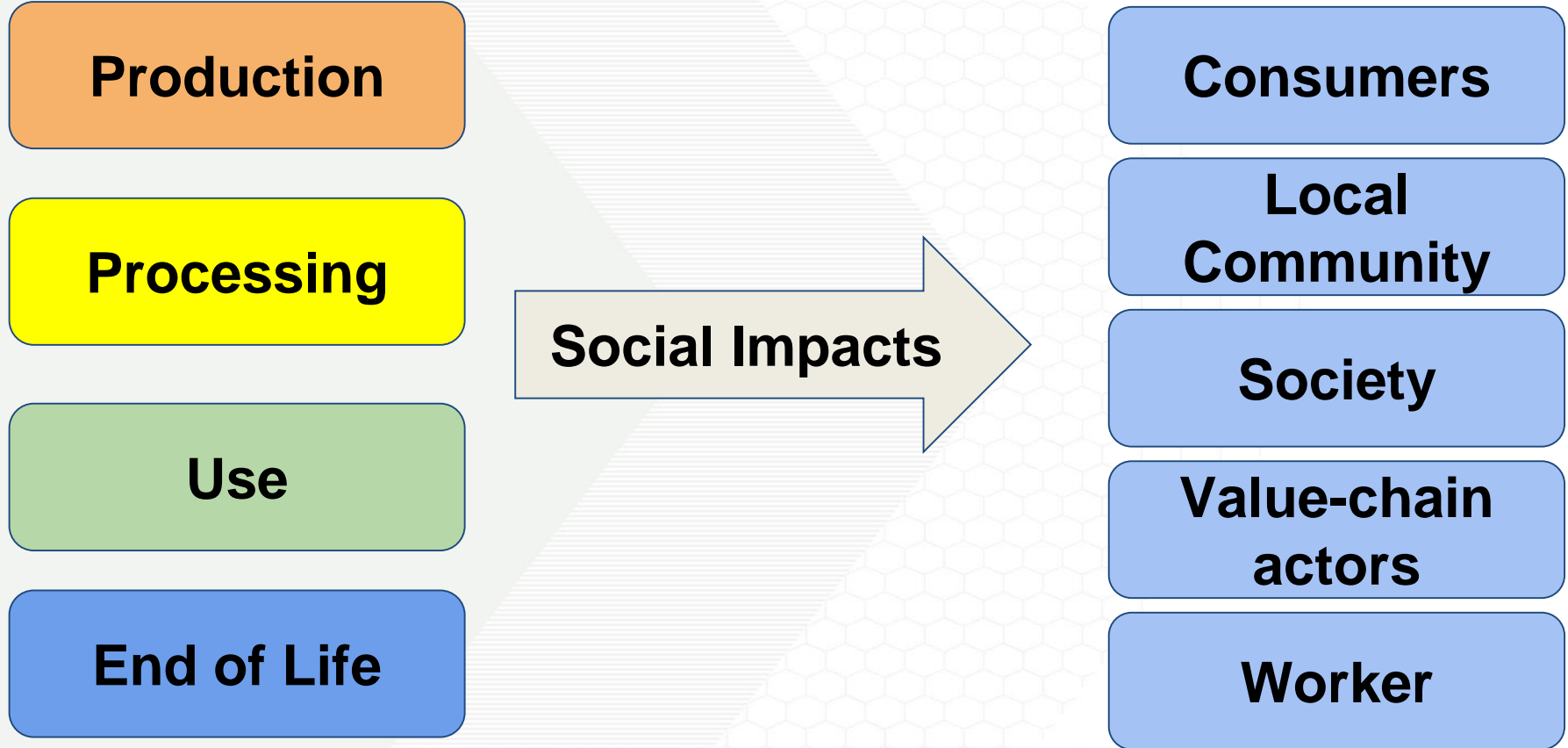
Product Lifecycle Stage	Stakeholder Group	Social Impact Category	Indicators



Stakeholder Groups^[2]

- **Consumers:** anyone involved in the use of the product
- **Local community:** anyone near where product lifecycle activities are conducted
- **Society:** a collection of individuals (bigger scale than local community)
- **Value-chain actors:** anyone involved in product lifecycle activities without having direct contact with the product
- **Worker:** anyone directly involved in product lifecycle that are not consumers

