Social Life Cycle Analysis (SLCA)

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Sustainability: Triple Bottom Line

Profit

People ↔ Planet
Environmental vs. Social Practices

Published on Saturday, October 20, 2001 in the Independent UK

We Blew It

Nike Admits to Mistakes Over Child Labor
by Steve Beggan

The multi-billion dollar sportswear company Nike admitted yesterday that it "blew it" ending the practice might be difficult.

Nike attempted to present itself to its shareholders in its first "corporate-runners" and employing young executives who worried about the e.

The mere fact that Nike has produced such a report was . Oxfam's NikeWatch and the Clean Clothes Campaign

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(ReLU
Environmental vs. Social Practices

"Ongkat" system for illegal logging on wet areas in Riau, Photo: Roman Pirard (CIFOR)

Picture: Aurajava furniture

Picture: Jepara teak furniture
What is SLCA?

Impact assessment technique that aims to assess the social and socio-economic aspects of products and their potential positive and negative impacts along their life cycle

(United Nations Environmental Program and Society of Environmental Toxicology and Chemistry, 2009)

Overall Goal: Human and Societal Well Being
Why Social LCA?

- Contribute to improvement of social performances of products at different stages in the life cycle
- Information towards decision makers from business and from governmental organizations and NGOs for choosing between products
- Choice of relevant performance indicators
- Marketing
Goal and Steps in SLCA

• “...the ultimate goal of S-LCA technique is to promote improvement of social conditions throughout the life cycle of a product, human wellbeing is a central concept” (UNEP, 2009, p. 22).

• Steps:
  – Goal definition
  – Scope definition
  – Inventory assessment
  – Impact analysis
I. Scope and Boundary

- Functional unit and product utility: Starting point to determine the product system
- Geographic location of unit process is often important, if not necessary
- Stakeholder involvement
- Baseline (e.g., if the production chain did not exist)
Who are the Stakeholders?

Business & Products

- Consumers
- Society
- Local Communities
- Public authorities
- Technology Providers
- Media, Banks, insurance companies, financial analysts

Value chain actors

- Commerce / Trade Associations
- Environmental and Social Non-governmental Organizations
- Intergovernmental Organizations

Workers

Research Institutes / Universities

Labor Associations
General Stakeholder Groups Considered

- Worker
- Local community
- Society
- Consumer
- Members along the value chain

Picture: tahan.com
II. Life Cycle Inventory (LCI)

- Data is collected from stakeholders and from the company and its partners
- Data is both qualitative and quantitative
  - The subjective data is sometimes in S-LCA the most appropriate information to use.
- The data sources will differ (coming from stakeholders)
- The data collection steps and methods vary (e.g., social hot spots identification)
III. LCIA: What are the Impact Categories?

- Social Impact- Consequence of positive and negative pressure on social end points (well being of stakeholders)
- Impact subcategories:
  - Human rights
  - Access to resources
  - Employment and community engagement
  - Working conditions
  - Health and safety
  - Cultural heritage (e.g., indigenous rights)
  - Socio-economic repercussions (e.g., political conflict, disease, poverty, etc.)
IV. Interpretation of Impacts

• The context accounts for impact
  – The local stakeholders define the impact
  – Impact must take into account the context:
    • To be used by company?
    • To be used by policy-makers?
<table>
<thead>
<tr>
<th>Stakeholder categories</th>
<th>Impact categories</th>
<th>Subcategories</th>
<th>Inv. indicators</th>
<th>Inventory data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers</td>
<td>Human rights</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local community</td>
<td>Working conditions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Society</td>
<td>Health and safety</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumers</td>
<td>Cultural heritage</td>
<td></td>
<td></td>
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<tr>
<td>Value chain actors</td>
<td>Governance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Socio-economic repercussions</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Example

- Stakeholder category: Worker
- Impact category: Working conditions
- Subcategory: Social security and benefits
- Inventory indicators: Percentage of employees covered by:
  - Health insurance
  - Retirement insurance
  - Paid maternity leave
  - Legal contract
Conclusion: Different Methodologies and Uses

• Three different uses of SLCA methods:
  – Management SLCA: Identifying social hot spots
  – Consequential SLCA: Choosing between decision alternatives
  – Educative SLCA: Disseminate information
Limitations of S-LCA

- There is no common unit for assessment (e.g., CO2 equivalent)
- There are various questions on assessment methods (no standard)
- Lack of availability of data (mostly qualitative)
- Introduces bias (many times based on analysts views)
- Expensive and time consuming
Example 1. ELCA and SLCA of cut roses from Ecuador

• Franze and Ciroth (GreenDelta, a sustainability consulting company), LCA conference, Boston (September 2009)

• Ecuadorian rose plantations:
  – 400 rose farms with 60,000 employees
  – Exports roses annually for 300 million USD
  – Advantages: Climate, low wage level

