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Preface

The rationale for conducting this study on indicators for the Nordic Swan ecolabelling scheme has its origin in the discussions on the making of the “Vision 2015” for the Nordic Swan as well as in a growing need to find structured methods to account for what the ecolabel does. Since the start of the Nordic Scheme, different measures have been used to express performance, efficiency and, in some cases, potential environmental benefits. Other ecolabelling schemes have given account for their merits in their ways. The presence of such evaluations has invited to comparisons between the schemes. However, both the accounts for individual schemes and the comparisons of two or several schemes can be questioned due to incompatible measures, weak data quality, and, in some cases probably for unclear purposes. Consequently, there is substantial interest among ecolabelling schemes to find suitable measurement, often as defined indicators, which could be used for various communication needs.

With this background, the project at hand has the overall purpose to highlight the experiences of using indicators for reporting, which actors that should be targeted and their need of information, and also to propose a set of indicators applicable specifically for the Nordic Swan.

The project builds on literature about evaluations and indicators for ecolabelling, interviews with actors, a screening of the quantifiable information that different ecolabelling schemes actually present about themselves, and previous efforts to compare schemes.

The authors would like to thank those who participated in interviews and in different ways contributed with valuable information. A special thank you is given to Stefán Gíslason at Environice for his valuable support and input to this project.

The project was financed by the Nordic Council of Environmental Ministers’ (NCM) working group for sustainable consumption and production (HKP-gruppen).

The authors of this report hope it will contribute to move the knowledge base on reporting effects of ecolabelling a step further and that the results are useful in deciding on sets of indicators for the Nordic Swan.

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Summary in English

The Nordic Swan is a voluntary environmental and consumer policy instrument that was launched in the Nordic countries in 1989. Ever since, the scheme has grown with increasing numbers of product groups and licence holders. Similarly, the number of ecolabelled products in the market place has also grown, resulting in a growing financial turnover. The Nordic Swan has furthermore also been joined by additional parallel ecolabelling schemes.

Just like other policy instruments, the Nordic Swan is subject to evaluations. As of yet, the scheme has been evaluated three times and questions regarding quantitative information on performance and efficiency of the Nordic scheme and comparability with other schemes have been recurrent issues in connection to these evaluations. Beside policy-makers and people in charge of the scheme, market actors are also interested in the question, to decide to what extent they should consider the ecolabel when acting on the market. These market actors could be consumers who seek for guidance, producers in need for trustworthy market communication channels, consumer and environmental NGOs needing to know if they should promote the ecolabel among their members, etc.

These and other reasons call for appropriate information systems that bring forward the requested information in, for instance, suitable systematically selected and standardised indicators. Such indicators could be used for various purposes, for example documenting trends in performance and efficiency of the scheme, making comparisons of different schemes, benchmarking studies for mutual learning and continual improvements, to name a few.

We propose that the Nordic Swan scheme prioritises developing indicators to track changes in internal performance and efficiency. Pilot studies could be developed on comparisons of differences between the national competent bodies of the Nordic Swan, as well as the EU Ecolabel. Pushing joint development of indicator sets for comparisons as collaborative projects with other schemes, for instance the EU Ecolabel, is on one hand desirable but can also become time-consuming. We therefore suggest that such projects are given lower priority.

The indicators proposed for the internal performance and efficiency measures of the Nordic Swan are presented in the tables below:

Performance of the scheme

Indicator	Measures of
Producers' perceptions	Legitimacy, market attraction, trustworthiness of the scheme, openness and transparency, relevance and stringency of criteria
Number of product groups and criteria document	Scope of the ecolabel, ability to impact
Number of products that can be eco-labelled	Scope of the ecolabel, ability to impact

Market performance of the scheme

Indicator	Measures of
Consumers' recognition, knowledge and trust	Consumers potential ability to recognise and choose eco-labelled products
Professional purchasers' recognition, knowledge and trust	Professional purchasers potential ability to recognise and consider ecolabelled products
Producers' recognition and knowledge	Potential ability of producers without ecolabelling licence to consider applying for that

Market performance of each product group

Indicator	Measures of
Number of different products covered by the product group/criteria document	Market attraction, potential environmental impact
Number of licences	Market attraction, potential environmental impact
Renewal and replacement rate of licence holders	Market attraction, stringency in criteria revisions
Number of unique products	Market attraction
Number of companies	Market attraction
Economic turnover	Input to market share, amount of products
Number of employees in ecolabelled services	Market attraction and penetration
Market share and change of market share over revision cycles	Market attraction, stringency in criteria revisions

Criteria performance of each product group

Indicator	Measures of
Stakeholder participation in criteria development process	Transparency, participation, legitimacy
External review of criteria documents	Relevance and stringency of environmental requirements
Estimated difference between average products of the product group and requirements in the ecolabelling criteria	Environmental improvement potential of the product group
Changes in scope and stringency of environmental requirements over criteria revision cycles	Relevance and stringency of environmental requirement

Approach to environmental benefits

In addition to aforementioned indicators, we propose that the Nordic Swan scheme engage expert panels to evaluate and quantitatively estimate environmental benefits for each product group. This analysis could utilise some of the abovementioned indicators and in particular address the following aspects:

Aspect	Indication of
Criteria documents	Difference in performance between ecolabelled products and the bulk of products within the appointed product groups
Market dynamics	Changes in market positions for ecolabelled products over generations of criteria revisions
Environmental potentials	Potential reductions of emissions in case most products of a product groups would meet the requirements of the ecolabelling criteria

1. Background

The Nordic Swan ecolabelling system (the Nordic Swan) was introduced over twenty years ago and has since then grown in scope and numbers. Throughout the years a number of evaluations have been conducted. The latest major evaluation of the system,¹ performed in 2007–2008, called for a vision, which was soon thereafter developed: the Swan Vision 2015.² Among other messages in this vision, the intention for the Nordic Swan label to “be recognised as one of the most effective consumer policy tools for environment” was emphasised.

As a step to achieve such recognition, the possibilities to monitor and evaluate the activities of the Nordic Swan have been discussed. It has been suggested that the Nordic Swan should be able to measure its performance in order to track changes and progress, and for enabling comparison with other ecolabels and environmental information systems. This requires that the performance indicators are systematically selected and standardised. Such indicators should allow for three primary uses: 1) trend studies, 2) comparisons with other systems, and 3) support the exchange of experiences and learning processes.

Already in the first evaluation of the Nordic Swan in 1995,³ preliminary attempts were made to compare different ecolabelling systems. Although the outcome was merely indicative, the report revealed that the systems used a variety of approaches to measure and report performance, hence simple comparisons would not yield reliable results. Even attempts in the previously mentioned assessment from 2007–2008 indicated that the parameters to define, for instance, product groups, licences, licensees and products on the market, differed from those of other ecolabelling systems.

¹ Aalto, K., Heiskanen, E., Leire, C. & Thidell, Å. (2008). *The Nordic Swan: From past experiences to future*. TemaNord 2008:529. The third evaluation of the Nordic ecolabelling scheme. The Nordic Council of Ministers: Copenhagen.

² NCM. (2012). *The Swan flies high*. Online. Available: <http://www.norden.org/en/nordmiljoe/special-issues/2012/the-official-nordic-ecolabel/the-swan-flies-high> [2014-07-21].

³ Backman, M., Lindhqvist, T. & Thidell, Å. (1995). *Nordisk Miljömärkning*. TemaNord 1995:594. The Nordic Council of Ministers: Copenhagen.

As a result, there has been a call for a more focused attempt to look at the possibilities and choices for using indicators to compare ecolabelling systems. A requirement for such a system of indicators is that it should allow for comparison between ecolabelling systems in different countries. However, the system should not only enable comparison with the EU Ecolabel and other major ecolabelling schemes, but ultimately also allow for evaluation in relation to other environmental policy instruments with comparable aims.

It must, however, be acknowledged that limited knowledge is available on how the performance of ecolabel programmes can be evaluated and, actually, what constitutes success of ecolabelling. As a parallel, it can be mentioned that it has been claimed that discussions on the impact of standards and private initiatives for social labels have so far been dominated by “philosophical and political discourse” and these schemes are still not scrutinised in any systematic evaluation.⁴ In line with this, it has been suggested that future research should explore the depth of these labels, methods they use, and results achieved.⁵

1.1 Purpose, method and scope

This report aims to fill a part of the above identified knowledge gap and provide input to the Nordic Swan by examining the possibilities to use indicators to monitor the ecolabel and thereby support the ecolabel in its vision to be among the most effective voluntary consumer-oriented environmental policy instruments, to attain high credibility and wide market penetration, and to facilitate a fruitful cooperation with other European environmental policy initiatives.

By doing so, the results of this report are intended to contribute to the design and selection of an indicator system that is affordable and provides relevant and comparable information both over time and between different ecolabelling systems, mainly the Nordic Swan and the EU Ecolabel.

⁴ Hiscox, M., Schwartz, C. & Toffel, M. (2008). Evaluating the Impact of SA 8000 Certification. In *SA8000 The First Decade: Implementation, Influence, and Impact*, Deborah Leipziger (ed.). London: Greenleaf.

⁵ WRI and Ecolabel Index. (2010). Global Ecolabel Monitor. Online. Available: <http://www.wri.org/publication/2010-global-ecolabel-monitor>

The information and data used in this report have been collected and processed in three steps:

1. Desktop study of literature.
2. Interviews and information exchange with relevant actors and stakeholders.
3. Compilation of a number of possible indicators and their capabilities and limitations.

The first step, the literature review, was based on published articles and reports. The search for literature used the following keywords in regards to ecolabelling: impacts, benefits, performance, success, effect, influence and effectiveness. For this study it was also deemed relevant to look at indicators that are used by various other ecolabelling organisations. Therefore data was taken from an earlier study⁶ conducted by the authors that could provide relevant insights to this topic. The desktop study on evaluations of impact of ecolabels was not intended to be fully comprehensive, but rather focussed on the studies considered most relevant in terms of better understanding how the subject has been studied so far.

For the interviews with relevant actors and stakeholders, interviewees were selected based more on their perceived knowledge of primarily ecolabelling systems, and to a lesser degree their knowledge on indicator systems. Interviews were made with eight stakeholders; these interviews aimed to promote an understanding of the possibilities and limitations of using indicators for ecolabelling systems.