The Lifecycle Stages and stakeholders



Social impact categories and indicators

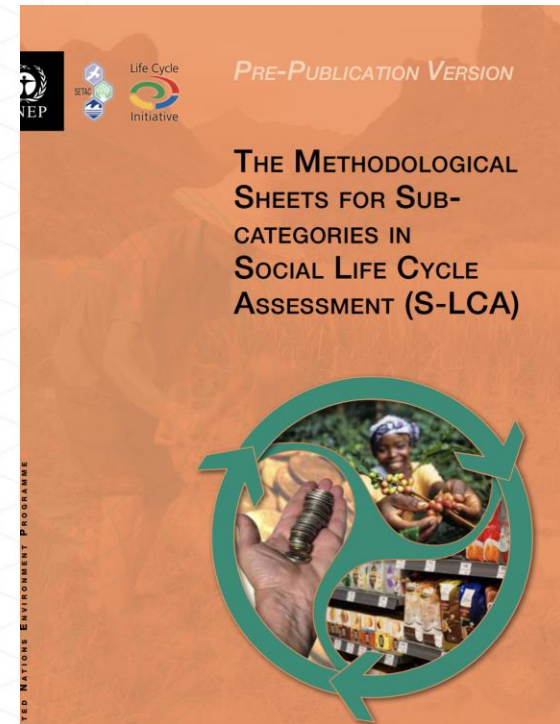
- **Social impact categories** are logical groupings of social impacts
- **Indicators** provide a measure of the social aspect being evaluated



Step 1: Select Relevant Stakeholder Groups

Step 2: Select Social Impact Categories

Step 3: Select Impact Indicators



Step 1: Select Stakeholder Groups

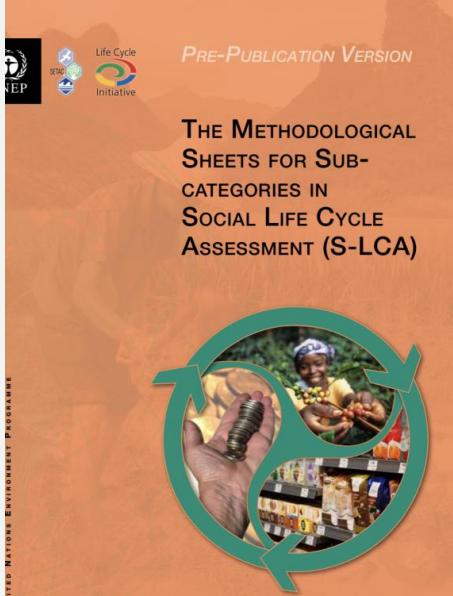
Sheets are organized per stakeholder group

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Value Chain Actors	51
Consumer	67
Worker	87
Society	125

Step 2: Select social impact categories

Laptop Example



Stakeholder Group	Social Impact categories*
<p>Worker</p>	Freedom of association and collective bargaining
	Child labor
	Forced Labor
	Fair salary
	Working time

*These are just a subset of the possible impact categories that could be considered.

Step 3: Select Impact Indicators

Laptop Example

Stakeholder Group	Impact Category*	Impact Indicators
Worker	Freedom of association and collective bargaining	Evidence of description of association and collective bargaining
		Presence of unions within the organization is supported
	Child Labor	% of children working in country/sector
	Forced Labor	% of forced labor by region/sector
	Health and Safety	Accident rate by country/sector

*These are just a subset of the possible impact categories that could be considered.

Laptop Example Table 2: Inventory Analysis Section Summary

Product Lifecycle Stage	Stakeholder Group	Social Impact Category	Indicators
Production	Worker	Child Labor	% of children working in country/sector
		Health and Safety	Accident rate by country/sector
	Local Community	Access to material resources	Extraction of material resources and level of industrial water use
Processing	Worker	Hours of Work	Number of hours worked per employee

Team Work - Perform Inventory Analysis

Use the next 5 minutes to work in your team on performing the inventory analysis.



III. Interpretation of Results

Process for Interpretation of Results

- Written reflection
 - Address in prose the questions from the template

Written reflection addressing the following questions:

- How do you predict your design will impact human well-being, positively and negatively?
- What steps can you take to minimize the negative social impacts of your design?
- In completing Steps I and II, what was your reasoning for the selection of the:
 - lifecycle stages?
 - stakeholder groups?
 - social impact categories and indicators?

Laptop Example: How do you predict your design will impact human well-being, positively and negatively?

