

Governance and Life Cycle Analysis. Opportunities for Going Beyond ISO-LCA

Brussels, 27/28 September 2007

Open Workshop within the EU Project "*CALCAS - Co-ordination action for innovation in life-cycle analysis for sustainability*"

www.calcasproject.net

Book of Abstracts

Sophie Spillemaeckers, Katholieke Universiteit Leuven

The Belgian social label: the first governmental social label based on social life cycle analysis (LCA).

Introduction

Since 2003 Belgium has had a global first: a governmental social label for products and services that are bought and sold in Belgium. It is a label with the seemingly simple condition of respecting the internationally recognised fundamental conventions of the International Labour Organisation (ILO) throughout the entire production chain. This means that companies must satisfy the conditions of the international conventions in relation to freedom of association, child labour, discrimination and forced labour. Verification of this is conducted by an independent verification organization.

Social LCA

The social label requires integrated chain management, which means that the company must map out the steps of the entire production chain up until the raw material phase. Once the production chain is known, the location of the production units must be localised. If someone produces a T-shirt, not only the sewing workshops must be known, but also the textile factory and even the cotton fields. The model used is that of the social LCA, based on the model for integrated LCA, developed by the Centre for Sustainable Development (University of Ghent) in collaboration with Forum Ethibel.

The social LCA approach for the Belgian social label is innovative. Through the experiences with the social label, the very much-needed practical experience with the social LCA approach as defined by the model is building up, practical questions are tackled and the model can be refined.

Fundamental ILO conventions

Following the initial mapping process, it is verified if the conditions of the label have been met throughout the production chain. The label promotes the fundamental ILO conventions, which are recognised by the WTO as internationally applicable. According to the ILO conventions, unions must be able to do their work and there may not be any child labour, discrimination or forced labour present in the companies. Respect of the ILO conventions is not only a problem in developing countries; even in Europe it is not guaranteed that these conventions are being applied.

Verification and application

The reliability of the label depends on verification to a large extent. For this reason the system opted for independent verification carried out by a recognised organisation. Verification must follow a strict methodology involving the companies as well as the employees, unions and on occasion other stakeholders. A complaint procedure gives all parties the chance to contact the administration of the label directly.

The awarding of the label is done by the government under binding advice from the Committee for Socially Responsible Production. This committee is made up of representatives from the business world, consumers, NGOs, unions and the government.

Conclusion

The Belgian social label is an instrument of renewal. Social LCA is a challenge for the future and the used ILO standards can be considered as a substitute for international social regulation. Furthermore the label is a governmental initiative and has an independent verification system. The combination of these conditions offers companies a valuable instrument with which they can prove that a product was produced in a dignified way throughout the entire production chain.

Pierre de Coninck, Université de Montreal

A Participatory Approach Seeking Consensus in a Context of Uncertainty: A Sustainable Development Perspective of Life Cycle Analysis

The lack of an existing decisional framework in a context of uncertainty for developing sustainable solutions imply that there is a gap in decision making processes for stakeholders. To move towards sustainability, it is recommended that stakeholders adopt decision making processes that are precautionary. A commitment to precaution encourages a global perspective and the search for alternatives. Therefore governance involvement through a participatory approach becomes fundamental for the establishment and evaluation of social indicators using life cycle thinking, so that the decision making process during conception will result in a justified course of action in cases of uncertainty and potential harm.

According to Agenda 21, in a context of sustainable development, the consideration of governance as a collective decision making process will not impose a situation of authority or coercion; it is a social technique meant to resolve collective problems and to allow the citizens a sense of responsibility. No single actor has all the information and authority to develop a strategy that considers the long term. This strategy cannot therefore emerge unless there is cooperation between institutions and other interested parties where each would fully exercise their responsibilities and competencies. Therefore this strategy will be based on the 4th pillar of sustainable development - governance, which is over and above the other three pillars of economy, environment and society.

