

## Assessment of eco-labelling criteria development from a strategic sustainability perspective

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### ABSTRACT

To turn current patterns of consumption and production in a sustainable direction, solid and understandable market information on the socio-ecological performance of products is needed. Eco-labelling programmes have an important role in this communication. The aim of this study is to investigate what gaps there may be in the current criteria development processes in relation to a strategic sustainability perspective and develop recommendations on how such presumptive gaps could be bridged. First a previously published generic framework for strategic sustainable development is described and applied for the assessment of two eco-labelling programmes. Data for the assessment is collected from literature and in semi-structured interviews and discussions with eco-labelling experts.

The assessment revealed that the programmes lack both an operational definition of sustainability, and a statement of objectives to direct and drive the criteria development processes. Consequently they also lack guidelines for how product category criteria might gradually develop in any direction. The selected criteria mainly reflect the current reality based on a selection of negative impacts in ecosystems, but how this selection, or prioritization, is made is not clearly presented. Finally, there are no guidelines to ensure that the criteria developers represent a broad enough competence to embrace all essential sustainability aspects.

In conclusion the results point at deficiencies in theory, process and practice of eco-labelling, which hampers cohesiveness, transparency and comprehension. And it hampers predictability, as producers get no support in foreseeing how coming revisions of criteria will develop. This represents a lost opportunity for strategic sustainable development. It is suggested that these problems could be avoided by informing the criteria development process by a framework for strategic sustainable development, based on backcasting from basic sustainability principles.

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## 1. Introduction

### 1.1. Background to eco-labelling

To steer society towards sustainability, relevant and sufficient environmental information about both products (in products we include physical artefact, software, processes, services and combinations of these) and organizational performance at large is a prerequisite for consumers, procurement professionals and producers to inform their decisions. Environmental and social product information programmes have become a wide-spread instrument aiming to fulfil the need of effective market

communication around sustainable consumption. This communication relates both to the consumers' right to know and to the producers' possibilities to reliably communicate their efforts. Eco-labelling of products provides a critical quality assurance role in communicating product information on environmental impacts.

Voluntary environmental eco-labelling programmes have a history of 30 years, starting with the German Blue Angel in the late 1970's. A proliferation of eco-labelling programmes started ten years later and eco-labelling programmes currently exist in large numbers and many forms at national, European and international levels. Most of the EU member states have introduced national eco-labelling programmes. In light of this proliferation the issue of co-ordination and harmonization has been on the agenda for years, both globally, administered by the Global Eco-labelling Network (GEN), and within the EU for voluntary programmes. Overarching

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principle-based standards have been developed by the International Organization for Standardization (ISO), (ISO 14024:1999; ISO 14020:2000), with the intention of being pertinent to existing and planned eco-labelling programmes. The standard was initiated with the aim to categorise and identify the necessary characteristics of eco-labelling, and certification according to this standard is not possible. ISO divides environmental labelling into three types; the type I label that includes multi-criteria third-party programmes intended for end consumers, type II that includes self-declared environmental claims, and type III that provides quantified un-weighted environmental data in environmental product declarations. The type III includes, e.g. declarations on resource and energy consumption based on standardised Life Cycle Assessments (ISO 14040:2006) and are primarily intended for business-to-business information. Type I programmes, which is the focus of this paper, are also guided by GEN's "Condition of Membership" (Global Ecolabelling Network, 2011a) and the "Code of Good Practice" contained in the World Trade Organization's (WTO's) Technical Barriers to Trade (TBT) agreement (World Trade Organization, 2010). This latter agreement prescribes that technical regulations, standards and procedures for conformity assessment may not be prepared, adopted or applied with the intention or effect of creating unnecessary obstacles to international trade.

## 1.2. The intended role and function of eco-labelling

According to the Global Ecolabelling Network an "ecolabel is a label which identifies overall environmental preference of a product or service within a specific product/service category based on life cycle considerations" (Global Ecolabelling Network, 2011c).

Starting from this definition the intended role and function of eco-labelling can be divided into different stakeholder perspectives.

### 1.2.1. The producer perspective

From a producer perspective the eco-label is an instrument to reveal the environmental and/or social performance of products and services and thereby serves as a benchmark for improvements and competitiveness. The label is expected to affect the purchasing decision in favour of the labelled product and thereby be morally as well as economically rewarding for those companies that have been awarded the label.

### 1.2.2. The consumer perspective

Eco-labelling provides information to the consumer, a kind of extended quality assessment of products and services. This is expressed through a label that indicates the presence of environmental and/or social attributes that the consumer cannot ascertain by themselves and that is short-formatted and therefore adapted to often time-limited decision-making situations.

It normally attracts the already environmentally and socially aware market segment of consumers, but it serves as a communication vehicle for awareness transfer to the market at large.

### 1.2.3. The policymaker perspective

From a policymaker perspective, eco-labelling may serve as a complementary instrument to create incentives for, and stimulate product innovations to, substituting products with high impacts on the environment for products and services with lower impacts. Currently, knowledge about the impacts of products and services is in most cases asymmetrically allocated between buyers and producers (Akerlof, 1970; Karl and Orwat, 1999; van Amstel et al., 2008; Schubert and Blasch, 2010). Eco-labelling is a means to adjust this, and thereby increase market efficiency. Eco-labelling is also a means, through market mechanisms, to prepare the way for governmental measures, such as legislation.