Information collection was in addition carried out with a number of stakeholders, primarily those representing other ecolabelling schemes, but also with representative for the Nordic Swan. Details on the information that was collected is presented in a separate appendix to this report, and only a summary of it is included in the chapter reviewing literature.

⁶ See Appendix 2.

2. Effectiveness of ecolabels

2.1 Background to ecolabelling

Ecolabelling is an environmental policy instrument to help achieve both environmental and consumer-related objectives in society. Ecolabels are designed to provide trustworthy information to consumers to reduce information uncertainty as regards the product properties that the consumers may appreciate, but may not be able to notice on their own. Consequently, ecolabels can help cover an important information gap in the work to green the market. The spreading of ecolabelled products can therefore indicate the performance of ecolabelling as a policy instrument and the greening of the market, and ecolabelling has indeed been used to track this work.⁷

The number of ecolabelling-like initiatives has grown rapidly – from a few dozen schemes worldwide in the 1990s to a current count of almost 460 schemes in 197 countries and in 25 industry sectors.⁸ However, just a fraction of these initiatives represent independent third-party certified ecolabels covering the whole life cycle (ISO Type 1).

Societal actors are increasingly interested in getting a better understanding of ecolabelling programmes and to measure their effects (environmental, social, human health – negative or positive). This regards not only the overall effects of ecolabelling on the market, but also the performance of selected ecolabelling schemes. This can be illustrated by the fact that the practices of a number of ecolabels have been scrutinised and questioned. For example, the MSC-label of the Marine Stewardship Council and the EU Ecolabel have both been accused of certifying some questionable operations.⁹

⁷ See e.g. Poll, C., Vogt-Nielsen, K., Rubik, F., Jørgensen, M. S. & Jensen, M. L. (2005, November 25th). *Development of Indicators for an Integrated Product Policy*. IPU, CASA, and IÖW for the European Commission. Online. Available: http://ec.europa.eu/environment/ipp/pdf/eu_indicators_ipp_final_rep.pdf (Accessed 15th April 2014).

⁸ Numbers from late 2014. Ecolabel Index 2014. <http://www.ecolabelindex.com>

⁹ SustainAbility. (2011, March). Signed, Sealed, Delivered? Phase One White Paper.

So far, there has been little control of the many ecolabelling schemes.¹⁰ Recently, a code and method to monitor and evaluate the effectiveness of ecolabelling programmes was developed by the ISEAL Alliance.¹¹ The so called “ISEAL Credibility Principles” is a global agreement to identify credible ecolabels. The principles are sustainability, improvement, relevance, rigour, engagement, impartiality, transparency, accessibility, truthfulness and efficiency. They are meant as a foundation of what practices should be in place in standard schemes to deliver positive impact.

In the discussion on ecolabelling as a policy instrument, it has been stated that the effectiveness of an ecolabel is mainly linked to two conditions: the relevance of information and credibility.¹² For ecolabelling in particular, benefits have been said to include:¹³

- Informing consumers about the environmental impacts of selected products, and the choices they can make.
- Promoting economic efficiency because ecolabelling generally is cheaper than regulatory controls.
- Stimulating market development towards greater environmental awareness.
- Encouraging continuous improvement and thus stimulating the environmental impacts of products to decline over time.
- Promoting certification that provides customers with visible evidence of a product’s desirability from an environmental perspective. This includes an educational role towards customers, and to encourage competition among manufacturers.
- Assisting in monitoring environmental claims.

¹⁰ Delmas, M. A., Nairn-Birch, N. & Balzarova, M. (2012). *Lost in a sea of green: Navigating the eco-label labyrinth*. UCLA Institute of the Environment.

¹¹ ISEAL Alliance. <http://www.isealalliance.org/our-work/defining-credibility/credibility-principles>

¹² Smith, G. (2009). *Interaction of Public and Private Standards in the Food Chain*. OECD Food, Agriculture and Fisheries Papers, No. 15, OECD Publishing.

¹³ International Institute for Sustainable Development, http://www.iisd.org/business/markets/eco_label_benefits.aspx (Accessed 15th April 2014)

2.2 Ecolabelling schemes' exposure of own performance

Apparently, many ecolabels find it challenging to demonstrate positive impacts.¹⁴ A survey from 2010 found that 44% of the ecolabel schemes have measured the environmental or social impacts of their ecolabel,¹⁵ one third monitored their impacts on a regular basis, and 21% plan to study them.^{16,17}

This rest of this section highlights how the main ecolabelling schemes in Northern Europe choose to demonstrate and communicate their performance over time, both using in-house information and market surveys, and also what they measure and track, but not necessarily communicate.

The three ecolabelling schemes that are examined in this section – the Nordic Swan, the Blue Angel and the EU Ecolabel – appear to continuously inform about their performance on their websites. This is the performance-related information that these ecolabelling schemes track and communicate over time. The following Table 1 illustrates the different aspects that the ecolabelling schemes choose to focus on and to communicate in public relations settings, such as web sites and brochures.

¹⁴ WRI and Ecolabel Index. (2010). *Global Ecolabel Monitor*. Online. Available: <http://www.wri.org/publication/2010-global-ecolabel-monitor>

¹⁵ This number regards the share of those 113 ecolabel schemes who responded to the survey.

¹⁶ In the cited study, the term ecolabel refers “any independently verified label intended to communicate social and/or environmental attributes to consumers”, hence the definition is wider than that which is used for the remainder of this report.

¹⁷ WRI and Ecolabel Index. (2010). *Global Ecolabel Monitor*. Online. Available: <http://www.wri.org/publication/2010-global-ecolabel-monitor>

Table 1. Aspects on performance currently communicated on the websites of the three major ecolabelling schemes

	The Swan ¹⁸	Blue Angel ¹⁹	EU Ecolabel ²⁰
Number of ecolabel licences	x		x ²¹
Changes in number of licences			X
Number of ecolabelled products	x	x	X
Number of different kinds of products that can be awarded a licence	x		
Number of companies		x	
Number of different product groups/criteria documents	x	x	X
Number of labelled products per product group (indicative numbers)		x	X
Number of labelled awards per country			X
Consumer recognition	x	x	

It should, however, be noted that the national websites, as well as the common international of the Nordic Swan, expose data differently.

Ecolabelling schemes typically also measure the response on the market, in particular among household consumers. The Danish website of the Nordic Swan provides information on changes of Danish consumers' recognition and knowledge of the Nordic Swan and the EU Ecolabel over a period of ten years.²² The Swedish website of the Swan provides similar information for a single year. The Blue Angel uses Eurobarometer market surveys to find out about the following aspects:²³

- Recognition.
- Awareness of the label.
- Attention to environmental aspects at the time of purchase.
- Attention to ecological labelling at the time of purchase.

¹⁸ <http://www.svanen.se/en/Om-Svanen/Press/Short-facts/>

¹⁹ <http://www.blauer-engel.de/en/our-label-environment>

²⁰ <http://ec.europa.eu/environment/ecolabel/facts-and-figures.html>

²¹ This is done for all EU Member States and for multiple years.

²² <http://www.ecolabel.dk/da/blomsten-og-svanen/kendskab-til-maerkerne>

²³ Eurobarometer Flash. (2009). *Europeans' attitudes towards the issue of sustainable consumption and production*. Online. Available: http://ec.europa.eu/public_opinion/flash/fl_256_en.pdf

Similarly, a market survey from 2009 on the full range of ecolabels, both official ecolabels (the Nordic Swan and the EU Ecolabel) and also single criterion ecolabels or product-specific labels, such as Fairtrade and KRAV, examined the following aspects:²⁴

- Recognition.
- First label that comes to mind.
- Mentioning of one label.
- Recognition of logotype.
- Meaning of label.
- Feeling of trust.
- Importance of label when choosing a product.

Another survey, conducted by YouGov in 2012, showed the market response on the following aspects:²⁵

- Weight given to the issues targeted by the label compared to societal issues.
- Desire to receive information on various aspects covered by the label.
- Preferred channels to receive information about the label.
- Perceived extent of the benefit of using the label.
- Willingness to pay for the labelled products.
- For which product groups the label is most relevant.

Finally, another aspect that has been mentioned regards consumers' view on professional procurement of ecolabelled products:²⁶ "The number of consumers who claim that they get a more positive impression from large companies and organisations if these buy ecolabelled products and services".

²⁴ Respons Analyse Oslo. (2009, November). *Hur kända är Svanen och EU Ecolabel?* Market survey.

²⁵ YouGov. (2012). "Så tycker konsumenterna. Projektet Klimatcertifiering för mat".

²⁶ YouGov. (2013). Referred to in <http://www.dagenssamhalle.se/debatt/upphandla-hallbart-brfoer-klimatets-skull-6358?page=205>

2.3 Literature on ecolabelling performance

Available literature reveals that researchers have started to discuss the impact of ecolabels. The predominant stream of literature regards the effectiveness, including aspects such as licensees' economic benefits, or the usefulness of ecolabelling as a policy instrument (for example, product development) and trade implications.

The following is a compilation of the main aspects that have been highlighted in the selected literature. This compilation provides a picture of which indicators are deemed feasible by others. The selected and reviewed studies are listed in Table 2.

It should be noted that the methods employed in literature so far are of a rather one-dimensional design and the possibility to guarantee any causal inference about the impact of the label should be considered limited.

Table 2. Legend of Study Citations

Code	Study
A	Abt Associates, 1994
B	Cadman & Dolley, 2004
C	Locret & de Roo, 2004
D	Rotherham, n.d.
E	Seifert & Comas, 2012
F	Potts & Brennan, 2011
G	Korteland, 2007
H	Horne, Wasiluk, & Lewis, 2007
I	Rubik & Scheer, 2008

As shown in Table 3, consumer awareness and perception were the most commonly focused aspects as regards market impact. Consumer awareness and perception data are deemed both reliable and easy to measure via consumer surveys.²⁷ Market share is sometimes measured, but such data is more difficult or expensive to acquire than consumer awareness data.²⁸ Two studies mentioned the desirability of data on how ecolabels change consumer behaviour. However, they also note that it can be difficult to attribute the change in behaviour to the label as opposed to other influences such as information campaigns and promotional activities.²⁹

²⁷ Abt Associates. (1994, April 1st). *Determinants of Effectiveness for Environmental Certification and Labeling Programs*. US EPA.; Rubik, F & et. al.) (2008).

²⁸ Ibid.