Potential Positive Impacts

- Employment/job creation
- Enabling technology
- Trade and global prosperity

Potential Negative Impacts

- Child or forced labor possible
- Workplace safety with hazardous materials, heavy machinery, unsafe conditions in mines
- Global warming impacts for water usage and rare natural resources

Stakeholder Group	Impact Category	Impact Indicator
Worker	Child Labor	% of children working in country/sector
	Health and Safety	Accident rate by country/sector
	Access to material resources	Extraction of material resources and level of industrial water use
	Hours of Work	Number of hours worked per employee

Laptop Example: What steps can you take to minimize the negative social impacts of your design?

Potential Negative Impacts and Mitigation Approaches

- Child or forced labor conditions possible
 - Verifying working conditions and labor laws of product chain partners, sites, and countries
- Workplace safety with hazardous materials, heavy machinery, unsafe conditions in mines
 - Verifying safety practices and regulations of product chain partners, sites, and countries
- Global warming impacts for water usage and rare natural resources
 - Designing for production processes that require less water usage, and less rare natural resources
 - Choosing sites that have practices in place for sustainable use of resources

Laptop Example: Reasoning Behind Selections Made

- Lifecycle Stages
 - Production (raw material extraction) and processing stages (assembly and manufacturing) are expected to have the greatest impact
- Stakeholder Groups
 - Workers are expected to be most impacted
- Social Impact Categories and Indicators
 - The country where the selected lifecycle stages will occur are known for poor labor laws

Team Work - Interpret Results

Use the next 3 minutes to work in your team on the interpretation of results.



Your Social Impact Assessment Assignment (Component of Final Report)

Social impact assessment assignment

- Perform the (I) goal and scope, (II) inventory analysis and (III) interpretation of results steps
- Complete the provided template to be included as a section of your final report for capstone
- You have received the following documents:
 - Outline document as step-by-step guide
 - Template for deliverables
 - Document with impact categories and indicators

Documents that have been provided

Social Impact Assessment (SIA) for Capstone Design

The procedure in this document will help you to plan and execute a Social Impact Assessment to give you a clearer picture of the effect your design might have on the world around it. The outline should familiarize you with the process of performing a Social Impact Assessment (SIA) of a design. Once you complete the steps in this outline, you may use it to create the section on the social impact of your design for your final report for Capstone Design.

The procedure consists of three steps: (I) Defining the Goal and Scope, (II) Performing an Inventory Analysis, and (III) Interpreting the Results.

An example is provided for a Social Impact Assessment of a laptop computer [1]. An Appendix of definitions is provided with this document.

I. Define the goal and scope

Defining the goal and scope of the study is the first step in the SIA as it provides context and its definition affects the subsequent steps of the analysis. The *goal* of the SIA describes the objective of the study, or basically the reasons for performing it. The *scope* describes the design system being studied, the product lifecycle stages considered in the analysis and the definition of the functional unit. The goal and scope are captured in tabular form. Refer to Table 1 for an example of the output of the goal and scope step.

A. Define the objective of the study

- What do you hope to learn from your social impact assessment about your design/product?
 - Why is the analysis being performed?
- What stage in your design process are you in when this assessment is being performed?

B. Define the scope

- The scope defines: the function of the design being studied, the functional unit, the product lifecycle stages considered and its associated activities.
- Describe your design
 - What design problem or opportunity are you addressing?
 - What is the intended purpose or function of the design? (Should begin with action verb)
- If you're assessing more than one design alternative, describe each design alternative.

C. Define your functional unit

- The functional unit is a quantifiable element related to the product being studied, such as the product itself, a subcomponent of the product, etc.

Social Impact Assessment (SIA) Results Template

This document provides a template to organize the results obtained by following the Social Impact Assessment (SIA) assignment outline. The template consists of three sections corresponding to the main headings of the SIA assignment outline: (I) Goal and Scope, (II) Inventory Analysis, and (III) Interpretation of Results. Follow the instructions stated in the framework outline document when completing the template.

I. Goal and Scope

Complete Table 1 based on the study information.

Table 1: Goal and Scope Section Summary

Objective of Study	Functional Unit	Lifecycle Stages Considered	Associated Activities

II. Inventory Analysis

Complete Table 2 based on the study information. (Use the provided 2011 United Nations Environmental Program Methodological Sheets to find social impact indicators.)