## 1.3. The scope of eco-labels

The number of eco-labels has grown fast and in many cases it is not clear what is included in the labelling criteria. This risks increasing confusion and eroding the trust and confidence in these labels. Consumers have problems seeing the differences between the labels and thereby making informed decisions. To come to grips with these problems, there have been calls to expand the scope of eco-labels to include a full range of sustainability considerations, and to do so in clearer and more cohesive ways.

*"...due to the unbridled growth and the large diversity of labels and above all the lack of external control for some labels, consumers are beginning to lose their confidence in them. At the moment there is no sustainability label to provide the customer with information about the product in the three fields of sustainability."*[Van Weert, 2005 in Harris (2007) p. 168]

Recently, evaluations of the EU Eco-label and the Nordic Eco-labelling confirm this need. The programmes were recommended to

*"...gradually introduce some modifications into the scheme that could respond in the long run to the possibility of an EU sustainability label"* [IEFE, 2005, p. 13]

and to

*"...closely follow the development of sustainability labelling and consider a more long-term strategy in this area."*[Aalto et al., 2008, p. 16]

Eco-labels with sustainability claims are now emerging worldwide. Normally these labels differ from the former eco-labels in that they are sector-, and sometimes even life-cycle phase specific. Examples are Marine Stewardship Council (MSC, 2011), and Sustainable Travel Eco-Certification Program (Sustainable Travel International, 2011). Green Tick is one exception to this and claims to be "the world's first independent certification brand dedicated to sustainability" covering all life cycle phases (GreenTick certification, 2011; Harriss, 2007). Yet, even in this certification there is no clear definition of sustainability, and there is clearly no cohesion as regards any objectives in general or objectives around sustainability. During the last decade there has also been a global development of social and ethical labels linked in particular to products that originate from developing countries and are sold in OECD countries. These labels separately deal with issues such as child labour, working conditions and price guarantees (Rubik and Frankl, 2005). So, in conclusion, there is still little evidence of cohesion. A variety of different environmental issues are covered by some labels and a variety of social issues are covered by others.

## 1.4. Aim and research questions

To accelerate the transition towards a sustainable society, changes in consumption and production decisions are needed and crucial. Eco-labelling is one possible means to inform these decisions. To utilize its full potential it is necessary that the criteria for the label are strategically developed, i.e. the objectives for those processes being clearly defined and strategies to reach these objectives being laid out within criteria development processes. The criteria development processes and the clarity in communication of such are the core elements of effective eco-labelling programmes. The criteria are what tell the producers what is required and should guide improvements. There is also a need for future labelling programmes that include and communicate all aspects related to sustainability in the processes.

Since there are many reasons to build on already established criteria development processes within labelling programmes with high credibility, the aim of this study is to investigate what gaps there may be in the current criteria development processes in relation to a strategic sustainability perspective (see, *ii* and, *method* section below) and develop recommendations on how such presumptive gaps could be bridged. The research questions to answer within this paper are:

- i. Is it transparent what is included in the different steps of the criteria development processes?
- ii. If so, does it include a systematic and strategic perspective, i.e., is an objective defined, and are there strategic guidelines and resulting strategies for how the eco-labelling programme will contribute to step-by-step progress towards this objective?
- iii. Is sustainability included in the long-term objectives for the assessed programmes, and if so, how is this guiding criteria development processes?
- iv. And subsequently; how are producers invited to participate in criteria development processes and are the strategies communicated to the producers to make it possible for them to be strategic as well, i.e., to foresee revisions of criteria and proactively prepare for such revisions?

For the purpose of this study, criteria development processes at Eco-labelling Sweden, administrator of the Nordic Ecolabelling in Sweden, and Good Environmental Choice were assessed, both being regarded leaders within eco-labelling worldwide (Environmental Resources Management, 2008; Global Ecolabelling Network, 2006) and with a very high degree of recognition among consumers (Rubik et al., 2007). Furthermore, within GEN a peer review process has been developed, the Global Eco-labelling Networks Internationally Coordinated Eco-labelling System, GENICES, based on the standard (Global Ecolabelling Network, 2011a). The Good Environmental Choice has passed this process (Global Ecolabelling Network, 2006; Eiderström, 2009). The peer-reviewing of the Nordic Ecolabelling is currently going on (Lønn, 2010). For the generality of our study, we

also consider it as strength that these labelling programmes have different constitutional backgrounds. The Nordic Ecolabelling is a political initiative and their business is pursued on behalf of the government, while the Good Environmental Choice is an NGO initiative.

## 2. Methods

The mentioned eco-labelling programmes are assessed by use of a generic Framework for Strategic Sustainable Development (FSSD), here elaborated specifically for the assessment of eco-labelling criteria development processes (see *Table 1*). Data for the assessment is collected from the literature and qualitative interviews with eco-labelling experts, interview A and B in *Appendix A*, to get a better understanding of how eco-labelling and the programmes work. With the knowledge provided by this, the research questions above were formulated. The next step includes a thorough study of criteria development documents as well as semi-structured interviews with criteria developers at the organizations running the programmes, interview C–E in *Appendix A*. The result from this step is then analysed and structured within the FSSD, all presented below.