²⁹ Abt Associates. (1994, April 1st). *Determinants of Effectiveness for Environmental Certification and Labeling Programs*. US EPA.; Horne, R., Wasiluk, K. L. & Lewis, H. (2007). *Product Environmental Labels Scoping Study Stage 1: PELS Review*. Melbourne: RMIT University.

Table 3. Aspects related to market impacts

Aspects	Studies
Consumer Awareness of the Ecolabel	A, G, H, I
Consumer Acceptance of the Ecolabel	A
Changes in Consumer Behaviour	A, H
Consumer Perceptions of the Ecolabel	E, F, G, H
Market Share	G, H
Public Purchasing Demand	G, I
Business to Business Sales	I
Number of Certified Suppliers	G
Number of Certified Products on the Market	H
Number of Licensed Products	H
Cost vs Benefit of Certification	G

Issues with data quality and accessibility for trade impact indicators were similar to those for market impact indicators. As shown in Table 4, producer perceptions of ecolabels are more commonly monitored than producers' changes in behaviour. Researchers found that perception data are easier to acquire and more reliable than behaviour change data. While Horne *et al.* (2007) listed producer changes in behaviour as a success indicator for ecolabels, the lack of discussion of producer behaviour in their analyses of ecolabelling schemes suggests, however, that this data is difficult to obtain. In their review of two labels, Abt Associates (1994) concluded differently and claimed that manufacturers' behaviour change was more likely attributed factors other than the labels, for instance regulatory changes and incentives from the government.

Table 4. Aspects related to trade impacts

Aspects	Studies
Changes in Manufacturing Behaviour	A, H
Producer Perceptions of the Ecolabel	E, F, H

A number of studies mentioned the desirability of monitoring the environmental impacts of ecolabels, either real or estimated. However, none were able to find or acquire reliable data about actual environmental impacts from ecolabels. Rotherham (n.d.) explained that a key part of the problem is the challenge in assigning causality between the ecolabel and changes in environmental quality. Cadman & Dolley (2004) estimated the environmental impacts using potential market share values of 5%, 20%, and 50%. The results of the study are useful only so far in that they demonstrate the potential environmental impacts should those market share levels be reached. However, with the above-mentioned difficulty in measuring market shares, estimates of environmental impacts are only loosely useful.

Table 5. Aspects related to environmental impacts

Aspects	Studies
Improvement in Environmental Quality	A, H, I
Estimated Direct Benefits	B
Estimated Indirect Benefits	B, I
Stringency or Quality of the Criteria	C, G, H
Continual Development of New Criteria for Significant Sectors	H
Involvement of Stakeholders in Criteria Development	G, H
Number of Criteria Developed within a Product Group	H

A potential solution to the problem is to use a proxy indicator. As shown in Table 5, one third of the studies used the stringency or quality of the ecolabelling criteria as a proxy indicator for the environmental impacts of the ecolabelling scheme. Relative to environmental impact data, ecolabelling criteria is far more easily accessible for stakeholders interested in assessing ecolabelling schemes.

A study on FSC-labelled products has looked into economic benefits.³⁰ http://www.rainforest-alliance.org/resources/documents/economic_benefits.pdf The questions asked regarded the proportion of sales (in terms of both volume and monetary value) that are concluded by a certain group of purchasers (with a FSC Code of Conduct), and the prices paid by different types of buyers that can correspond to some factors influencing the prices. The first question tracks the performance over several years (since the start).

A paper on ecolabelling, energy efficiency and sustainability attempted a meta-evaluation of labelling programmes and used two criteria: manufacturer and consumer response. The response to an ecolabelling scheme among consumers should be the primary goal of an ecolabelling programme, in order to get a green market taking form.³¹ Three dimensions of consumer response were mentioned: awareness, understanding, and behaviour.

³⁰ Benschel, T., Newsom, D. & Bahn, V. (2008). *Are There Economic Benefits from Forest Stewardship Council (FSC) Certification? An Analysis of Pennsylvania State Forest Timber Sales*. Rainforest Alliance. Online. Available: http://www.rainforest-alliance.org/resources/documents/economic_benefits.pdf

³¹ Banerjee, A., & Solomon, B. (2003). Ecolabeling for energy efficiency and sustainability: a meta-evaluation of US programs. *Energy Policy*, 31, 109–123.

2.4 Challenges in measuring and comparing ecolabelling performance

In literature, a number of challenges have been raised in regards to measuring performance of ecolabelling. Perhaps the most prevalent one, which is associated with tracking impact or performance of ecolabelling, has to do with the accessibility of data. More specifically, as pointed out by ESCAP (2009), one major challenge in selecting indicators is cost-effective availability of quality data.³²

The other major challenge has to do with comparability. The ability to compare indicators between organisations depends on a number of factors, including, but not limited to, how similarly the organisations define indicators, for instance product groups, and design criteria. Comparison between organisations based on number of product groups is of limited value because organisations tend to use different methods for defining product groups and there are discrepancies in how criteria documents are assigned to product groups.

Earlier findings from a pilot study for the Global Ecolabelling Network (GEN) summarised in Appendix 2 support this claim in that they have revealed that ecolabelling organisations define product groups under their scheme in different ways. A licence count may not indicate the number of producers participating in the scheme. Some ecolabelling organisations give the option of allowing producers to apply for a master licence that will cover a range of products or models of a product. Some producers may hold multiple licences while other hold just one.

Another challenge, especially when comparing ecolabels, stems from regional differences in consumer preferences. As stated, it is decisive that labels address what is important to the consumers.³³ As found in a country comparison on consumers' perceived cost-benefit relationship of eco-friendly behaviour,³⁴ the cultural, economic and political differences between Belgium and Poland may imply that their consideration of eco-friendly behaviour is different.

³² The United Nation's Economic and Social Commission for Asia and the Pacific (ESCAP) (2009)

³³ Gordy, L. (2003). *Differential Importance of Ecolabel Criteria to Consumers*. Institute for Agriculture and Trade Policy, Minneapolis.

³⁴ Roozen, Irene T. M. & De Pelsmacker, Patrick. (2000). Polish and Belgian consumers' perception of environmentally friendly behavior. *Journal of Consumer Studies & Home Economics*, 24, 1, 9–21.

3. Experiences with using indicators

3.1 Current use of indicators among major ecolabelling schemes worldwide

Useful data can be found in an earlier pilot study commissioned for the Global Ecolabelling Network (GEN) accounted for in Appendix 2. The study included a survey of the five organisations that coordinate the Environmental Choice Canada, the Environmental Choice New Zealand, the Thai Green Label, the Blue Angel (Germany), and the Korea Ecolabel. The aim of the discussion was mainly to explore the extent to which ecolabelling organisations use indicators to track the performance of their labels and what type of data is readily available for use as indicators. Some questions probed how indicators could be used to compare relative performances of different ecolabelling schemes. Table 6 is an extract from the pilot study. See Appendix 2 for the full text.

Table 6. Current use of indicators among major ecolabelling schemes

Data on environmental benefits	Two out of the five ecolabelling organisations were evaluating the environmental benefits of their ecolabel
Data on market shares	The availability of information on market shares was perceived as low. Only one ecolabelling organisation stated that there might be information about market shares at the level of the licensees
Data on sales and employees of licensed products and services	For the most part, ecolabelling organisations did not readily have access to turnover or sales data for products carrying their label
Data on products/services on the market	All five ecolabelling organisations tracked how many products/services that were certified under their scheme, and four out of five organisations said that they also kept records of their licence counts
Data on criteria stringency	All of the organisations were aware of whether they had product groups without certified products
Data on consumer and producer recognition and trust in the ecolabel	Four out of five organisations said that they measured consumer trust and recognition, and three out of five said the same about producer trust and recognition. However, only two organisations measured both
Data on professional purchasers	Most, if not all, of the responding ecolabelling organisations did not collect data about professional purchasers

The results from this survey show that some data is more readily accessible than other, namely data on product groups and data on consumer perceptions. It should, however, be noted that the schemes tend to collect data differently. Moreover, the systematic data collection tends to be weak for several parameters causing hurdles for comparative time-series. The selection of parameters may be consciously made even though the evidence for that is weak. Thus, comparisons of indicators from the different schemes would not necessarily target similar aspects and they will give information of varying accuracy.

3.2 Actors' use and views on possibilities and limitations with indicators

This section presents the views on the usefulness and feasibility of indicators to measure performance and impacts of ecolabelling based on interviews with a number of actors. The interviews took place via telephone or emails in the time period June 2012 to December 2013. Three of the interviewed persons were members of an ecolabelling organisation. One interviewee works with a consumer advocacy organisation. The last interviewed person works with an organisation focused on sustainability purchasing. Some common themes expressed by the interviewed persons are summarised in this section.

3.2.1 *Reasons to use indicators*

The interviewees presented various reasons for monitoring the performance of ecolabels, including:

- to demonstrate which ecolabels are successful on the market
- to establish benchmarks
- to analyse the successes and failures within and between ecolabelling schemes
- to determine which ecolabels are more effective at promoting positive environmental impacts
- to assist professional purchasers in selecting which ecolabels to use.

The interviewed representative of the Nordic Swan explained that the collected information, including the consumer recognition and trust, number of licences, stakeholder consultation and staff numbers, is used both as a track record and also for planning the entrance in new product segments.

Several interviewed persons suggested benchmarking ecolabelling against other policy instruments or against a market without ecolabelling intervention. The need for targets to measure the effect was also emphasised. When discussing the criteria stringency it was suggested to look at how the ecolabelled products compare to the leaders on the market and how the criteria compare to the legal requirements.

3.2.2 Suggested indicators

The most common response to which aspects to track was sales volume or market share of ecolabelled products. Other responses included (not in any intended order):

- Number of licences.
- Consumer recognition.
- Producer recognition.
- Professional purchaser recognition.
- Stringency of the criteria / ambition of the ecolabel.
- Transparency of the criteria development process.
- Transparency of the certification process.
- Stakeholder engagement in criteria development.
- Number of ecolabelled products on the market.
- Reputational risks associated with the ecolabel.
- Relative ambition between ecolabelling schemes.
- The monetary turnover, both the total turnover but also by product.
- The gained market share of businesses with ecolabelled products from those with conventional products.