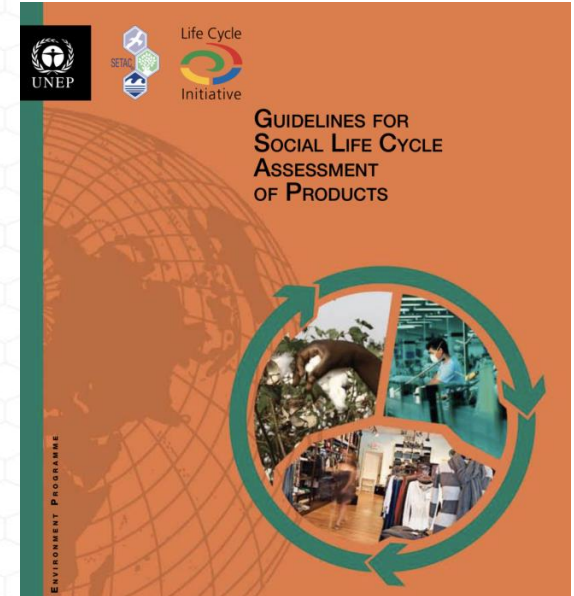
Table 2: Inventory Analysis Section Summary

Product Lifecycle Stage	Stakeholder Group	Social Impact Category	Indicators

III. Interpretation of Results reflection

Write a written reflection by answering the following questions:

- How do you predict your design will impact human well-being, positively and negatively?
- What steps can you take to minimize the negative social impacts of your design?
- In completing Steps I and II, what assumptions were made regarding the selection of the:
 - lifecycle stages?
 - stakeholder groups?
 - social impact categories and indicators?



Step-by-step How To Outline for Social Impact Assessment

Deliverable Template for Social Impact Assessment

2011 United Nations Environmental Program Methodological Sheets

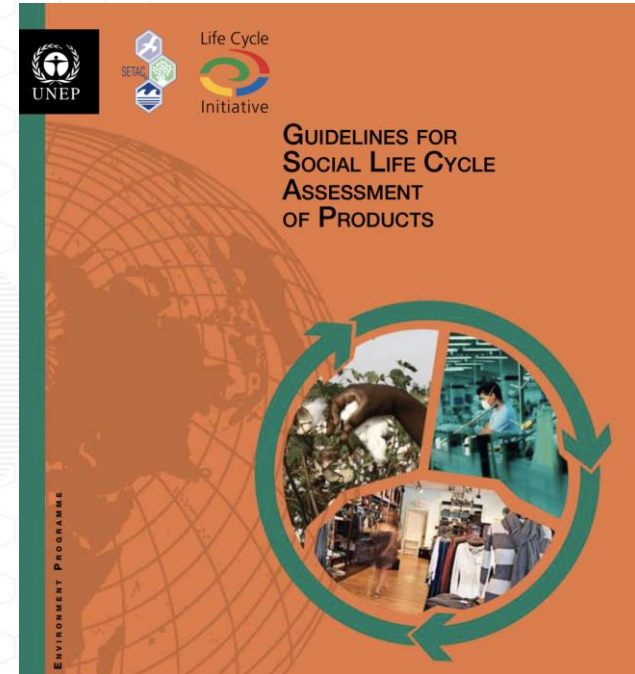
Summary

- Social impact assessment allows a **better understanding** of the **impacts** designs have on **human well-being**
- We hope that this is useful for this course and for your future role as a professional engineer
- Have questions about the report? Contact email: rjba3@gatech.edu
 - Subject line: “Capstone Social Impact Assessment”
 - Lab Location: MRDC 3340
- **Thanks!!!**

Back Up Slides

Stakeholder Theory

- Analyze product social impacts based on **stakeholder groups**
- Stakeholder groups share social impact characteristics
- **5 main groups:**
 - Consumers
 - Local community
 - Society
 - Value-chain actors
 - Workers



2009 Guidelines for Social Lifecycle Assessment of Products [1]

References

1. 2009 United Nations Environmental Program (UNEP) Guidelines for Social Lifecycle Assessment of Products
2. 2011 UNEP The Methodological Sheets for Sub-categories in Social Life Cycle Assessment
3. “LCA of an Ecolabeled notebook: Consideration of Social and Environmental Impacts Along the entire Lifecycle”, Citroth, A, Greendelta GmbH, February 2011