The FSSD is a five level framework for strategic planning towards an intended and sustainable objective (Robèrt, 2000; Robèrt et al., 2002) It constitutes a background methodology of this study and encourages a thorough enough description of the system (1), to be able to arrive at a robust definition of sustainable objectives of a plan/project/organization/protocol etc. (2), which is a prerequisite to make use of strategic guidelines (3) when actions (4) and support tools for monitoring, coordination and decision-making (5) are selected and informed. More details are given in *Table 1*.

It has been shown that this methodology has been useful for strategic step-by-step decision-making in companies (Robèrt, 1994; Natrass, 1999; Broman et al., 2000; Everard, 2000), regions and municipalities (James and Lahti, 2004), for sharing of mental models in community-building (Natrass, 1999; Natrass and Altomare, 2002), for the assessment of various kinds of tools and concepts for sustainable development in general (Robèrt, 2000; Robèrt et al., 2002) including eco-design tools (Byggeth and Hochschorner,

**Table 1**  
FSSD elaboration for this study.

1. Systems Level	The Systems Level describes the overarching system in which eco-labelling programmes act to inform success, including laws of nature, societal and market functions, stakeholder interactions and relationships, juridical laws, time perspective etc. a) What aspects are included in the criteria? b) Where are the product category boundaries set? c) Which stakeholders are included/affecting the decisions taken within the criteria development process? d) What time perspective is included?
2. Success Level	The Success Level describes the overall principles (Robèrt, 1994; Broman et al., 2000; Holmberg, 1995; Holmberg and Robèrt, 2000; Ny et al., 2006) that are fulfilled in the system (1) when the organization or planning endeavour is in compliance with its vision and objectives, informed by generic basic principles for socio-ecological sustainability. a) What is/are the defined objective(s) for the labelling program, and, is a definition of sustainability attempted? b) How is/are the objective(s) defined for each criteria development process?
3. Strategic Level	The Strategic Level describes the strategic guidelines for planning and acting towards the objective (2). In a systematic approach a prominent role is played by backcasting, i.e., a planning process by which the future successful outcome is imagined, followed by the question “what do we need to do in order to reach that successful outcome, see for example (Dreborg, 1996; Robinson, 1990). The most basic guidelines are: (i) Evaluate each investment as regards its potential to serve as a platform for coming investments that are likely to bring the organization/planning endeavour towards success as defined in (2). In doing so, strike a good balance between (ii) direction and advancement speed with respect to the sustainability principles and (iii) return on investment to sustain the transition process. a) What strategic guidelines are visible to reach any objective and prioritize criteria? b) Are there strategies or plans lined out? c) Are any strategies or plans communicated to stakeholders?
4. Actions Level	This level describes various actions, in this case evidence of concrete actions within the criteria development processes, whether or not those can be found in policy documents and/or are clearly communicated in other ways. These actions should be prioritized with respect to the above mentioned strategic guidelines (3) to maximize the chance of reaching the desired success (2) in the system (1). a) What actions are prioritized?
5. Tools Level	The Follow up/Tools Level describes the methods, tools and concepts used to manage, measure and monitor the actions (4) so that these aid strategic progress (3) to arrive at success (2) in the system (1). For example this could be life cycle assessments (LCAs), environmental management systems, standards and other certification programmes. a) What tools are included to reach defined objective(s)?

2006) and for company decision systems (Hallstedt et al., 2010). The FSSD has in these cases proven successful in planning and assessment of complex systems in relation to sustainability. Given the complexity of criteria development processes for eco-labelling and the aim of this study, the FSSD have been applied to enable a clear and systematic approach to these questions.

### 3. Results

#### 3.1. Description of the criteria development process

For the purpose of our assessment, and to provide an overview of the criteria development process, a generic criteria development process for eco-labelling programmes has been put together and is presented in Fig. 1. This schematic model builds mainly on the criteria development process as described in the ISO 14020 and ISO 14024 standards (ISO 14024:1999; ISO 14020:2000) and partly enhanced by interviews with criteria developers at the Nordic Ecolabelling and at Good Environmental Choice (Personal communication, 2008a,b).

The ISO standard does not explicitly stipulate any criteria, but provides guidelines for what steps that the criteria development process should include and some principles for those steps. The sections below are a summary of what the ISO 14024 details under each step and what came out from the interviews with eco-labelling experts. For all of those steps the standard proclaims that mechanisms for transparency and participation of interested parties should be provided.

##### 3.1.1. Step 1 - gather ideas and suggestions

According to the transparency principle, suggestions for products or services, for which eco-labelling criteria are developed could be initiated by producers, retailers, branch organizations, policymakers, NGO's, internal employees at the labelling programmes or other stakeholders.

##### 3.1.2. Step 2 - feasibility study

This step should include a study on potential new product categories or a review of already existing criteria. The scope of this study may include consultation with interested parties, a market survey, assessing the environmental impact of the product, assessing the potential for environmental improvement, definition of the scope of product categories taking into account equivalence of use, examination of the availability of data as well as current national and international legislation and agreements. If it is a review of already existing criteria, the study should include changes in the market, new technologies, new products, and new environmental information.

Finally a product category proposal should be presented to interested parties, which summarizes the components of the feasibility study, its findings, and the considerations leading to the proposal.