Other ideas were to assess who is involved in organising the label: How much influence do the stakeholders have in criteria development, how transparent are the criteria development and certification processes? Interviewees noted that transparency and involvement of trustworthy NGOs could increase the credibility of an ecolabelling scheme. Involvement of industry is important in determining feasible criteria endpoints.

However, interviewees noted that too much industry involvement could result in eroded stringency and lower credibility.

An indicator related to turnover can illustrate the credibility, demand, and attractiveness of the scheme. However, even a significant interest from several smaller producers may not impact such an indicator to any noticeable level.

It was pointed out that not only household consumers are important in the market studies, but also professional purchasers. Consequently, it is relevant to track purchasers' confidence in ecolabels.

One recommendation was to measure and analyse the effect of the criteria and their revisions over time. That would entail comparing criteria documents over multiple revision cycles and the sharpening of the requirements. This would help show the effect on industry over time. One challenge here is the difficulty to obtain any quantitative results. Consequently, such studies are likely to result in qualitative descriptions of product improvements and changes on the market.

Another recommendation was to use a multi-indicator approach, which compares criteria within a product group across labels, and in this way analyses what the endpoints are, and if some differences exist such as the ban of different materials or substances (e.g. fragrance or PVC).

There was also a call for a more segmented approach. It was, however, acknowledged that such numbers would be less indicative regarding the environmental benefits at large. To illustrate: assuming the Nordic Swan has about 40% of the market for toner cartridges, but the product group has a relatively low environmental impact compared to 400 ecolabelled hotels. It was suggested that total numbers can help illustrate the total effect while particular measurements are useful for specific goals.

3.2.3 *Challenges with indicators*

In the view of the interviewees, the overall challenge of tracking performance of ecolabels was apparently to be able to see the environmental effects. A clear risk is that indicators are interpreted for effects they do not or just partly capture.

Moreover, choosing the right indicators is critical to avoid mistakes detrimental to environmental improvements. For example, if performance is defined only as increase in number of licences, the number of licences may increase due to licensing existing products, while the market does not change at all. In other words, the number of licences does not necessarily translate to environmental effects. Focusing on well-selected environmental aspects or criteria levels might thus be a better choice.

Another issue with potentially misleading numbers is the risk to count different things as the same. Even though a high number of companies with licensed products may be a desirable indicator, because it shows the width of the market, the overall effect would be better with ten large producers than twenty small.

It was also mentioned that until there is a clear definition on what constitutes a product or product groups, these measurements are fairly meaningless. The problem with lack of agreed product group definitions was mentioned by several of the consulted stakeholders.

The challenge with comparability was also raised in the interviews. It was explained that differences exist between schemes as regards the wider cultural context, as well as type of industries, cultures, languages, etc. For example, the Nordic Swan label could, in part, consider different or more ambitious requirements than the EU Ecolabel because fewer countries are involved; the criteria of the Nordic Swan are developed through compromises between only five countries, whereas the EU Ecolabel involves all the EU member states. For this reason, it was recommended to try to create a reference definition for the ambition level of the criteria requirements.

A comparison between ecolabelling schemes can be useful for the scheme itself, to benchmark, for manufacturers or firms that consider getting a licence, or for authorities or organisations that choose to invest in the ecolabelling scheme. However, as one stakeholder pointed out, benchmarking among ecolabels is not particularly relevant unless it is possible to devise measures to isolate market specifics from the performance benchmarks.

Access to quality data was regularly mentioned as a challenge. One interviewed person elaborated on this noting that information is not centrally located. Different stakeholders such as certifiers, ecolabelling organisations, and ecolabel licensees may have different sets of information. The interviewed person commented that compiling information from various stakeholders is needed to improve market surveillance.

It was also stated that the figures on sales are based on the licence holders general appreciation after sales. There is currently no control or auditing of how the producers measure their turnover. In the long run, it is hoped for better use of bar codes and sales tracking systems to monitor sales.

Some aspects such as ambition and credibility may be challenging to measure. One interviewed person suggested using multiple proxy indicators to gauge these aspects. Proxy indicators could relate to stake-

holder engagement and transparency. Stakeholder holder engagement is critical to the development of accepted criteria.

While market share or market volume was commonly mentioned as a desirable indicator, there was also a common understanding of the challenge in acquiring this data. One interviewed person suggested a need for proxy indicators of market shares.

4. Building indicators: their role and function

What are indicators exactly? Indicators are generally used to communicate a simplified view of a complex reality. In contrast to statistics, which require interpretation to obtain a message, indicators are more of a narrative nature and tell a story.

Indicators are frequently used in decision-making and they can, without hesitation, be said to be considered of decisive importance for guiding decision-making. They are used in a variety of fields including, but not limited to, businesses and environmental policy. Within a field, indicators can be used for different stages within a causal or decision cycle. For example, Gabrielsen and Bosch present the following four reasons for using indicators in environmental policy:³⁵

- To gauge the gravity of environmental problems.
- To guide policy-making by revealing leverage points.
- To track the effectiveness of policy responses.
- To provide information that can be used to garner public support.

To be useful, indicators typically require some form of comparison.³⁶ For example, an indicator could track carbon emissions from a country over time to show how well, or poorly, the country is achieving its emission target. Indicators could also compare between various schemes. For example, a comparison “distance to target” between countries could reveal relative performance of the countries in achieving their respective targets.

³⁵ Gabrielsen, P. & Bosch, P. (2003, August). *Environmental Indicators: Typology and Use in Reporting*. European Environment Agency. Online. Available: <http://www.stakeholderforum.org/fileadmin/files/Environmental%20Indicators%20Typology%20and%20Use%20in%20Reporting.pdf>

³⁶ Ibid.

4.1 Frameworks for indicator development

Gabrielsen and Bosch categorise environmental indicators into five categories:³⁷

- Descriptive Indicators illustrate time-dependent change in a variable.
- Performance Indicators connect descriptive indicators to a target or goal and thus show the distance-to-target. Performance indicators can track the performance of an actor over time or compare the performance of various actors.
- Efficiency Indicators typically track environmentally related efficiency of products and processes, e.g., the energy consumption per unit produced.
- Policy-Effectiveness Indicators allocate changes in the state of the environment to policy efforts.
- Total Welfare Indicators aggregate indicators covering environmental, social, and economic development.

Among the abovementioned types of indicators, the first three are of most relevance for ecolabelling schemes. The latter two types are considered to go beyond the scope of this task since changes of state in the environment is just an implicit aim of reduced pressure.

4.2 DIPSIR framework

A framework can help to illustrate the broader picture in which indicators can play a role. One example is from the European Environment Agency called the DPSIR framework.³⁸ This framework is illustrated in Figure 1. It shows the broader cyclic interaction between the environment and environmental policy. Indicators can be applied to different stages of the DPSIR cycle. For example, indicators of the state of the environment can

³⁷ Gabrielsen, P., & Bosch, P. (2003, August). Environmental Indicators: Typology and Use in Reporting. European Environment Agency. Online. Available: <http://www.stakeholderforum.org/fileadmin/files/Environmental%20Indicators%20Typology%20and%20Use%20in%20Reporting.pdf>
<http://www.stakeholderforum.org/fileadmin/files/Environmental%20Indicators%20Typology%20and%20Use%20in%20Reporting.pdf>

³⁸ Ibid.

be used to gauge the gravity of environmental problems. Indicators on impacts can help garner public support for policy development. Indicators can also be used in-between the DPSIR elements. For instance, the combination of pollution levels (state) and mortality rates in certain species (impact) could reveal a dose-response relationship. Ecolabelling fits into the response element of the DPSIR cycle. For example, indicators such as the market share of ecolabelled products would fit in the model.

Figure 1. The DPSIR framework used by the EEA³⁹

On an overall level, the driver would be the demand for products and services that in turn lead to pressure in terms of pollution from production of these product and services, releases from product use and final disposal, distribution etc. The pollution and resource use cause changes of state of environmental parameters that can impact human health and ecosystems. The society launches different policies in order to combat or reduce negative health and environmental impacts by addressing the different stages of the DIPSIR framework. Ecolabelling is one out of several such policies in a policy mix, which indicate that the role of ecolabelling alone could be hard to single out from other influences of policy-making.

³⁹ Image from Gabrielsen & Bosch (2003).

While the DPSIR framework may be useful in providing a structure for visualising how ecolabels can fit into broader environmental policy goals and efforts, a more focused framework may be needed to guide the development of indicators for ecolabels.

4.3 Korteland model for analysis of performance of ecolabels

Korteland⁴⁰ developed a framework for the analysis of ecolabels. This framework was designed for examining the performance of ecolabels and, consequently, promises to be better suited than DIPSIR for aiding the development of indicators for ecolabel performance. The framework of Korteland does look at impacts on both environmental and social aspects, such as poverty in developing countries. The social impact part of the framework could be included or excluded depending on the goals of the set of ecolabels being analysed. This report focuses on environmental labels and will not include discussion of social impact indicators.

Figure 2. A Framework for Analysing the Performance of Ecolabels. Figure modified from Korteland⁴¹

⁴⁰ Korteland, M. (2007, May). *Eco-labelling to be or not to be? Desirability of eco-labels from an environmental and poverty perspective*. CE Delft. Online. Available: http://www.cedelft.eu/publicatie/eco-labelling%3A_to_be_or_not_to_be_%3A_desirability_of_eco-labels_from_an_environmental_and_poverty_perspective/542?PHPSESSID=ad8353cb75ccfd097561c2fc46a6f6a

⁴¹ Ibid.

In Figure 2, a framework for analysing the performance of ecolabels is suggested. Here, market impacts from domestic products can have direct environmental impacts. Products with international supply chains, on the other hand, indirectly affect the environment via international trade flows. This framework, dedicated for performance and effects, appears more suitable for analysis of macro-level effects than performance of specific ecolabelling schemes or comparisons of such schemes.

4.4 Policy intervention analysis model

A third approach could be to use a policy evaluation approach as starting point; analysing involved actors and perceived outputs and outcomes from ecolabelling. According to Mickwitz, the core elements of an intervention theory are actors, inputs, outputs, and outcomes and the links between and among them.⁴² These core elements of intervention theory are described as:

- Actors: the agencies such as the national bodies of the Nordic Swan, but also consumers and producers and other actors that are addressed by the ecolabelling scheme.
- Inputs: resources such as personnel, finance, matters that the scheme uses including information.
- Outputs: primarily criteria documents and information.
- Outcomes: actions taken by addressed actors, primarily producers, consumers and professional customers. The outcomes are subdivided into immediate, intermediate, and ultimate. Supplementary terms in use are impact (outcome), result (both output and outcome) and effect (outcome in both the target area and as side-effect).