In addition, because of the inherent uncertainties of long-term strategies, the precautionary principle can be integrated into the decision making process during the conception of products and services, as a complement to Life Cycle Analysis (LCA). LCA provides powerful insights for addressing the environmental aspects of sustainability. Based on an attitude of prevention, LCA seeks to reduce a product's negative impacts by assessing the various phases of a product's life-cycle and taking appropriate action. It is a sophisticated tool that highlights the issues and helps in the decision making process; but the decision ultimately rests on the decision maker based on his interpretation of the data, which is a function of his point of view. Furthermore, in cases of lack of knowledge or indeterminism, it is not obvious how to define an appropriate course of action because the LCA process is not equipped to handle such decisions, unless the decision maker makes an estimated guess; decisions cannot be easily rationalized because of this inherent lack of data. LCA therefore presents an obstacle when decisions are taken in spite of uncertainties concerning the consequences of an eventual action. In addition, there are no tools that lean specifically towards the creation and evaluation of social impacts using a global point of view.

It is therefore necessary to set up structures and processes that will allow such stakeholders a venue where a particular referential paradigm will be used as a basis for their discussions; where their individual value systems will emerge. Stakeholders should be able to rely on a general conceptual framework that would allow them to realize projects, define procedures for participation, and to respond to crucial issues of sustainable development. The objective is a sharing of visions and values through a dialog among stakeholders. This basis of collaboration and exchange among partners will encourage an emergence of co-creation processes of projects and co-formulation processes for solutions and projects. These processes are based on dialogue and will encourage a larger mutual comprehension of new perspectives and an increased level of responsibility among actors.

Wulf-Peter Schmidt, Ford Europe

Sustainable Management Tool based on business incentives

In Europe, the trend to regulate all details of life is continuing. For example, the automotive sector is targeted by more than 120 directives and 80 UN-ECE standards. Unfortunately, the different regulations are not necessarily aligned thus creating not only complexity but also conflicting policy targets. For example, while CO2 policy is promoting light weighting safety, noise and emission regulations are adding 50 to 70 kg of weight per vehicle. This has been recognized by policy makers following pledges for better regulation, reduction of regulations and activities to ensure competitiveness of business (CARS 21).

In this context, life cycle thinking has the potential to improve competitiveness - if applied wisely. Life Cycle studies show where along the life cycle environmental impacts can be most effectively and efficiently improved while the costs are reduced - looking from a holistic perspective covering all relevant aspects. This so-called "integrated approach" is an important tool to help policy identifying the best areas for improvement covering aspects as product design and technology, fuels, driving patterns and infrastructure. The actions of all life cycle stakeholders can be reflected.

Looking at the design phase, it is essential to allow for innovation and creativity rather than establishing rules that are prescriptive regarding technologies or (life cycle) tools. Business competition and corporate policies create the necessary incentives to apply those technologies and tools that fit best to the individual product and company culture. The best business incentive is to be in the position to be the first market player offering a product with enhanced economic, societal and environmental characteristics. If regulated this incentives falls away. Of course the regulatory framework should help to prepare market demands in time.

Ford of Europe's Product Sustainability Index (PSI) is an example how industry is acting without any regulatory driver. This sustainability management tool of Product Development is helping vehicle management to ensure that the environmental, societal and affordability characteristics of a vehicle are improving - from the first target setting throughout all design gateways to final launch of the vehicle. PSI details eight different indicators - three of them based on Life Cycle Assessment respectively Life Cycle Costing. Other indicators look at offering more mobility service (seats, luggage compartment, and accessibility for disabled). Cradle-to-cradle material choice is governed by looking at natural fibers and recycled materials but also at an advanced substance management that is recognizing for example allergy-testing of the vehicle interior. Lowering exterior drive-by noise and complex safety criteria - covering also pedestrian protection - are ensuring societal acceptance. However, the important aspect of PSI is that it is tailored to and incorporated in the main-stream company-specific product development process. This allows main-stream engineers and their management to use PSI - including the LCA tool - by themselves without the need of experts. Thus a lean sustainability management within the existing resources and without any bureaucracy could be established. Therefore, PSI is not hindering creativity but is ensuring governance without the need of detailed regulation as seen in other industries.

Henrik Vagt, Environmental Policy Research Centre

Greening the Supply Chain at a Distance. Interlinkages of Waste Policies and Green Supply Chain Management in the EU, Japan, and the United States

The research framework proposed here aims to analyze the interrelations between environmental policy measures and the ecological activities of companies along their supply chains. The underlying assumption states that in the context of new modes of governance and product-oriented environmental regulation companies should play a key role as co-regulating actors. Taking the example of waste management in the EU, Japan and the United States the question will be addressed whether the regulative framework can considerably influence companies' Green Supply Chain Management and which appear to be the most promising strategies this regard.

