



Conducting a generic S-LCA: case study on a laptop

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The project

- A case study on a laptop computer
 - Methodology in “Guidelines for a social LCA on products and services” (Benoît & Mazijn 2009)
 - Research questions:
 - How does the model work when using generic data?
 - What data is available?
 - Does the Methodological Sheets (UNEP/SETAC Lifecycle initiative 2010) support the data collection in a good way?
 - Can the model be implemented in a meaningful and reasonable way in relation to the resource use?
 - Increase knowledge of social impact on a generic level from a laptop throughout its life cycle.
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Scope and limitations

- Generic data
 - Aim to include the full product system (resource extraction – waste)
 - All relevant stakeholders included in each phase
 - Supporting processes (e.g. energy) and more generic process (e.g. transports) not included
 - Reuse of the computer not considered
 - Laptop consumed in Sweden
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The methodology

Area of protection: Human well-being

Stakeholders:

- Worker
- Local community
- Society
- Consumers
- Value chain actors

Assessment:

- Each stakeholder has a number of subcategories, in total 31
 - Example of subcategories:
 - Child labour
 - Technology Development
 - Corruption
 - Local employment etc
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The methodology

The impacts are identified in the different phases of the product system, for example:

- Resource extraction
- Refining and processing
- Manufacturing and assembly
- Marketing and sales
- Use
- Recycling and waste

Different types of indicators:

- Qualitative
 - Semi-quantitative (scoring or yes/no)
 - Quantitative
 - Positive and negative impacts
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Our study

The impacts are identified for the following phases:

- Resource extraction (copper, cobalt, aluminum, gold, oil, quarts sand)
- Refining and processing (metals, oil/plastic)
- Manufacturing and assembly
- Marketing and sales
- Use
- Recycling and waste (formal and informal)

And for the following countries:

Australia, Brazil, Canada, Chile, China, DRC, Ethiopia, France, Germany, Ghana, Hong Kong, Indonesia, Japan, Madagascar, Malaysia, Mexico, Mozambique, Nigeria, Peru, Poland, Rep. Korea, Russia, Saudi Arabia, Singapore, South Africa, Sweden, Taiwan, Thailand, UK, US, Zambia

Data Collection

- Identifying combinations of countries and stakeholder/subcategories for each phase
- Collection of data per country according to proposal in Methodological Sheets

GENERIC ANALYSIS (HOTSPOTS)

Inventory Indicator	Unit of Measurement	Data Available
Forced Evictions stemming from Economic Development	Quantitative	COHRE's Global Survey on Forced Eviction describes specific events, causes and numbers of people affected http://www.cohre.org/globalsurvey
Description of Causes for and Treatment of Internally Displaced Persons	Qualitative/Semi-Quantitative	U.S. Dept. of State Country Reports on Human Rights Practices, including discussion of Internally Displaced Persons http://www.state.gov/g/drl/rls/hrrpt/
International Migrants as a Percentage of Population	Quantitative	UN International Migrant Stock, as percentage of country/region population http://esa.un.org/migration



Relating data to the laptop within phases

Example: the phase resource extraction:

- Many different materials extracted –relative weights in the laptop
- Countries have different importance in extraction – market share

➔ Relative importance of countries in resource extraction phase



Relating data to laptop between phases – the Activity variable

- Identify the relative importance of each phase in the product system
 - Activity variable - number of work hours or economic importance of each phase
 - Not sufficient data found – used rough estimation qualitatively in the final evaluation
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Aggregating and Impact assessment

- No fixed methodology
 - We chose not to aggregate
 - Highlighting significant countries (vertical) and high/low indicator values (horizontal) in a spreadsheet
 - Where highlights coincide we have a hotspot
 - Enables the identification of non-significant countries with large share of high indicator values
 - Promotes transparency and more detailed knowledge on social impacts
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Stakeholder	Subcategory	Indicator	Unit of measure	Australia	Bolivia	Brazil	Canada	Chile	China	DRC	Ethiopia	Germany	Indonesia	Madagascar	Mozambique	Peru	Russia	Saudi Arabia	South Africa	US	Zambia	Source	Worldmax and min of indicator	Mean and limit for the 25% highest (lowest) values
Worker	Freedom of Association and Collective Bargaining	Evidence of restriction	Qualitative	Recognized in law but not in line with intl. standards. Lack of implementation, incidents.	Generally recognized in law. Some incidents of violation.	Recognized in law with some limitations. Some incidents.	Recognized nationally, but sometimes limited in provinces. Lack of implementation. Some incidents in practice.	Recognized in law but with restrictions for coll barg. Incidents.	Enforced trade union monopoly restricts freedom of assoc. Exists of collective contracts but not bargaining. Weak implementation locally of workers	Recognized in law for most employees (not all), coll barg restr in public sector. Several incidents in practice	Many groups excluded, limitations in the right to coll barg. Largely violated in practice.	Recognized by law, but some groups excluded. Generally implemented but some incidents.	Recognized by law but with limitations. In practice poor implementation and numerous of incidents.	Generally recognized in law even if some groups are excluded. Largely violated in practice.	Recognized in law but with limitations for some groups. Largely violated in practice.	Recognized in law but with restrictions. Incidents.	Recognized by law but with vast restrictions. Some incidents.	Only workers committees recognized by law, with limited scope. Discriminative legislation and practice regarding foreign workers. Some incidents.	Recognized in law. Some incidents.	Recognized in law but with many legal restrictions in practice. Many groups excluded. Lack of implementation and sanctions. Some incidents.	Recognized in law. Violated in practice, especially in the mining, dominated by Chinese companies.	ITUC	Qualitative	Qualitative
	Child Labour	Percentage of children working	Child labour as percentage of children in total (a+b)	N.a	18,5	3,4	N.a	2,5	N.a	21,5	44,9	N.a	4,8	19,1	1,7	30	N.a	N.a	N.a	N.a	39,2	UCW, Understanding Children's	max: 60,7; min: 0;	30,4 and 45,5
	Working Hours	Forced labour	Percentage of forced labour per region, thousand inhabitants	0,3	2,5	2,5	0,3	2,5	0,5	1	1	0,3	3	1	1	2,5	0,5	0,75	1	0,3	1	ILO, A Global Alliance against Forced	max 3; min 0,3	1,5 and 2,25
	Equal opportunities /Discrimination	Women in labour force	Female working percentage i % of male working	84	77	75	89	61	88	66	89	87	62	97	99	78	91	27	76	85	75	The World Bank, CPIA	max 100; min 12	56 and 34
		Country gender index	Rank of 124 countries	N.a	11	24	N.a	39	59	79	104	N.a	81	49	94	16	7	122	62	N.a	103	The OECD, SIGI	max 124; min 1	62 and 93



Identified problems/possible improvements

- Data accessibility – very time consuming, lack of data
 - Data quality – mixed years in the same source, not all countries available; we used some data of rather low quality to get a result
 - Data relevance – the pathways between the performance and the indicator is not clarified, stakeholder perspective to be considered
 - Activity variable – lack of data, different variables may be relevant for each stakeholder
 - Impact assessment method – more development needed
 - Transparency and Interpretation- important due to above deficiencies, promotes learning
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