

Final Report – Annexes I - IX

Evaluation of Environmental Product Declaration Schemes

European Commission
DG Environment

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Annex I

Terms of Reference

TECHNICAL ANNEX

Evaluation of Environmental Product Declaration Schemes

1. Introduction

Following the publication of the Green Paper on Integrated Product Policy¹ the European Commission is currently evaluating various tools that fit within this umbrella of which environmental labelling is one. This subject was discussed during the IPP Stakeholder Conference in March this year² and a further expert workshop was held in May on the subject of environmental product declarations (EPD)³.

In the field of environmental labelling EPDs are currently being developed as a way of communicating environmentally-relevant information in a comprehensible, yet value-neutral manner. The International Standards Organisation (ISO) has produced a technical report⁴ on the subject and is currently considering whether to develop this into a full international standard. In the EU Sweden⁵ has already developed an EPD system and Italy⁶ is in the process of so doing. Other countries, such as Japan, have also developed their own systems.

Certain industries, sometimes on a national level and sometimes on a European level, have also developed, or are developing, EPDs. These do not necessarily follow the methods set out in ISO TR 14025, especially on issues such as the use of life-cycle assessment and third party verification, nevertheless they are significant initiatives that merit closer consideration.

2. Objective

The aim of this study is therefore to:

- (1) document and evaluate these EPD systems (both national and industry);
- (2) compare them with each other and the current ISO TR 14025;
- (3) examine possible future directions for EPD systems in Europe;
- (4) examine how best EPD systems should be integrated with other IPP tools;

¹ COM(2001) 68 final, 07.02.2001

² A summary of the conference discussions can be found at www.europa.eu.int/comm/environment/ipp

³ A summary of the workshop discussions can be found at www.europa.eu.int/comm/environment/ipp

⁴ ISO/TR 14025, Environmental Labels and Declarations - Type III environmental declarations, ISO

⁵ <http://www.environdec.com/eng/>

⁶ http://www.mirrorsinanet.anpa.it/EcolProd/EPD/epd_in.asp

3. Tasks

- (1) The contractor shall analyse each EPD system to determine its origin, nature and results. They will examine *inter alia* the following:
 - Instigator and driving forces;
 - The Products⁷ covered and companies participating;
 - Industry reaction and how inclusive it is (e.g. competitors);
 - The role played by SMEs in the whole system and the reasons for this;
 - Time and cost of development, delaying factors;
 - The degree of consultation of the products' procurers;
 - Possibilities for stakeholder (consumers, extra-EU firms, competitors, environmental organisations, governments etc.) to input into the process and their uptake of such offers. The levels of transparency and confidentiality in the subject;
 - Methodology used (including in-depth discussion of life-cycle assessment used, transparency and accreditation) and reasons for it;
 - The formats of the information flow and the perception of this among relevant procurers;
 - Links to other means of information flow, e.g. safety data sheets
 - Promotion of the scheme, including purchaser education;
 - The scheme's growth (e.g. in terms of participants, market share, number of products covered);
 - Internal and/or external evaluations of the scheme's effectiveness;
 - Perceptions of those using the schemes of their usefulness;
 - if/how the other instruments within IPP are related to the product
 - information chain, focusing particularly on environmental management systems (certified and uncertified) and environmental claims (such as ISO 14021). The extent to which the interrelationships were taken into account when designing the information system.

- (2) Comparison of Methodology

This section will compare the methodology between the different schemes assessed, paying particular attention to the comparison with the ISO TR 14025 and the Swedish and Italian systems. Any differences should be explained.

⁷ It should be noted that products here also includes services, where appropriate.

(3) Future directions for EPD systems in Europe

Using the results of the analysis this section should look at what type(s) of scheme(s) the Commission could develop and their relative benefits and drawbacks as compared to the Commission doing nothing or supporting national, sectoral, or other international initiatives. Furthermore for each option considered the potential obstacles to success should be identified and solutions proposed. This section should consider, *inter alia*, the following issues:

- Trade issues;
- Likely supporters and opponents of the scheme;
- Which products should be covered;
- Responsibility for verification;
- Responsibility for promotion and training;
- Role of LCA;
- Accreditation and accreditor training;
- Potential links to other types of information flow e.g. safety data sheets;
- Necessity of, and nature of special measures for SMEs;
- Role of stakeholder participation;
- Costs and benefits;
- Any areas where the ISO TR 14025 could be considered to be insufficiently explicit, e.g. minimum information, or where it sets out options.