##### 3.1.3. Step 3 - criteria development or revision

The standards proclaim that the criteria development for establishing the criteria should take into account relevant local, regional and global environmental issues, as well as available technology, and economic aspects. The criteria shall be based on indicators arising from life cycle considerations. The study of the life cycle stages shall show that the selection of criteria lead to a net gain of environmental benefit.

The development and selection of criteria shall be based on sound scientific and engineering principles and the fitness for purpose for the product should be taken into account. The criteria should be set at attainable levels and give consideration to relative environmental impacts, measurement capability and accuracy.

The ISO 14024 standard proclaims that an eco-labelling body may consider applying weighting factors to the selected criteria and if so be able to explain and justify the reason for this weighting.

##### 3.1.4. Step 4 referral procedure

The programmes shall implement a formal consultation mechanism that facilitates full participation of interested parties. In the programmes this is facilitated through a referral procedure in which identified stakeholders are provided the possibility to comment upon the criteria suggestion. In the Nordic Ecolabelling (SIS Miljömärkning, 2001) and the Good Environmental Choice the recommended time for this procedure is 60 days.

##### 3.1.5. Step 5 publication

Once the criteria are established, they shall be published. The report format should be accompanied by information that demonstrates:

- the conformity with the ISO 14024
- that the criteria are objective and justifiable
- methods to verify the criteria

#### 3.2. A strategic sustainability assessment

For each level identified gaps are described and commented upon.

##### 3.2.1. System level

###### 3.2.1.1. Observations and assessment

3.2.1.1.1. What aspects are included in the criteria?. Currently the programmes focus almost entirely on environmental aspects but no

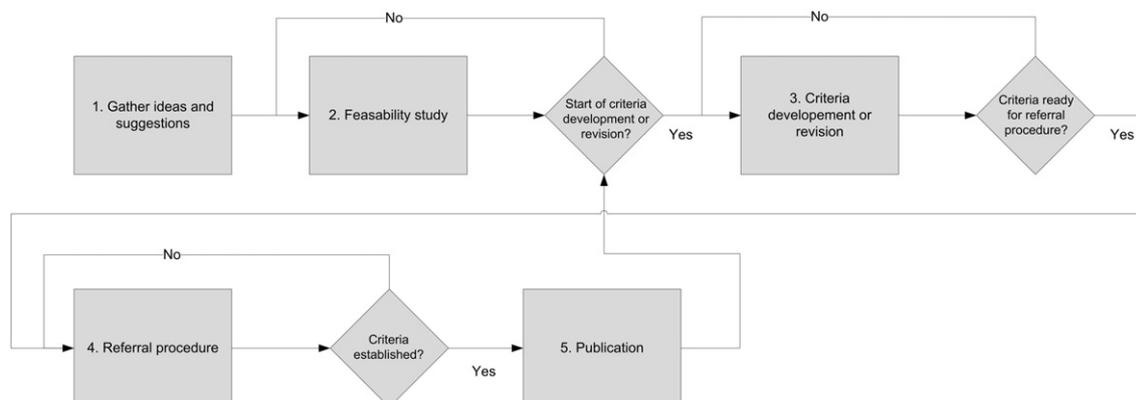


Fig. 1. Generic criteria development process for eco-labelling.

underlying theory have been found explaining why certain aspects are covered by the criteria development processes while others are not.

Though social aspects are increasing within the programmes, they are still very limited in both volume and width. One example is the Nordic Ecolabelling criteria for bio-fuels which include a requirement on compliance with current provisions for security, requirements on the working environment and on working environment legislations. Some criteria include requirements on other environmental or social certificates. Examples are the Nordic Ecolabelling criteria for papers and the Good Environmental Choice criteria for bio-fuels used to produce electricity that includes a Forest Stewardship Council (FSC) certificate. The reason for this is described as lack of resources and that other certification programmes have a local presence that the assessed programmes cannot attain.

The programmes strive for a life-cycle perspective, but an LCA is not a compulsory part of the criteria development process in either of the programmes, see also 3.2.5.

*3.2.1.1.2. Where are the product category boundaries set?* The definition of the product category for which criteria are and have been developed are mostly limited to the physical product or service as such, i.e. environmental and social performance of the licence holders are not included. Complexity for criteria processes are increasing as more service-oriented businesses are labelled. For example, the programmes have developed criteria for grocery stores (both labels), hotels (the Nordic Ecolabelling) and Good Environmental Choice is investigating the possibilities to develop criteria for insurances. However, generally the product categories are not defined from the functions they are supposed to fulfil. Primary batteries and rechargeable batteries, respectively, are examples of products fulfilling the same function but they have different criteria within the Nordic Ecolabelling labelling programme.

*3.2.1.1.3. Which stakeholders are included/affecting the decisions made within the criteria development process.* Stakeholder inclusion in the processes is limited. Producers or consumers are not direct actors within the processes, i.e. they are not parts of the criteria development project teams and thus of the decisions made. The Nordic Ecolabelling is one actor within a system of governmental actors but no clear link or collaboration with other authorities within the governmental national plan for a sustainable consumption and production is visible. Synergies with public procurement are recognized at Good Environmental Choice and the programme provides a guide for how and why the criteria can be used within public procurement on their web page.

*3.2.1.1.4. What time perspective is included?* The time perspective included is the current reality, and the criteria are developed with respect to products and technologies as they exist today. Some possible future criteria are listed at the end of the criteria documents for the Nordic Ecolabelling.