Two basic assumptions about environmental governance form the basis of this research: Firstly, it is assumed that product-based policies are especially effective in tackling negative externalities along the entire life cycle. Secondly, it is stated that against the background of a number of extremely hard-to-manage environmental problems, an effective instrumentation of environmental policies and product policies in particular necessitates the mobilisation of third actors for regulatory strategies. The active role of such co-regulating, non-state partners along the supply chain shall help to overcome the shortcomings of hierarchical steering for a large number of globalized environmental problems. Research in corporate "Green Supply Chain Management" has, however, so far rather neglected the role of regulation and especially disregarded a differentiated analysis of single policy measures. This research gap is supposed to be closed.

As practical examples regulatory measures from waste policies in the EU, Japan and the U.S will be chosen. A special focus will lie on regulations for end-of-life-vehicles, packaging waste and electric and electronic waste. Two relevant questions concerning the field of waste policies are:

- 1) Which effects of waste management strategies on GSCM are defined as policy goals and are consequently incorporated in the respective measures?
- 2) Which GSCM measures are actually applied on a corporate level in response to political initiatives?

Instruments of GSCM include among others LCA, product labelling, cooperation with business partners aiming at better environmental performance, or the adoption of environmental management systems obliging suppliers to adopt similar measures. Private actors along the supply chain will be grouped as industrial companies, insurances, institutional investors, financial institutions, and environmental consultants. The regulation of the supply chain by private actors is, however, not set in world independent from authoritative, governmental rules. Environmental liability legislation, prescriptions for EMS, disclosure requirements or take-back obligations are some of those measures that can eventually lead to stronger stakeholder pressure on companies. The aim of this research is to work out these and other waste policy measures' actual effects.

The research design proposes to apply a qualitative comparative methodology in order to detect best practice examples and thus better understand the theoretical interlinkages between environmental regulation and GSCM. Analyzing the role of third parties it will also contribute to recent questions of environmental governance. The empirical gap with regard to the detailed effects of environmental regulation on GSCM is supposed to be closed at least for the field of waste policies.

Hans-Jörg Althaus, EMPA

Implications of modelling choices in LCA on governance spheres of the Biofuels sector as a mean to mitigate climate change

The use of biofuels (from waste and virgin resources) is gaining importance as an alternative for mitigating the effects of climate change while promoting overall development both in developed and developing countries. The United Nations Framework Convention on Climate Change (UNFCCC) and its Kyoto Protocol (KP) provide an institutional framework in which the production and use of Biofuels as a means for mitigating climate change is being regulated. Within this context LCA of biofuels is being increasingly used for supporting the definition of baselines and carbon offsets potential as well as other environmental impacts. Thus, many LCA studies have been performed in the last few years to evaluate the environmental performance of various production routes of biofuels. These studies apply different system boundaries, modelling principles, background data and impact assessment methods. In principle, each of these choices depends on the goal and scope of the study and reflects an underlying value system. Therefore, the choices are to be understood considering different spheres of governance. Even if the assumptions and systems are usually carefully described in the LCA studies, little or nothing is said on the implications on governance that such assumptions can have. The underlying assumptions used in defining system boundaries and modelling principles for LCA is therefore of great importance in understanding the relevance of LCA in promoting good governance for biofuels within the UNFCCC and the KP.

Thus, an evaluation of different LCA studies on biofuel production (from waste materials) is done, focusing on how to distinguish their relevance for different governance spheres in the context of UNFCCC negotiations. Policy recommendations resulting from these LCA studies and the resulting challenges for governance are analysed. In conclusion recommendations for future LCA studies to be more useful for supporting good governance of the use of biofuels in the context of the UNFCCC are drawn.

Anand Prakash Tiwari, TERI University

Life Cycle Analysis and Sustainability in Resource use: A case for Governance reforms in water delivery in Delhi, India

Sustainability and Conservation of resource are the key drivers of governance reforms in water management sectors. The reforms are driven based on the key postulates of Dublin environmental and economic principle. The shift is reflected in strategies of city governments and water supply parastatals who are gearing for reforms for sustainability, both environmental and economic. In this paper, we analyze the possibility of incorporation and implementation of LCA based approaches in decision-making and argues that there is sufficient reason to rethink the institutional governance in the sector.