Social Structure at Rose Plantations

- Predominant female workers
- Child labor widespread
- Many working hours: 72-84 per week
- Wages: Low (average ~$84 US per month)
- Equality: Children and women earn less
- Poisoning by pesticides: Employees suffer from acute and chronic poisoning (asthma, cancer, genotype is changed, ....)
Scope: Product System in Ecuador
Functional Unit

• Packaged rose bouquet with 20 stems
• The roses are produced in a fictitious company in Ecuador
• The bouquet is transported to a flower auction in Aalsmeer, Netherlands

Approach: SLCA, color coded impact assessment, assessment done based on international codes of conduct (e.g., ILO convention)
### Stakeholder

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Subcategories/Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Workers: Employees of the rose plantations in Ecuador</td>
<td>Freedoms of association, discrimination, child labor, fair salary, working hours, forced labor, health and safety, social benefits</td>
</tr>
<tr>
<td>Supply Chain Actors: Fictitious companies in Ecuador</td>
<td>Fair competition, promoting CSR</td>
</tr>
<tr>
<td>Local Communities: Region Pichincha</td>
<td>Respect of indigenous rights, net migration rate, safe and healthy living conditions, local employment</td>
</tr>
<tr>
<td>Society: Ecuadorian society</td>
<td>Contribution to economic development, corruption, technology development, prevention of armed conflicts</td>
</tr>
<tr>
<td>Consumer: Rose buyer in flower shops</td>
<td>Health, safety and transparency</td>
</tr>
</tbody>
</table>
Impact Categories

• Health and safety
• Socio-economic repercussions
• Human rights
• Indigenous rights (incl. cultural heritage)
• Development of the country
Rating Scale

- positive effect
- indifferent effect
- more or less negative effect
- negative effect
- very negative effect
Relation to Impact Categories

- Indicator influences impact category
- Indicator does not influence impact category
- Indicator is not present
# Impact Assessment: Social Assessment

<table>
<thead>
<tr>
<th>Stakeholder</th>
<th>Indicator</th>
<th>At present?</th>
<th>Health and safety</th>
<th>Soc.- econ. repercussions</th>
<th>Human rights</th>
<th>Indigenous rights</th>
<th>Development of the country</th>
<th>Assessment</th>
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<td>Child labour</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Very negative effect</td>
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<td>Indifferent effect</td>
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<td>Society</td>
<td>Contribution to econ. development</td>
<td>Yes, but contrasting</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>Indifferent effect</td>
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### Impact Assessment: Social Assessment

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<tr>
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<th>health and safety</th>
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<td>contribution to economic</td>
<td>is given, but unfair allocation: contrasting impacts</td>
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<td>✓</td>
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<td>corruption</td>
<td>is promoted by unfair conditions</td>
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<td>prevention of armed conflicts</td>
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Example 2. SLCA of Cheese Production in NZ (just indicators)

- Ultimate goal of study: Develop methodology to answer question: Do NZ pasture-based products (dairy products, lamb, wool, etc.) have a comparative advantage in terms of social performance compared to their locally produced equivalent in their furthest markets (UK, USA)?
Scope: SLCA of Cheese Production in NZ

• Production process and company specific activities from farmgate (i.e., arriving on farm) to the consumer
  – All producers and milk production activities (raw material for cheese) by one company
Functional Unit: SLCA of Cheese Production in NZ

• One kg of cheese

(The functional unit may require adaption to make sense in the use phase and in order to make comparisons between different products at that stage)
Allocation of Impacts (Social Indicators): SLCA of Cheese Production in NZ

Social sustainability
Human dignity & welfare

Company
- Company Characteristics
  - Stability
  - Transparency
  - Long term viability
  - Ethics
- Research & development

Employee
- Employment practices
  - Workplace security
  - Employee contracts
  - Equity
  - Labour source
  - Strikes & lockouts
- Employment stability
  - Employment opportunities
  - Remuneration
- Capacity Development
  - R & D (?)
  - Career development
  - Training
- Health & Safety
  - Practices & policy
  - Incidents
  - Toxicity potential & transport
  - Occupational diseases
- Influence on company practice

Community
- National (local)
  - Employment
    - No. jobs related to cheese production/year
  - Tax allocation to social infrastructure
    - Housing
    - Health
    - Infrastructure
    - Regulatory & public services
- International
  - Respect for international laws/treaties & human rights
  - Child labour education human rights
  - Imports from developing countries
  - Governance systems
    - Monitoring
    - Legislation
    - Enforcement
    - Levels of industry compliance with above
  - Stakeholder influence on company practice

Future generations
- Resource Use
  - Energy use
  - Non renewable material
- Environmental Impact
  - Air
  - Water
  - Terrestrial systems
  - Biodiversity