## 3.2.2. Success level

### 3.2.2.1. Observations and assessment

*3.2.2.1.1. What is/are the defined objective(s) for the labelling program, and is a definition of sustainability attempted?* The described overarching objective for the Swedish Society for Nature Conservation, the host of the labelling programme Good Environmental Choice, is a society “in balance with nature”. For their labelling programme this is translated into “conservation of natural resources”, to “protect the biodiversity and human health” and that “materials are to be returned to the natural cycle, reused or recycled”. The Nordic Ecolabelling expresses their program vision as a sustainable society with a sustainable consumption. In Nordic Ecolabelling’s steering document sustainability is defined (Nordic Ecolabelling, 2001) according to four sustainability principles (Robèrt, 1994; Broman et al., 2000; Holmberg, 1995; Holmberg and

Robèrt, 2000; Ny et al., 2006). Good Environmental Choice has sustainability mentioned in some documents but no clear definition is attempted.

*3.2.2.1.2. How is/are the objective(s) defined for each criteria development process?* At Good Environmental Choice, more specific objectives for the criteria at hand are described in some of the criteria documents. However, no clearly defined absolute and operational objective for the criteria processes can be found at any of the programmes. And although sustainability is expressed within the vision of the Nordic Ecolabelling, no definition of sustainability is attempted on an operational level and consequently no reference to the full scope of sustainability is being made when the specific criteria are chosen.

## 3.2.3. Strategic level

### 3.2.3.1. Observations and assessment

*3.2.3.1.1. What strategic guidelines are visible to reach any objective and prioritize criteria?* Guidelines affecting decisions within the Nordic Ecolabelling criteria process, are related to the initial feasibility phase, in which the programmes’ decision on whether to continue or not is guided by three parameters; (i) relevance, (ii) potential and (iii) steering possibility. This includes deciding whether (i) there is an environmental problem connected to the product category and how big this problem is, (ii) there are solutions for solving the problem out there today or in the near future, and (iii) if a label can steer producers and consumers, or rather, if the market is interested in a label. It also includes the identification of who are the first movers, described as of strategic importance to the Nordic Ecolabelling to provide good return on investments. Good Environmental Choice also has initial criteria that must be met before the actual criteria development process for a product category is started. These criteria include (i) that the product should be fairly widely used, (ii) the consumers must have the possibility to influence the market, (iii) the impact on the environment must be high and (iv) there must be products on the market with different environmental impacts. When a decision to continue is made the actual criteria development phase starts, see Section 3.1.3. No template for how criteria as such are prioritized in this step is described in any of the programmes. Nordic Ecolabelling considers life cycle assessments as their guidelines for criteria development. It is also described by interviewees that the Nordic countries involved in Nordic Ecolabelling often have different issues in focus at the given time, and this has to be negotiated upon. At Good Environmental Choice the selection is described as building on accumulated knowledge and experience within the organization, the Swedish Society for Nature Conservation, as a whole. The prioritization is also affected by organizational policy standpoints. One example is that no palm oil is labelled, no matter other sustainability-related certifications on parts of the life-cycle for the oil.

The strive for pragmatic criteria is also obvious within both programmes. This includes that the criteria needs to catch the interests of the market, i.e. of both the producers and the consumers. It also needs to be able to verify criteria fulfillment with the resources available within the programmes. Striking a balance between what is pragmatic and verifiable but still not eroding the trustworthiness is a difficult act that both programmes need to handle. Therefore when revising criteria, as described by Good Environmental Choice, the criteria developers look for how praxis has been built since the last criteria were developed, and this praxis guides the new criteria towards pragmatic levels and wordings.

From a strategic perspective this is not enough. To find out what is relevant and should be prioritized, a thorough assessment tool is needed to find out about the size and urgency of the problem. And if solutions are not at hand, should the problem not be pointed at then? And if the market is not (yet) interested, or if there is no first

mover to separate from the rest of the market, is this a reason for the programmes to be silent? Do the programmes not have a responsibility to act before the market does to influence rather than follow?

No solid rationale for the prioritizing of product categories and criteria has been found.

3.2.3.1.2. *Are there strategies or plans outlined?* Both programmes act via successive strengthening of the criteria, in which the initial criteria should be reasonable enough to invite producers into the programmes. In the absence of clear objectives, there are no strategies laid out to then gradually and systematically develop and revise criteria in any intended direction.

3.2.3.1.3. *Are any strategies or plans communicated to stakeholders?* As a consequence of the absence of strategies or plans, no clear and solid communication on how criteria will be developed over time is given to stakeholders, e.g. to producers. Nordic Eco-labelling present at the end of most criteria documents some possible future criteria, see Section 3.2.1.1.4.

### 3.2.4. Action level

#### 3.2.4.1. Observations and assessment

3.2.4.1.1. *What actions are prioritized?* In the absence of a clear definition of any objective it is not surprising to find a lack of strategic guidelines as well. Consequently there has been no room for exploring the “actions” within the criteria development process in that context. The prioritization of actions within the criteria process is affected by the resources available, and one of the interviewees describes the processes as being “in constant need of more resources and competence”.