The intended effects of ecolabelling are represented as simplified cause-effect relations in Figure 3 below.

⁴² Mickwitz, P. (2003). A Framework for Evaluating Environmental Policy Instruments: Context and Key Concepts. *Evaluation*, 9, 4, 415-436.

Figure 3. Intervention of ecolabelling systems: from input to outcomes

This simplified model does not, however, regard any other effects than the intended on overarching level. For instance, issues like market dynamics and impacts from criteria revision cycles, or the surrounding context for them are not included. Thus, there is a need to expand the scope of the model and consider side-effects and other effects that somehow relate to the objectives of the intervention.

Bemelmans-Videc⁴³ elaborates on the criteria of good governance in policy intervention and mentions legality and democracy as central values, beside the generally requested effectiveness and efficiency criteria. However, other criteria can be considered due to the purpose of identifying possible and suitable indicators. In recent years, Finnish environmental policy evaluation research has addressed these matters. Mickwitz suggested in his doctoral thesis also relevance, flexibility, predictability, persistence, efficiency acceptability, transparency, participatory rights and equity as important factors for the acceptance of a policy instrument.⁴⁴ Thidell suggested an application for ecolabelling schemes including some of these aspects illustrated in Figure 4.⁴⁵

⁴³ Bemelmans-Videc, M.-L., Rist, R. C. & Vedung, E. (1998). *Carrots, Sticks, and Sermons: Policy Instruments and Their Evaluation*. New Brunswick, N.J. & London: Transaction Publishers. (p. 9)

⁴⁴ Mickwitz, P. (2006). *Environmental Policy Evaluation: Concepts and Practice*. Commentationes Scientiarum Socialium 66/2006. Helsinki: The Finnish Society of Sciences and Letters. (p. 30)

⁴⁵ Thidell, Å. (2009). *Influences, effects and changes from interventions by eco-labelling schemes – What a Swan can do?* Doctoral thesis. Lund: IIIIEE, Lund University. (p. 32)

Figure 4. A model for evaluating an ecolabelling scheme based on intervention-theory

This elaborated model includes the intended dynamic loop of continual improvements of products as illustrated by consumers who buy eco-labelled products that sends signals to other producers to modify, re-design or innovate their products in order to provide the demanded products and, moreover, being able to adapt to revised requirements in updated criteria documents. Based on the model, the following section intends to discuss potential aspects to be covered by indicators in relation to intended cause-effect chains of ecolabelling under the separate themes indicated by the model.

4.4.1 Legality and democracy

Legality and democracy are background aspects important for the credibility and acceptance of the ecolabelling scheme among the actors, including consumers, producers, and the public, from a contextual outside perspective. We can conclude that the Nordic Swan has its statutes and is governed according to decisions by its principals in the Nordic countries. Similar arrangements are typical for major ecolabelling schemes. The legality of scope and democratic structures may though be subject for benchmarking or comparisons with other schemes in cases these aspects are questioned.

4.4.2 Legitimacy

Legitimacy is the parallel to legality and democracy from an inside perspective with the meaning that the actors should perceive that the operations, functions and activities of the schemes are legitimate and thus include aspects of transparency, trust and participation. In practice, aspects of legitimacy could include perceptions of opportunities to understand and influence the decision-making process, clearness and openness in verification processes, power relations between actors, the content and requirements of the criteria documents, how actors are invited to contribute, are the products subject for ecolabelling acceptable (no “blacklist” products) etc.

Aspects that producers may find relevant for indicators could be:

- Acceptance of requirements of the criteria by market actors.
- Satisfactory criteria development processes.
- Participation and contributions in criteria development processes.
- Satisfactory licensing and verification processes.
- Robust control and verification processes.
- Credibility among producers.
- Market attractiveness.

Aspects that consumers may find relevant for the legitimacy of the ecolabelling scheme include transparency. It could for instance include if a consumer dedicated to learn about the system would find it sufficiently transparent or if he/she would consider the system trustworthy. Aspects for indicators to include are the following:

- Transparency: if relevant information is easily accessible for consumers and outside actors.
- Trustworthiness: to what extent consumers and the public trust the system and thus find it legitimate.
- To what extent other actors, such as media, official information, authorities, etc., suggest the ecolabel as a suitable tool for consumers.

4.4.3 Relevance

Relevance examines actions and decisions taken by the scheme in relation to the rationale, goals and outputs and could thus include extensive analyses. Among the most prominent would be if the ecolabelling scheme ad-

dresses product groups relevant for consumers and other market actors (given its area of operation), if the criteria are addressing relevant environmental aspects and setting sufficiently high requirements (target the top products of the product group). In a broader scope, relevance is also related to the usefulness of the criteria documents if they, for instance, drive and trigger product development and innovation among producers. Aspects for indicators to include are the following:

- Survey on acceptance and relevance of criteria requirements among producers and other actor groups.
- External expert panel reviews on relevant product groups and requirements.
- Consumer and producer surveys on relevance of criteria and product group selection.
- Disputes on criteria and requirements disputed in the public domain (media, actor groups, etc.).
- Prioritised environmental policies and goals of the Nordic countries addressed in the criteria documents.

4.4.4 Goal achievement

The overarching goals of ecolabelling comprise of providing trustworthy consumer information and guidance in order to assist more environmentally conscious choices of products and services and foster sound product development and innovation that contribute to reduced environmental stress from consumption and eventually a more sustainable consumption. Thus, the goal achievement aspects include contribution to develop the market for more environmentally benign products through increasing the supply and demand of such products and to lowering environmental impacts. Moreover, the ecolabel should serve as trustworthy information and guidance when consumers are facing environmental messages in marketing. Thus the following themes and aspects are relevant for indicators:

- Consumer demand for more environmentally benign products. Changes of demand over time.
- Consumers' perception of recognition of the ecolabel as a trustworthy guidance in environmental marketing. Changes over time.
- Extent to which consumers use the ecolabel as guidance in product evaluations and purchase decisions.

- If the scheme attracts new producers as licence holders in the product groups and if the attraction changes over time.
- Market attractiveness seen as to what extent producers that meet the criteria apply for licences in the different product groups (market attractiveness was also mentioned as a sign of legitimacy).
- Criteria documents and ecolabelling requirements used by producers in product development to meet current or future requirements or to spark innovation.
- Are new product groups up for ecolabelling or more product varieties included in existing product groups (broadening of the markets).
- Evidence of actual reductions in environmental loads from the products in the product groups.

4.4.5 Efficiency

The efficiency could be viewed both as internal efficiency and external efficiency. The internal efficiency is in this division cost-efficiency and productivity, while the external efficiency could be seen as successfulness in strategic positioning or attraction in its area of operation.

Thus the *internal efficiency* is related to issuing and revision of criteria documents in relation to resources spent in terms of money and personnel. Moreover, other processes, such as licensing, verification, market surveillance and control, as well as, information, should be efficient and effective. Aspects that the indicators could include are:

- New and revised criteria documents per unit of resource (for instance, number of staff, work hours, turnover or budget allocated).
- Market turnover per product group.
- User-friendliness of criteria documents among groups of users.
- Time and cost from application to issued licences (acknowledging that the producers could influence the process substantially).
- Outreach activities and information to target audience (producers and environmentally aware consumers) in relation to money spent.
- To what extent outreach and information campaigns reach and influence target audiences.

External efficiency includes factors leading up to the intended outcomes – environmental benefits in the product groups open for ecolabelling, which is related to presence of ecolabelled products on the market, con-

sumers who buy ecolabelled products, and a market dynamics that demand for environmentally sound product development. Thus this is the relation between goal achievement and resources used, but also ability to generate own resources from licensing the label. Measures that could be relevant are: monitoring of the scheme's achievements in terms of impacts on product development, influences on the environmental impacts from consumption, and if the ecolabel serves as valid consumer information. Aspects for indicators can include:

- Extent to which consumers recognise and relate the Nordic Swan logo to ecolabelling.
- Consumers' knowledge about the function of the ecolabel.
- Information to producers on potential effects from using ecolabelling as tool in market information and communication.
- Self-financing rate for the scheme and contributions from each product group.

4.4.6 *Attributability*

Attributability captures if or to what extent the outcomes of the ecolabelling scheme, such as increasing market for and number of environmentally benign products, as well as, final environmental benefits, can be derived from the outputs of the scheme. In a situation when several instruments serve as driving forces, for instance on green consumption, and when there is an ongoing environmental product development, it could be a challenge to attribute specific impacts or changes to the influences of the ecolabelling scheme alone. Measures to be considered could be what other external drivers that could be influential on the outcomes – effects and impacts – of the ecolabelling scheme for each product group and estimates of their contributions. The attributability aspect is the key issue in case ecolabelling should be compared to other policy instruments operating in the same area. Issues to consider for indicators are:

- Other drivers and policy instruments that influence environmental product development of the various product groups.
- Other drivers and policy instruments that influence environmentally conscious consumption in ecolabelled product segments.
- Identified outcomes, as reductions of environmental loads or other effects, in individual product groups – estimated by reasonable accuracy – as contribution from ecolabelling.

- Identified contributions on the outcomes or identified reductions of environmental loads in abovementioned individual product groups – estimated by reasonable accuracy – from other policy instruments and driving forces.

4.5 Discussion on indicator frameworks for ecolabelling

The DIPSIR framework has in relation to the Korteland framework and the policy evaluation framework a macro perspective. The two latter frameworks could be viewed as close-ups on the societal response – introduction of ecolabelling – in the context of the DIPSIR framework with the purpose to reduce pressures on the environment and, to some extent, influence the driving forces caused by consumption and production of goods and services. The DIPSIR framework includes the aspects of changes in the state of the environment and subsequent impacts, but ecolabelling has the intention to reduce the pressure, which, according to literature and interviews is difficult to quantify. Thus, indicators for state and impacts probably could be left out at this stage.

The Korteland framework, on the other hand, is mainly geared towards analysing external indirect effects from ecolabelling, such as impacts on poverty as a consequence of international trade. That framework, though, covers direct impacts on markets, trade, and the environment, but these aspects and some more are also included in the policy evaluation framework.