Consumer
- Safety
  - Benefits (+)
  - Harms (-)
- Health
  - Benefits (+)
  - Harms (-)
  - Nutritional status
- Choice
  - Accessibility
  - Availability
  - Affordability
  - Pleasure & satisfaction
  - GM food choices
  - Labelling
- Stakeholder influence on company practice
Social Indicator for Employee Stakeholder: SLCA of Cheese Production in NZ

- Employment practices
  - Work place security
  - Employee contracts
  - Equity issues (fairness of treatment)
  - Labor source (paid vs. forced labor)
  - Strikes and lockouts (labor disputes> loss of days of work)

- Employment stability
  - Employment opportunities (career progression)
  - Remuneration
Social Indicator for Employee Stakeholder: SLCA of Cheese Production in NZ

- Capacity development
  - R&D (future products affect jobs)
  - Career development
  - Training

- Health and safety
  - Practices and policy
  - Accidents and incidents
  - Toxicity potential and transport
  - Occupational diseases

- Influence on company practices
  - Employee influence on company practices
Social Indicator for Consumer Stakeholder: SLCA of Cheese Production in NZ

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Description/discussion</th>
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<tbody>
<tr>
<td><strong>Safety</strong></td>
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</tr>
<tr>
<td>Benefits &amp; harms</td>
<td>What are the potential safety issues with the product?</td>
</tr>
<tr>
<td><strong>Health</strong></td>
<td></td>
</tr>
<tr>
<td>Benefits &amp; harms</td>
<td>Is the product beneficial or harmful from a health perspective?</td>
</tr>
<tr>
<td><strong>Choice</strong></td>
<td></td>
</tr>
<tr>
<td>Accessibility</td>
<td>Is the product easy to obtain?</td>
</tr>
<tr>
<td>Affordability</td>
<td>Is the product suitably priced?</td>
</tr>
<tr>
<td>Palatability</td>
<td>Does the product taste OK?</td>
</tr>
<tr>
<td>Pleasure &amp; satisfaction</td>
<td>Does the consumer derive pleasure/satisfaction from the product?</td>
</tr>
<tr>
<td>GM food choices</td>
<td>Do they have alternatives to GM products or are their choices constrained?</td>
</tr>
<tr>
<td>Labelling</td>
<td>Is the product suitably labelled with regards to its component parts or ingredients?</td>
</tr>
<tr>
<td>Traceability</td>
<td>Can the product and processes be traced back from consumer to cradle?</td>
</tr>
<tr>
<td><strong>Stakeholder influence on company practices</strong></td>
<td></td>
</tr>
<tr>
<td>Consumer influence</td>
<td>Do consumers have the ability to influence how the product is produced, distributed, used and disposed of (i.e., over the products life cycle)?</td>
</tr>
</tbody>
</table>
## Social Indicator for Company Stakeholder: SLCA of Cheese Production in NZ

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>Description/discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Indicator</strong></td>
<td><strong>Description/discussion</strong></td>
</tr>
<tr>
<td><strong>Company Characteristics</strong></td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>How stable is the company in terms of size and operations?</td>
</tr>
<tr>
<td>Transparency</td>
<td>Compliance with international accounting practices and regulatory requirements. Transparency of processes.</td>
</tr>
<tr>
<td>Long term viability</td>
<td>A company needs to make money to ensure its long term survival. How healthy is the company? The goal of a company is to make money for its shareholders.</td>
</tr>
<tr>
<td>Ethics</td>
<td>Does the company operate in a way which meets the ethical expectations of the national community? Of the international community?</td>
</tr>
<tr>
<td><strong>Research and development</strong></td>
<td></td>
</tr>
<tr>
<td>Engagement in R&amp;D</td>
<td>Steps taken to ensure the company has new products or services to sell in the future. The long term viability of a company is dependent on the R&amp;D taking place. Labuschagne (2005) places this within the employee stakeholder category. It is about the amount of money the company puts into developing new products new processes etc. An investment in innovation, so to speak.</td>
</tr>
</tbody>
</table>
SLCA Impact Assessment for each stakeholder and impact category

<table>
<thead>
<tr>
<th>Employee / Employment Practices/ Indicator</th>
<th>International requirements</th>
<th>Local requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Critical value (CV)</td>
<td>Critical value (CV)</td>
</tr>
<tr>
<td></td>
<td>Meets CV (yes/no)</td>
<td>Meets CV (yes/no)</td>
</tr>
<tr>
<td>Workplace security</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employment contracts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equity issues</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labour source</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strikes and lockouts</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Integrated Life Cycle Approach

• Three pillars of Sustainability (Socio-eco-efficiency)
Mini Homework

• Due (next Tuesday) in the class

• Assignment: a. Provide a brief review of “Social Life Cycle Assessment” in one paragraph.

  b. Describe in the second paragraph about some of the issues (at least three) that make Social Life Cycle Analysis difficult to conduct.
Questions?

- http://www.unep.fr/shared/publications/pdf/DTIx1164xPA-guidelines_sLCA.pdf