### 3.2.5. Follow up/tools level

#### 3.2.5.1. Observations and assessment

3.2.5.1.1. *What tools are included to reach defined objective(s)?* For type I programmes the ISO standards (ISO 14024:1999; ISO 14020:2000) partly guide the process. Good Environmental Choice can demonstrate a bullet point ‘to do’ list. They also use policy documents, for example policies for chemicals and waste, which have been developed internally in their criteria development process. For Nordic Ecolabelling overall templates for the criteria development process are used. As the weighting of criteria globally differs between the programmes, the GEN has begun to explore the development of harmonized criteria and have formulated a common core criteria development process and common core environmental criteria for certain products. LCA (ISO 14040) is not a compulsory part in criteria development, and not included in the type I standard. Earlier studies show that this leads to unevenness (irregularity) in the criteria development from process to process and risk generating a semi-qualitative life-cycle assessment (Harris, 2007; Lavalley and Plouffe, 2004). The availability of information and data is one further problem that is not dealt with methodologically. On the contrary, the criteria process explicitly allows the lack of available data to remain undetected and not communicated.

## 4. Discussion

Our results show that the criteria development processes of the studied eco-labelling schemes are currently not as effective as they could be to contribute to sustainable production and consumption and thereby to a sustainable society. The studied schemes are considered to be relatively stringent and advanced, and we believe that the concluded deficiencies are true for the whole market, since the studied programmes belong to the most respected eco-labelling programmes and score high on the global market (Environmental Resources Management, 2008; Global Ecolabelling Network, 2011b). Eco-labelling is an instrument

with potential to steer consumers as well as producers and whole supply chains in a sustainable direction. This paper describes the current reality in this respect, and points at some recommendations for improvement which will also inform forthcoming studies.

A strategic sustainability perspective requires that the system, and the objectives of the planning within the system, are explored enough to allow a strategic approach. Those aspects of the system that are relevant and necessary to arrive at the objectives are taken into account, i.e. system boundaries are in fact set by purpose (Robèrt et al., 2002; Ny et al., 2006). Without some operational definition of objectives, strategic approaches cannot even be attempted. Strategic guidelines are only logical in the context of clear objectives. When both are in place they enable a strategic design of action programs and selection of tools for the monitoring and management of transitions.

In the assessment it was found that neither of the programmes has a full system perspective and a definition of sustainability. They did not attempt to cover the necessary range of aspects within the ecological and social systems of which they are part. Neither could any other clear and operational objective be found, e.g., of a more limited scope. Sustainability is mentioned in some of the explanatory material, but is not related to the criteria development process. Instead, a selection of different impacts is in focus, and producers are invited to discuss those, but how this selection, or prioritization, is made is not clearly presented.

This lack of cohesiveness hampers any programme's effectiveness to contribute to a change towards more sustainable consumption and production patterns. Moreover, decisions on criteria reflect the current reality and are based on evaluations of the products as they are known today, without any long-term objectives or strategies. In line with de Boer (de Boer, 2003), we claim that this might hamper creativity for the future and thereby create some barriers to sustainable innovations.

However, when sustainability is the objective, sustainability needs to be clearly defined. The framework for strategic sustainable development (FSSD) applied in this paper includes a definition of socio-ecological sustainability. This definition is based on complementary principles that allow the tackling of problems upstream in cause-effect chains and that are concrete enough to guide thinking and relevant questions to be formulated (Robèrt, 1994; Broman et al., 2000; Holmberg, 1995; Holmberg and Robèrt, 2000; Ny et al., 2006). The principles were not introduced in this paper, since no operational objectives at all to compare with was found. While integrating the full scope of social and ecological sustainability, criteria development processes should evaluate and prioritize criteria in a backcasting perspective, i.e. for initial assessment and gradually sharpening of the criteria to create a movement in a sustainable direction. The following questions should guide decisions on criteria (Robèrt, 2000; Robèrt et al., 2002);

- i. Are these criteria steps in the right direction and with the most appropriate length?
- ii. Do these criteria facilitate flexible platforms, i.e. progress seen as stepping stones towards possible future sustainable solutions?
- iii. Do these criteria provide good return on investments, to producers, to labelling programmes, to consumers and to society at large?
- iv. Do the processes include soft principles for strategic guidelines such as participation and transparency, i.e. are decisions taken in a dialogue within the system of stakeholders needed to inform the objective and are they transparent enough to allow for correction from outside of plans and decisions made?

Moreover, strategies and planning for future criteria should include a long-term perspective. And most importantly, these plans and strategies need to be communicated to producers and other stakeholders, to proactively support them to be strategic in their planning in relation to coming revisions of the criteria. This is not the praxis today.

Also, the scope should be widened from individual products to include a broader product-service system perspective. This would mean that all products/services delivering the same human utility would be assessed against the same criteria. Such an approach has a great potential to deliver a win-win-win situation, as regards producers, consumers and society at large (Thompson et al., 2010). This demands though that the criteria development needs to include relevant stakeholders in a participant and more transparent approach. In line with findings from Rubik et al. (2007) we argue this is a key factor for success. This includes the integration of stakeholders all along the supply chain as well as the network of stakeholders involved in product-service systems. It also includes procurers, public as well as private and organizations with responsibility for Green Public Procurement. The criteria development processes should better facilitate a dialogue environment in which incentives for integration of sustainability in business ideas is clarified. By sharing a robust principled definition of sustainability across organizational borders and all along the supply chain, conclusions are allowed to be drawn by each supplier as regards stepwise approaches, and then by doing business together helping each other economically. If the criteria development process includes this learning and participatory environment and if the labelling programmes systematically and strategically sharpen the criteria, informed procurers and producers are given chances and incentives to follow and gradually develop their procurement processes and product portfolios in this direction. All in all, a shift from re-activeness to pro-activeness amongst all stakeholders affected by the labelling programmes is supported.