Life Cycle Assessment (LCA) has been used as an analytical tool to examine various management options for restructuring of delivery of urban water. In undertaking the LCA, two key comparative assessments were made - a comparison of efficiency, equity and sustainability criteria and a pairwise comparison of delivery mechanisms. The research then uses multi-criteria analysis using LCA indicators for stakeholders consultation for achieving a consensus evolving solution for institutional reforms. The environmental indicator and impact categories chosen for this study were reduction in nonrevenue water, sustainability in resource besides efficiency and equity indicators. These were chosen on the basis that they were most relevant to the particular systems undergoing comparison. Finally a decision-making framework based on life cycle analysis (LCA) of the water production to disposal has been attempted.

The methodology used combines qualitative and quantitative approaches of analysis. The primary sources include 267 in-depth customer surveys, 50 expert opinions and stakeholder opinion besides semi structured interviews with resident welfare associations based on proportionate sampling residing in the clusters of Delhi. The non-revenue water, unaccounted for water and recycling for sustainability in resource use for water come as a dominant indicator for choice of institution and initiation steps for reforms. In policy terms the implementation of reform shall attempt discouraging wasteful use and efficiency enhancement by reduction in water losses, which can help in sustaining resource use.

The empirical results suggest broad contours for designing institutional and regulatory framework for achieving sustainability and distributional objectives. The paper argues that it is the institutional change and benchmarking competition incorporating public-private partnership through LCA, which can give a fillip to the overall sustainability of resource use and utilization of precious resource. The indicators and the institutional options compliment each other in terms of viability and sustainability of reforms in the long run. The improvement in service delivery indicators needs to be compared in performance benchmarking and evolving of a regulation in a competitive framework.

The paper finally argues for application of the LCA as an information-generating tool for planning and decision-making related to resource, environment and policy development by developing a matrix for decision-making. It will also be important to realign the framework of governance and institutions including private participation in delivery of water. These institutions can be regulated based on performance Indicators derived by assessing the complete life cycle from production to use which can help in sustainability of resource use.

Gary Bryner, Brigham University

The Role of Policy Integration and Life Cycle Analysis in Ecological Sustainability

There is no idea more central to environmental science than the interconnectedness of nature, that "everything is connected to everything else." The idea of ecosystems itself suggests a unity or whole, elements that are linked together and act in harmony. There may also not be any idea more descriptive of American policy making and governance than that of fragmentation. The constitutional structure of separated powers and checks and balances combine with divergent ideological commitments and aggressive political competition to fracture and diffuse power. Environmental protection imperatives clash with political values in other ways. Environmental problems are typically long-term concerns, with causes that are rooted in well established patterns and practices and solutions that require similarly long-run thinking and action, major challenges for a political system famously dominated by short-term thinking and short-run incentives. The benefits of environmentally protective policies may extend well into the future while the burdens of preventative costs and changes in behavior fall on current voters. Ecological sustainability is rooted in the idea of restraint, in ensuring human activity remains within bounds set by ecological conditions and the consumption of resources and production of wastes do not overwhelm ecosystems. In contrast, there may be no political value more universally embraced than that of economic growth and no presumption more pervasive than the idea that government's primary imperative, after national security, is an expanding economic pie. While these problems are particularly acute in the United States, they can also be found in other highly developed and industrialized nations, as environmental goals struggle for parity with economic ones, let alone serve as the dominant policy concerns that a commitment to sustainability requires.

The purpose of this paper is to examine the role life cycle analysis (LCA) can play in stimulating new efforts in Europe and the United States to address the persistent problem of climate change. Climate change provide a particularly useful opportunity to pursue ideas of LCA because effective policies to reduce the threat of climate change require a fundamental transformation in the way energy is produced and used, and that, in turn, requires a revolution in the way in which product design must take into account the life cycle of products. Conversely, LCA's reach goes well beyond climate change and energy to address how all forms of production and consumption relate to sustainability. This paper will focus on how LCA can be integrated with emerging policies aimed at reducing the threat of climate change. Of particular interest here are policies in Europe and the United States, particularly at the state level, that are aimed at transforming energy production and use and producing a dramatic drop in greenhouse gas emissions along the lines of a 50-80 percent reduction, and many U.S. states and European nations have agreed to achieve. The magnitude of these reductions require the design and deployment of a host of new policy instruments can promote LCA as a means to fostering more sustainable production and consumption that reduce consumption of energy and other materials and eventual waste and pollution.