5. Indicators for ecolabelling

5.1 Summary and discussion on reported indicators

Various indicators have been introduced throughout the report based on actual usage, suggestions and desires. These were further elaborated when framework approaches for developing indicator sets were presented in Chapter 4. In the following section, the various indicators are summarised and discussed. It was chosen to use the policy evaluation framework as structure to guide the further elaboration of a set of useful indicators. As a first proposal, the authors want to underline that the discussed indicators should be measured on a regular basis and thus primarily provide dynamic information on changes.

The ecolabelling scheme gains *legitimacy* when it is *trusted* by its key stakeholders and the public. A core element in building trust is thus the criteria documents. These need to fulfil a number of requirements:

- that they work for a legitimate purpose by legitimate means
- among the means, the right environmental aspects are essential, which is further elaborated under “relevance” below
- a robust market surveillance and control system is functioning (process, number of inspections/samples, non-compliance)⁴⁶
- the ecolabel and ecolabelled products are accepted as added value among key stakeholders (further discussed under “goal achievement”).

These aspects/parameters may be complicated to capture in single quantitative indicators but they need to be addressed by the set of indicators as a whole.

⁴⁶ It is likely that these issues are handled by the GEN Process for mutual recognition.

Other elements that add to build up legitimacy among stakeholders are related to transparency, openness and stakeholder participation. The core elements are:

- Transparent decision-making process (documented, power distribution).
- Stakeholder participation in hearing processes (process descriptions, records from hearings, consultations).
- Stakeholders' perceptions of legitimacy and transparency.

The ecolabelling scheme demonstrates *relevance* when needs for intervention and the goals for intervention, that is, the ecolabelling scheme and requirements in its criteria documents, coincide in a manner relevant and logic to the stakeholders.

- They are addressing the right environmental aspects, such as national environmental goals (panel of external experts to judge and comment).
- They set well-balanced and stringent requirements.

Essential aspects of *efficiency* of an ecolabelling scheme are frequently related to specific requirements from the various stakeholders. However, certain indicators related to specific conditions could be mentioned here:

- Self-financing rate.
- Number of criteria document – new and revised – handled annually.
- Number of criteria document – new and revised – per monetary unit, staff hour, etc.

Specifically for producers the following aspects are essential from an efficiency perspective:

- Total costs/fees and efforts for the licensing process.
- Time from application to licence (taking into consideration that the applicant may delay the process substantially).

Due to the logics of the intervention, the *goal achievement* of an ecolabelling scheme, in essence more environmentally benign products and services and reduced environmental stress, gets increasingly dependent on secondary and tertiary intermediary outcomes. Partly, they are related to changes on the markets, partly on producers' adoption of green product design practices and environmentally sounder manufacturing processes. At present, the market-related aspects/parameters that indirectly address an increasing market and market acceptance for environmentally benign products can hardly be measured quantitatively. Instead, different proxies for these aspects could be used:

- Consumers' awareness, knowledge and trust in the ecolabel.
- Producers' awareness, knowledge and trust in the ecolabel (both licence holders and non-licence holders in defined product groups).
- Producers' perceptions of market attractiveness of the ecolabel.
- Public procurement officers' awareness, knowledge and trust in the ecolabel.
- Market coverage: range of products and product groups that can be ecolabelled according to the scheme.
- Number of licence holders in each product group.
- Market share changes of ecolabelled products in defined product groups. It should be noticed that a substantial market share for ecolabelled products is not necessarily positive since the idea of ecolabelling is to only point out the best products in a product group. On the other hand, a tiny market share could either indicate low attraction of the ecolabel or minimal market impact in the product group.

Design and production-related issues could be addressed by:

- Producers' willingness to redesign and adapt production processes to match the criteria requirements in applicable product groups.
- Number of licence drop-outs after criteria revisions in the product groups.

The *environmental benefits* of ecolabelling is part of the goal achievement, but is here discussed separately. Virtually all sources confirm the difficulties in capturing environmental benefits with indicators. It appears like quantification of environmental benefits is best approached on product group level and through extensive investigations that go far beyond any reasonable indicator system. The approaches closest to indicators and reporting based on ecolabelling information are:

- Estimations of potentials based on assessments of differences in environmental performance between bulk products and the best ones aimed for ecolabelling and calculations assuming that all products in a product group would meet the criteria.
- Comparing changes in stringency of performance indicators (KPI) regulated as requirements in revised product group criteria over two or more criteria generations.
- Investigations comparing stringency in requirements over generations of criteria documents/higher requirements, internal or external evaluations at product group level.

Most likely, environmental benefits are an aspect less suitable for quantitative monitoring through indicators.

Finally, *attributability* as the contribution from ecolabelling to the changes in goal achievements in market-related aspects, changes in product design and manufacturing, as well as environmental benefits and what could be attributed to other policy instruments.

5.2 Functions and aims of indicator systems

Indicators suitable for the Nordic Swan, and possibly for other ecolabelling schemes, could allow for four different primary purposes:

1. Scheme performance, efficiency and trends studies. Such indications of performance could be of interest as internal follow-up for the actors of the scheme as such or for its principals. Yet, this function has an internal perspective with the subsequent advantages of being able to both decide the definitions (metrics) of the indicators and build these indicators on existing or easily accessible data. Moreover, the internal perspective would most likely make it easier to deal with data quality.

2. Comparisons of performance between ecolabelling systems. From the study, we have found that commonly used performance indicators, such as number of product groups, licensed products, etc. are in the various ecolabelling systems measured in different ways, in addition to their questionable information value. To make comparisons meaningful and reasonable, the indicators must be accepted by all schemes, defined in order to measure same or similar aspects with comparable accuracy, that is, with a sufficient data quality.
3. Support the exchange of experiences and learning processes among ecolabelling schemes. This function is practically achieved by a breakdown of specific processes of ecolabelling systems to allow for comparisons and identification of best practices that could be shared between the schemes. Such processes could address licencing, criteria development, stakeholder consultation in criteria development, market surveillance and control, etc.
4. Comparing effects on products, production and consumption from ecolabelling with the effects of other policy instruments. This would be a model for addressing attributability by distributing contributions to the effects from two or more policy instruments and drivers in a consistent way.

Obviously, defining indicators for the purpose of tracking changes in performance, and maybe also efficiency, for internal use would be easier and more straightforward than defining indicator sets for external comparisons. Despite the clear benefit of measuring contributions from different policy instruments to a summarised effect we have, as of yet, not found any reasonable method for defining such indicators. Thus, we propose that indicators for that purpose should be left out partly as an aspect that needs to be handled through subjective evaluation by the most concerned stakeholders and partly as a challenge for the future.

5.3 Recommendations for the Nordic Swan

5.3.1 *Approach*

There is a demand for information regarding performance and effects of ecolabels and the Nordic Swan from different actors. A reasonable and potentially cost-effective way to, at least partly, meet that demand is to start develop a structured system for collecting and presenting information as indicators. The indicator system should be seen as a long-term investment,

which requires that the indicators are dynamic by being consistently measured over time and work for internal and, if so is desired, external comparisons over time. By being dynamic, the results of the indicator system will show changes and trends and thus be relevant over years.

The development of indicators could follow several approaches. We recommend that internal indicators addressing efficiency and performance are identified and developed as the first step. Performance indicators could be selected in a way that they also could serve as proxies for secondary and tertiary goal achievement and eventually as proxy indicators for environmental benefits from the Nordic Swan.

In addition to such a set of proxy indicators for environmental benefits, we suggest that the Nordic Swan use a structured and consistent method for qualitative descriptions of changes that regard reductions of environmental stress in each product group.

In parallel to a set of internal indicators, the Nordic Swan should initiate consultations with other ecolabelling schemes with which comparisons would be desired. Consultations should address aspects to address by the indicators, data availability, and required accuracy. Since the Nordic scheme hosts both the Swan and the EU Ecolabel in all Nordic countries, a structured trial for proposing comparable indicators could be derived from data already existing in the Nordic scheme.

There are two obvious alternatives for how to build an appropriate study. The first is to just build the comparison on the Nordic Swan and the EU Ecolabel and identify indicators suitable for such a comparison. The second is to initiate the work within the framework of the Global Ecolabelling Network.

We suggest that priority is given to the first approach since the Nordic Scheme has control over internal information. Consequently, the Nordic scheme will be able to generate and propose sets of indicators both for internal efficiency, performance and environmental benefits, and for a comparison of the Nordic Swan and EU Ecolabel on the Nordic market. Other approaches are apparently dependent on collaborating partners in order to reach useful results. The quality of the outcome and timeframes of such a development project might be difficult to predict.

As mentioned above, we suggest that development of indicators addressing effects of various policy instruments and attempting to separate the effect of ecolabelling should be left out and rather dealt with separately through expert evaluation.

5.3.2 Selection of indicators

So far it has been agreed that a well-adapted and useful internal indicator system should be able to support the Nordic Swan in its efforts to develop the ecolabelling in several ways. It should thereby:

- Track and respond to how the label works and is perceived by its users.
- Support that trustworthiness among manufacturers and consumers is maintained.
- Improve the economic stability based on more effective marketing and use of resources.
- Facilitate understanding of success factors and development.
- Contribute to the harmonisation of ecolabels, which in turn can help producers.

Based on findings and reasoning in the previous sections, the indicators deemed most relevant for measuring the performance and the efficiency of ecolabelling are outlined below. These indicators are also selected to address the criteria of good governance addressed in the policy evaluation section. When examining the abovementioned indicators, it is obvious that some types cover the ecolabelling scheme as an entity, while some are addressing individual product groups. It is also demonstrated that aggregating product group specific indicators may lead to rather pointless information. Thus, we divide the proposed indicators into:

- Performance indicators.
- Efficiency indicators.
- Scheme indicators.
- Product group indicators.

Performance of the scheme indicators

- Producers' perceptions of the Nordic Swan regarding management of processes, transparency and participation, trust among market actors, relevance and stringency of criteria. The indicators and changes would be expressed in customer satisfaction-like surveys. (Producers: licence holders, former licence holders and non-licence holders).
- Number of product groups/criteria document.
- Number of products that can be ecolabelled.

Market actor perceptions of the Nordic Swan

- Consumers' recognition, knowledge and trust (surveys).⁴⁷
- Professional purchasers' recognition, knowledge and trust (surveys).
- Producers' recognition and knowledge (non-licence holders) (surveys).