However, market-based instruments, such as eco-labelling, cannot on their own, create a sustainable society. Ecolabelling is not a stand-alone entity, it is an instrument designed to contribute to sustainability together with other policy and political initiatives. Or as stated by de Boer [de Boer, 2003, p. 263]

*“...labelling will be insufficient to achieve these goals if it is merely an isolated action”.*

Green Public Procurement is already mentioned. Future research will include more implicate studies on how eco-labelling and procurement can interact, e.g., in criteria development processes to facilitate and enhance synergy effects between these two instruments. It will also involve studies of criteria development processes in reality, to find out what practical challenges there are to the implementation of the potentials found in this study, and what specific tools are needed. Building on these findings we aim at developing a solid and transparent criteria development process in which a strategic sustainability perspective is integrated. This criteria process should be able to be used by any criteria developer, i.e., both criteria developers at labelling programmes and developers of criteria used within procurement.

## Appendix A

### List of interviews

- A. 2008-03-14 Interview with Ragnar Unge, CEO Ecolabelling Sweden
- B. 2008-12-11 Interview with Gun Nycander, head of division Ecolabelling Sweden
- C. 2009-06-30 Interview with Lena Axelsson, criteria developer Ecolabelling Sweden

- D. 2009-06-30 Interview with Ulla Sahlberg, criteria developer Ecolabelling Sweden
- E. 2010-10-12 Interview with Mathias Gustavsson, officer at Good Environmental Choice

The base questions in the interviews have been:

1. Can you describe the criteria development process? Are there routines, guidelines, tools etc used?
2. How do you choose the product/service for which criteria will be developed?
3. How do you define the product category for which criteria will be developed?
4. What decides the aspects included in the criteria, i.e. how is the prioritization made? Is this prioritization common for all criteria development processes?
5. Are there long-term strategies for how the criteria will develop with time? And in that case, how is this strategy produced? AND is this strategy communicated to the producers?
6. Are any final objectives set for the criteria development?
7. Is any definition of sustainability used at any state in the criteria development processes?
8. Is the access to data and information affecting the criteria and if so, how?

## References

- Aalto, A., Heiskanen, E., Leire, C., Thidell, A., 2008. The Nordic Swan - From Past Experience to Future Possibilities: The Third Evaluation of the Nordic Ecolabelling Scheme. Tema Nord, 0908-6692 529. Copenhagen2008.
- Akerlof, G.A., 1970. The market for “Lemons”: quality Uncertainty and the market mechanism. The Quarterly Journal of Economics 84 (3), 488–500.
- Broman, G., Holmberg, J., Robèrt K., H., 2000. Simplicity without Reduction: thinking upstream towards the sustainable society. Interfaces 30 (3), 13–25.
- Byggeth, S.H., Hochschorner, E., 2006. Handling trade-offs in ecodesign tools for sustainable product development and procurement. Journal of Cleaner Production 14 (15–16), 1420–1430.
- de Boer, J., 2003. Sustainability labelling schemes: the logic of their claims and their functions for stakeholders. Business Strategy and the Environment 12 (4), 254–264.
- Dreborg, K.H., 1996. Essence of back-casting. Futures October 28 (9), 813–828.
- Eiderström, E., 2009. The Swedish Society for Nature Conservation. e-mail correspondence 2009-01-29.
- Environmental Resources Management, 2008. Mapping and Analysis of Sustainable Product Standards - Final Report London.
- Everard, M., Monaghan, M., Ray, D., 2000. 2020 Vision Series No2: PVC and Sustainability. The Natural Step UK/UK Environment Agency.
- Global Ecolabelling Network, 2006. GENECIS Certificate. Available at: <<http://www.naturskyddsforeningen.se/upload/bmv/filer/bmv-genices-certificate.pdf>> [accessed 05.08.11].
- Global Ecolabelling Network, 2011a. A Members Guide to the Global Ecolabelling Networks Internationally Coordinated Ecolabelling System - GENICES. Available at: <[http://www.globalecolabelling.net/what\\_is\\_ecolabelling/](http://www.globalecolabelling.net/what_is_ecolabelling/)> [accessed 05.08.11].
- Global Ecolabelling Network. Information available at: <<http://www.globalecolabelling.net/about/activities/documents/index.htm>> [accessed 05.08.11]. 2011b.
- Global Ecolabelling Network, 2011c. What Is Ecolabelling?. Available at: <[http://www.globalecolabelling.net/what\\_is\\_ecolabelling/](http://www.globalecolabelling.net/what_is_ecolabelling/)> [accessed 05.08.11].
- GreenTick certification. Information available at: <<http://www.greentick.com/>> [accessed 05.08.11]. 2011.
- Hallsted, S., Ny, H., Robèrt, K.-H., Broman, G., 2010. An approach to assessing sustainability integration in strategic decision systems. Journal of Cleaner Production 18 (8), 703–712.
- Harris, S.M., 2007. Green Tick™: an example of sustainability certification of goods and services. Management of Environmental Quality: An International Journal 18 (2), 167–178.
- Holmberg J. Socio-ecological principles and indicators for sustainability [Doctoral thesis]. Gothenburg: Chalmers University of Technology and University of Gothenburg; 1995.
- Holmberg, J., Robèrt, K.-H., 2000. Backcasting from non-overlapping sustainability principles - a framework for strategic planning. International Journal of Sustainable Development and World Ecology 7, 291–308.
- IEFE, 2005. EVER: Evaluation of EMAS and Eco-label for Their Revision - Executive Summary, p. 13.
- ISO 14020, 2000. Environmental Labels and Declarations - General Principles Geneva, Switzerland.