Performance per product group indicators

Market performance:

- Number of different products covered by the product group/criteria document.
- Number of licences.
- Replacement rate of licence holders.
- Number of unique products.
- Number of companies.
- Economic turnover.
- Number of employees in ecolabelled services.
- Market share (data availability differ between product groups) and change of market share since the first criteria document was ready, and over revision cycles.

Criteria performance:

- Stakeholder participation in criteria development process.
- External review of relevance and stringency of environmental requirement.
- Estimated difference between bulk/average products of the product group and requirements in the ecolabelling criteria (use of key performance indicators).
- Changes in scope and stringency of environmental requirements over criteria revision cycles.

⁴⁷ The Danish competent body of the Nordic Swan provides time series of results from consumer surveys. See <http://www.ecolabel.dk/da/blomsten-og-svanen/kendskab-til-maerkerne>

Efficiency of the scheme indicators

- Self-financing rate.
- Criteria documents – new and revised – per resource unit (annually, money allocated for criteria development, staff).
- Product groups subject for market surveillance and control.

Efficiency per product group indicator

- Economic return.
- Economic return in relation to total turnover.

5.3.3 Indications of environmental benefits

An indicator set for an ecolabelling system should ultimately point to the overall objective of reducing environmental impact. But it has been empirically demonstrated difficult to capture the reduced environmental impact in indicators and quantitative data. Therefore, a set of proxy indicators is proposed that target changes of conditions for the appointed product groups. These proxy indicators regard partial evaluations of key functions of ecolabelling such as targeting relevant product groups, stringency of criteria documents, their use by the market actors, market impacts, etc.⁴⁸ The overall idea is that if these indicators show progress over time, it also means that the ecolabelling scheme most likely creates environmental benefits.

We propose an approach where expert panels evaluate and preferably estimate environmental benefits in quantitative terms for each product group based on the following input:

- Criteria documents: difference in performance between ecolabelled products and the bulk of products within the appointed product groups.
- Market dynamics: changes in market positions for ecolabelled products over generations of criteria generations (criteria revisions).
- Environmental potentials estimated as potential reductions of emissions in case more or most of the products of the appointed product groups would meet the requirements of the ecolabelling criteria.

⁴⁸ Thidell, Å. (2009). *Influences, effects and changes from interventions by eco-labelling schemes – What a Swan can do?* Doctoral thesis. Lund: HIEE, Lund University.

Yet it is not proved that such estimates will deliver reasonably accurate numbers for environmental benefits. But if the approach shows to be fruitful it might even be possible to aggregate environmental benefits on ecolabelling scheme level.

It should finally be noted that this approach would not fully solve the challenge of attributability, that is, the contribution of the ecolabelling scheme to the environmental benefit vs. the contributions from other policy instruments and market drivers. However, it should be remembered that it is typically as difficult to demonstrate the contribution from ecolabelling as it is to prove that an observed change is not related to ecolabelling.

6. Conclusions

Developing and using indicators is an important and relatively frequent component of an improvement process. Typical difficulties have been shown to be derived from prerequisites (resources, settings, data collection procedures) and, in particular when it comes to benchmarking and geographical differences (standardisation, definitions, language). Data quality can pose a problem for the usefulness of various indicators. Similarly, there may be significant differences in methods of collecting and aggregating data between ecolabelling schemes. The following indicators are considered to cover the needs for demonstrating performance of the Nordic scheme. They are structured as indicators for measurement of performance of the entire scheme and its criteria on product group level, and market performance indicators both for the entire scheme and for specific product groups.

Scheme performance indicators	Measure for the scheme
Producers' perceptions	Legitimacy, market attraction, trustworthiness of the scheme, openness and transparency, relevance and stringency of criteria
Number of product groups and criteria document	Scope of the ecolabel, ability to impact
Number of products that can be ecolabelled	Scope of the ecolable, ability to impact
Criteria performance indicators	Measure for each product group
Stakeholder participation in criteria development process	Transparency, participation, legitimacy
External review of criteria documents	Relevance and stringency of environmental requirement
Estimated difference between average products of the product group and requirements in the ecolabelling criteria	Environmental improvement potential of the product group
Changes in scope and stringency of environmental requirements over criteria revision cycles	Relevance and stringency of environmental requirement
Market performance indicators	Measure for the scheme
Consumers' recognition, knowledge and trust	Consumers potential ability to recognise and choose eco-labelled products
Professional purchasers' recognition, knowledge and trust	Professional purchasers potential ability to recognise and consider ecolabelled products
Producers' recognition and knowledge	Potential ability of producers without ecolabelling licence to consider applying for that.
Market performance indicators	Measure for each product group
Number of different products covered by the product group/criteria document	Market attraction, potential environmental impact
Number of licences	Market attraction, potential environmental impact
Replacement rate of licence holders	Market attraction, stringency in criteria revisions
Number of unique products	Market attraction
Number of companies	Market attraction
Economic turnover	Input to market share, amount of products
Number of employees in ecolabelled services	Market attraction and penetration
Market share and change of market share over revision cycles	Market attraction, stringency in criteria revisions

As expressed by most stakeholders, it is a methodological challenge to evaluate the environmental impact of ecolabelling and there are currently no appropriate indicators readily available for such evaluations. Even if the development of models for evaluation of environmental benefits may be a task for other actors than ecolabelling schemes there could still be a role for them in estimating such end benefits. Therefore, it is recommended that environmental benefits are expressed in terms of changes in the market situation and thus use some of the abovementioned indicators. The Nordic Swan scheme could engage expert panels for quantitative estimations of environmental benefits potentially caused by the ecolabel within each product group.

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- <http://joutsenmerkki.fi/>
- <http://www.nordic-ecolabel.org/>

<http://www.blauer-engel.de/>
<http://ec.europa.eu/environment/ecolabel/>
http://www.iisd.org/business/markets/eco_label_benefits.aspx
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Stakeholder consultations

The following persons have been consulted (over the telephone or by email, and in the time period 2012–2013):

- Blanca Morales, Ecolabel Coordinator, BEUC.
- Dr. Hans-Hermann Eggers UBA/Federal Environment Agency, Germany.
- Maria Sundesten, The Nordic Swan.
- Mats Ekenger, Nordic Council of Ministers.
- Anastasia O'Rourke, DEKRA Sustainability, Big Room Inc., Founder of Ecolabel Index, www.ecolabelindex.com
- Ragnar Unge, Nordisk miljömärkningsnämnd/Nordic Ecolabelling Board.
- Eva Eiderström, Bra Miljöval/Good Environmental Choice.
- Björn-Erik Lönn, Nordisk Miljömärkningsnämnd/Nordic Ecolabelling Board.

Sammanfattning på svenska

Den nordiska svanen är ett frivilligt miljö- och konsumentpolitiskt styrmedel som började införas i de nordiska länderna 1989. Systemet har sedan dess vuxit med ett ökande antal produktgrupper och licensinnehavare som resultat. Antalet miljömärkta varor på marknaden har genomgått samma utveckling med en stigande finansiell omsättning för miljömärkningssystemet. Parallellt med den nordiska svanen har andra miljömärkningssystem vuxit upp på olika marknader och för enskilda produktgrupper.

Den nordiska svanen genomgår precis som andra styrmedel regelbundna utvärderingar. Hittills har systemet utvärderats tre gånger och frågor om kvantifierad information avseende det nordiska miljömärkningssystemets resultat och effektivitet såväl som data som möjliggör jämförelser med andra system har varit återkommande önskemål i samband med dessa utvärderingar. Förutom berörda politiska beslutsfattare och systemets huvudmän finns sådant intresse hos olika marknadsaktörer, som vill kunna bedöma hur intressant miljömärkningen är för dem. Dessa marknadsaktörer omfattar konsumenter som vill få råd om miljöanpassade inköp, producenter som söker tillförlitliga vägar för marknadsföring, konsument- och miljöorganisationer som vill veta om de bör rekommendera miljömärkningen till sina medlemmar, med flera.

Dessa och andra skäl talar för att lämpliga informationssystem utvecklas som gör den eftersökta informationen tillgänglig i form av t.ex. systematiskt valda och standardiserade indikatorer. Sådana indikatorer kan användas för olika syften, t.ex. för att dokumentera trender i resultaten och effektiviteten för miljömärkningssystemet, för att möjliggöra jämförelser mellan olika system, för benchmarking och ständiga förbättringsprocesser.

Vi föreslår därför att det nordiska miljömärkningssystemet prioriterar utvecklingen av interna indikatorer främst för att kunna följa förändringar i egna resultat och effektivitet. Olikheter mellan Svanens skilda nationella organisationer, såväl som EU-märkets position på den nordiska marknaden, kan användas för jämförande pilotstudier i utvecklingsarbetet. Att driva fram utvecklingen av jämförande indikatorer genom samarbetsprojekt med andra system, t.ex. EU-märket, är önskvärt men kan också visa sig vara tidskrävande. Vi föreslår därför att sådana projekt ges lägre prioritet.

De föreslagna interna indikatorerna för att mäta resultat och effektivitet presenteras i tabellerna nedan:

Miljömärkets prestation

Indikator	Mäter
Producenternas uppfattning om systemet	Legitimitet, marknadsattraktion, trovärdighet, öppenhet och transperans, kriteriernas relevans och skärpa
Antal produktgrupper och kriterier	Miljömärkningens omfattning, möjlighet att påverka
Antal produktslag som kan miljömärkas	Miljömärkningens omfattning, möjlighet att påverka

Miljömärkets prestation på marknaden

Indikator	Mäter
Konsumenters igenkänning, kunskap och tillit	Den andel av konsumenterna som som kan känna igen och potentiellt välja miljömärka produkter
Professionella inköparens igenkänning, kunskap och tillit	Professionella inköparens potential för att känna igen och överväga miljömärkta produkter
Producenters igenkänning och kunskap	Potential för producenter utan miljömärkningslicens som som kan känna igen och överväga att ansöka om sådan

Miljömärkets prestation inom enskilda produktgrupper

Indikator	Mäter
Antal olika produkter under produktgruppen eller kriteriedokumentet	Marknadsattraktion, potentiell miljövinst
Antal miljömärkningslicenser	Marknadsattraktion, potentiell miljövinst
Omsättningsgrad av producenter med miljömärkningslicens	Marknadsattraktion, kravskärpning vid kriterierevisioner
Antal unika miljömärkta produkter	Marknadsattraktion
Antal producenter med miljömärkningslicens	Marknadsattraktion
Ekonomisk omsättning av miljömärkta produkter	Information om marknadsandel, hur mycket produkter
Antal anställda inom miljömärkta serviceverksamheter	Marknadsattraktion och omfattning
Marknadsandel och förändringar i marknadsandelar mellan kriterie-revisionscykler	Marknadsattraktion, kravskärpning vid kriterierevisioner

Prestation för kriterier inom enskilda produktgrupper

Indikator	Mäter
Intressenters medverkan i kriterieutvecklingsprocessen	Transperans, delaktighet och legitimitet
Extern utvärdering av kriteriedokument	Relevans och skärpa i kriteriernas miljökrav
Uppskattad skillnad i miljöprestation mellan genomsnittsprодукter och miljömärkta produkter inom produktgruppen	Potential för miljömässig förbättring inom produktgruppen
Förändrad inriktning och skärpa i kriteriernas miljökrav mellan kriterie-revisionerna	Relevans och skärpa i kriteriernas miljökrav

Angreppssätt för att närma sig miljöeffekter

Vi föreslår att det nordiska miljömärkningssystemet anlitar expertpaneler för att bedöma och kvantitativt uppskatta den miljönytta som Svanen bidrar med inom varje produktgrupp. Dessa analyser kan delvis baseras på flera av de ovan nämnda indikatorerna för att särskilt belysa:

Aspekt	Indikation på
Kriteriedokument	Skillnad i miljöprestation mellan miljömärkta produkter och den enskilda produktgruppens genomsnittsprодукter
Marknadsdynamik	Förändringar i marknadsposition och marknadsandel för miljömärkta produkter över flera generationer av kriterierevisioner
Miljöpotential	Möjlig miljöförbättring i fall att flertalet produkter inom en produktgrupp skulle klara miljömärkningens krav

Appendix 1

Discussion topics for the interviews with ecolabelling stakeholders

- What do you see as the main challenges to compare the performance between ecolabelling organisations?
- What do you see as the main performance features of an ecolabelling organisation?
- What do you see as the main challenges in measuring performance of ecolabelling?
- What do you see as the main reasons and drawbacks in comparing ecolabelling organisations?
- What do you see as the main challenges of comparing ecolabelling organisations?
- Are there any other indicators (other than those raised in this questionnaire) that you have come across or that you have thought of as interesting or relevant?
- Do you know of any studies conducted for any other ecolabelling scheme on the topic of indicators?
- Something about which additional users/areas of use that indicator information could become useful for in the future
- What users could have use of indicator information in the future?
- For what other reasons/areas of use could indicator information be useful in the future?
- Is there a need for ecolabel organisations to use standardised indicators and if so, is this doable? Please explain why/why not.
- For what purpose could standardised indicators be useful for them?

Appendix 2

The Global Ecolabelling Network (GEN) commissioned in 2012 a pilot study that explored the use of indicators in ecolabelling organisations. The study was conducted by the authors of this report. The study included a survey of the five organisations that coordinate the following labels:

- Environmental Choice Canada.
- Environmental Choice New Zealand.
- Thai Green Label.
- The Blue Angel (Germany).
- Korea Ecolabel.

Determining which data are available for use as indicators

Data on environmental benefits

Analyses of ecolabels' environmental benefits are not common, but are possible. Out of the five ecolabelling organisations, only two were evaluating the environmental benefits of their ecolabel.

Thai Green Label was at the time conducting a study of environmental impacts from products with their label. They used LCA, life cycle costs, and sales reports from the private sector to evaluate environmental impacts. Thai Green Label additionally noted that Thailand's National Metal and Materials Technology Center (MTEC) was also engaged in a similar study. MTEC was evaluating the environmental impacts, efficiency, and effectiveness of Thailand's national Green Public Procurement (GPP) program. The second one, the Korean Ecolabel, has internally investigated the environmental impacts of its label, but will not open the results to the public. It should also be mentioned that the Blue Angel remarked that the Ökoinstitut has conducted a study in 2011 on the energy saving potential of ecolabelled products. The study is an internal document in German.

Analyses of ecolabels' environmental benefits are not common, but are possible. Analyses of ecolabels' environmental benefits are not

common, but are possible. The responses show that most of the ecolabelling organisations reported that they do not evaluate the environmental benefits. This suggests that analysis of environmental benefits may be too burdensome for many ecolabelling organisations. In fact, one organisation noted that the process was too methodologically challenging. This result (1) suggests that direct indicators for environmental benefits of ecolabels are unrealistic and (2) supports the need to look into proxy indicators.

Data on market share

The following two questions addressed measures of the market volume of ecolabelled products. Together with the difference in environmental performance between ecolabelled and conventional products, the market volume could indicate the environmental benefits from ecolabelling. The market volume is preferably measured as a market share within specific product groups. The questions are whether the ecolabelling organisation knows the national market share of products/services certified with their ecolabel, and if they *don't* track the sales of products/services certified with their ecolabel, does another organisation measure it?

To the first question, about the information on market share, the overwhelming answer was negative. Only one ecolabelling organisation, namely the Environmental Choice in New Zealand, states that there might be information about market share at the level of the licensees. The other four organisations claim that they do not have this information or that they don't know of it.

The results suggest that market share data are not readily accessible to ecolabelling organisations.

Data on sales and employees of licensed products and services

The questions in this section probe the availability of market performance data. Here, the questions touched upon measuring the turnover of ecolabelled products covered by each license, the actual sale (in monetary terms and also in number of products) of licensed products in each product group, the total sales from a product group, and the number of employees there are among license holders in the service sector.

For the most part, ecolabelling organizations do not readily have access to turnover or sales data for products carrying their label. Only Environmental Choice Canada said that they measure the turnover of ecolabelled products covered by each license. The Korea Ecolabel did however note that they do estimate the turnover of their ecolabelled products when they are setting the license fees. Environmental Choice

New Zealand's licensing fees are based on turnover. A rough estimate of overall turnover for a product group could be extracted from the collected licensing fees. However, the cap on the licensing fee puts a lower limit on such a turnover estimate. Finally, as for the number of employees there are among the license holders in the service sector, the Korea Eco-label stated that they have this information.

Data on products/services on the market

Because direct market data may be not readily accessible, ecolabelling organisations could use cruder, but still useful, data. The count of licensed products or services on market could indicate the attractiveness of the scheme to the market. This section was narrowed down to whether the ecolabelling organisation tracks how many products/services are certified under their scheme, and if they maintain back-records of their license counts.

All five ecolabelling organisations track how many products/services that are certified under their scheme, and four out of five organisations say that they also keep records of their license counts. The results suggest that license counts and certified product counts are readily available data that could be used for indicators. While these data are cruder than market share data, they are accessible to ecolabelling organisations and could serve as a proxy indicator. Most of the respondents elaborated noting that they know both (1) how many licenses they have and (2) how many products are certified under their scheme. Further, almost all of the responding organisations noted that they maintain back-records enabling comparison over time.

Data on criteria stringency

One proxy for the stringency of an ecolabel's criteria could be a count or percentage of their product groups that do not have certified products. A lack of certified products could indicate for instance that the criteria are too stringent for the time or missing market demands. All of the organisations were aware as to whether or not they had product groups without certified products. This fact suggests that these data are readily and easily trackable and could be used as an indicator.

Data on consumer and producer recognition and trust in the ecolabel

This section investigates the accessibility of data on consumers' and producers' perceptions of the ecolabelling schemes. Questions were asked regarding whether the ecolabelling organisation (or an alternate organisation) measure consumer recognition of and trust in the ecolabel,

or, similarly, whether they measure producer recognition of and trust in the ecolabel. Here the answers were mixed. Four out of five organisations say that they measure consumer trust and recognition, and three out of five say the same about producer trust and recognition. However, only two organisations measured both.

Data on professional purchasers

This section gauges how well ecolabelling organisations track their accessibility for professional purchasers, e.g. through green public procurement. Most, if not all, of the responding ecolabelling organisations do not collect data about professional purchasers. These data are apparently not easily accessible for use as an indicator.

Perceived limitations of use of indicators

The ability to compare indicators between organisations depends on a number of factors, including, but not limited to how similarly the organisations define product groups and design criteria.

Data on feasibility of comparing between organisations

The first step to determining the feasibility of comparing indicators between organisations is to look at how the organisations develop the criteria. Here it is relevant to know whether the ecolabelling organisation specifies environmental objectives in the criteria document, and whether they apply a life cycle perspective when designing the criteria.

There appears to be general consistency in the general approach to designing ecolabelling criteria. The criteria are typically not driven by specific environmental objectives. However, all respondents noted that their organisation applies a lifecycle perspective.

Data on feasibility of comparing product and license counts

The ecolabelling organisations define product groups under their scheme in different ways. The Environmental Choice in Canada looks at the functionality of product and LC-based environmental impacts. The Environmental Choice in New Zealand uses general definitions. The Blue Angel in Germany has a case-by-case selected approach, and the Korean Ecolabel generally makes use of national standards and sometimes is steered by the environmental characteristics.

For two of the organisations, there are cases in which several products groups are covered by one criteria document. For most of the organisa-

tions, it is also permitted for the producers to apply for a licence to cover a group of products (as opposed to applying for a licence for each product).

These results present a limitation on the interpretation of counts of certified products and licenses. Comparison of product counts between organisations is limited because organisations tend to use different methods for defining product groups and there are discrepancies in how criteria documents are assigned to product groups. A license count may not indicate the number of producers participating in the scheme. Some ecolabelling organisations give the option of allowing producers to apply for a master license that will cover a range of products or models of a product. Some producers may hold multiple licenses while other hold just one.

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The Nordic Swan 2015

The Nordic Swan is a voluntary environmental and consumer policy instrument that was launched in the Nordic countries in 1989. This study has its origin in the discussions on the making of the “Vision 2015” for the Nordic Swan as well as in a growing need to find structured methods to account for what the ecolabel does. The study has the overall purpose to highlight the experiences of using indicators for reporting, which actors that should be targeted and their need of information, and also to propose a set of indicators applicable specifically for the Nordic Swan. It is proposed in the report that the Nordic Swan scheme prioritizes developing indicators to track changes in internal performance and efficiency.

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