- ISO 14024, 1999. Environmental Labels and Declarations - Type I Environmental Labelling - Principles and Procedures Geneva, Switzerland.
- ISO 14040, 2006. Environmental management - Life cycle assessment - Principles and framework Geneva, Switzerland.
- James, S., Lahti, T., 2004. The Natural Step for Communities: How Cities and Towns Can Change to Sustainable Practices. New Society Publishers, Gabriola Island, British Columbia, Canada.
- Karl, H., Orwat, C., 1999. 3. Economic Aspects of Environmental Labelling. The International Yearbook of Environmental and Resource Economics 1999/2000: a Survey of Current Issues, p. 107.
- Lønn, B.-E., 2010. The Nordic Ecolabelling. e-mail correspondence 2010-09-27.
- Lavallee, S., Plouffe, S., 2004. The ecolabel and sustainable development. The International Journal of Life Cycle Assessment 9 (6), 349–354.
- MSC. Information available at: <<http://www.msc.org/about-us/standards>> [accessed 05.08.11]. 2011.
- Natrass B. The natural step: Corporate learning and innovation for sustainability [Doctoral thesis]. San Francisco, USA: The California Institute of Integral Studies; 1999.
- Natrass, B., Altomare, M., 2002. Dancing with the Tiger. New Society Publishers, Gabriola Island.
- Nordic Ecolabelling, 2001. The Stair (In Swedish).
- Ny, H., MacDonald, J.P., Broman, G., Yamamoto, R., Robèrt K., H., 2006. Sustainability constraints as system boundaries: an approach to making life-cycle management strategic. Journal of Industrial Ecology 10 (1), 61–77.
- Personal communication, 2008a. Interview with Ragnar Unge SIS Miljömärkning AB 2008-03-14.
- Personal communication, 2008b. Interview with Gun Nycander SIS Miljömärkning AB 2008-12-11.
- Robèrt, K.-H., 2000. Tools and concepts for sustainable development, how do they relate to a general framework for sustainable development, and to each other? Journal of Cleaner Production 8 (3), 243–254.
- Robèrt, K.-H., Schmidt-Bleek, B., Aloisi de Larderel, J., Basile, G., Jansen, J.L., Kuehr, R., et al., 2002. Strategic sustainable development – selection, design and synergies of applied tools. Journal of Cleaner Production 10 (3), 197–214.
- Robèrt, K.-H., 1994. Den Naturliga Utmaningen. Ekerlids Förlag in cooperation with The Natural Step and Veckans affärer, Stockholm.
- Robinson, J.B., 1990. Future under glass - a recipe for people who hate to predict. Futures 22 (9), 820–843.
- Rubik, F., Frankl, P., 2005. The Future of Eco-labelling - Making Environmental Product Information Systems Effective. Greenleaf Publishing.
- Rubik, F., Frankl, P., Pietroni, L., Scheer, D., 2007. Eco-labelling and consumers: towards a re-focus and integrated approaches. International Journal of Innovation and Sustainable Development 2 (2), 175–191.
- SIS Miljömärkning AB, 2001. Regler för nordisk miljömärkning, Stockholm.
- Schubert, R., Blasch, J., 2010. Sustainability standards for bio-energy - a means to reduce climate change risks? Energy Policy 38 (6), 2797–2805.
- Sustainable Travel International. Information available at: <http://www.sustainabletravelinternational.org/documents/sustainabletourismcertification.html> [accessed 2011-05-08].
- Thompson, A.W., Ny, H., Lindahl, P., Broman, G., Severinsson, M., 2010. Benefits of a product service approach for long-life products: the case of light tubes. In: Sakao, T., Larsson, T., Lindahl, M. (Eds.), CIRP IPS<sup>2</sup> Linköping.
- van Amstel, M., Driessen, P., Glasbergen, P., 2008. Eco-labeling and information asymmetry: a comparison of five eco-labels in the Netherlands. Journal of Cleaner Production 16 (3), 263–276.
- Van Weert E. National policy on sustainable consumption: Secretary for Sustainable Development and Social Economy. 10th European Roundtable on Sustainable Production and Consumption. Antwerp 2005.
- World Trade Organization, 2010. The WTO Agreement on Technical Barriers to Trade. Available at: [http://www.wto.org/english/tratop\\_e/tbt\\_e/tbtagr\\_e.html](http://www.wto.org/english/tratop_e/tbt_e/tbtagr_e.html) [accessed 10.12.10].