(4) Examine how best EPD systems should be integrated with other IPP tools, such as EMS, other types of labelling and eco-design.

(5) Attend an expert workshop (maximum duration one day) to consider the results of the interim report.

4. SCOPE OF STUDY

For national schemes those countries which are members of the Global Type III Environmental Product Declarations Network (GEDNet⁸) should be considered. For those EPD systems developed by the industry it is difficult for the Commission to know exactly what exists - indeed it is the role of this study to both identify and analyse them. The consultants must study the construction, automotive, electronic, paper and pulp sectors and packaging in

⁸ <http://www.environdec.com/GEDNet/>

addition to five further sectors, which they must themselves propose. In the proposal they must state why these are important and summarise the EPD type initiatives that have been known to go on in these areas or are being developed. These must be used in Europe.

5. SOURCES OF INFORMATION

In addition to published information, either in commercial brochures, internet sites or journals, the contractor will contact with the aim of getting information, the following types of organisations:

- Industrial associations (extra EU, EU and national) and enterprises
- Representatives of stakeholders (inter alia environmental NGOs, consumer organisations, SME representatives) and governmental organisations

6. CONTRACT DURATION

The duration is eight months from the date of signature. This will include the following reports, drafted in English and delivered in both Word 7 and pdf formats as well as on paper:

Before end of the first month following contract signing: Inception Report proposing detailed work programme to be agreed with the Commission.

Before end of the third month following contract signing: Interim Report.

Before end of the sixth month following contract signing: Draft Final Report.

Before end of the eighth month following contract signing: Final Report.

7. QUESTIONS

If, in preparing offers, potential consultants have questions then these should be asked by sending an e-mail to env-ippstakeholder@cec.eu.int The question will then be placed on the Commission's IPP website <http://www.europa.eu.int/comm/environment/ipp> along with the answer, in the language in which it was posed. Potential tenderers should check this site regularly for any updates.

Seven working days before the deadline for submission of tenders no further questions will be answered.

8. VALIDITY OF THE OFFER:

The offer must be valid for a minimum of one year.

9. SELECTION CRITERIA

- (a) Experience as evidence by the composition of the proposed team (curriculum vitae of team members including a reference list of relevant previous projects). This should demonstrate that the team is technically capable of carrying out the works as described in the technical annex and show that they:
- Have experience in the field of the environmental aspects of products, including an in-depth knowledge of life-cycle assessment and accreditation systems;
 - Have experience of environmental product declaration schemes;
 - Have experience conducting surveys with industrial associations and companies;
 - Have experience working with Integrated Product Policy and with its instruments.
- (b) List of previous contracts should show that the company has worked in the field of these terms of reference.
- (c) Tenderers should be individual or legal entities. This should be demonstrated by giving registration numbers from official registers.
- (d) Tenderers must provide evidence of their financial standing. They must furnish (extracts from) their financial statements from the last three years, where available.

10. AWARD CRITERIA

- (a) Understanding: This criterion is intended to assess if candidates have taken into consideration all the aspects of the tasks required by the contract, such as they appear above, as well as of the contents of the proposed end product.
- (b) Project management and availability: This criterion is intended to assess the quality of the team organisation and the quality of the availability of the contractor from the start of the work and throughout the duration of the contract.
- (c) Methodology: This criterion is intended to assess if the methods recommended for analysing, examination and evaluation of the existing information are in line with the needs expressed by DG ENV.A.2 in the Technical Annex. The tender must therefore include a draft working plan, including the reasoning behind studying the EPD systems chosen by the consultant.

Points: A maximum of 40 points will be attributed to criterion 1, 30 to criterion 2 and 30 to criteria 3. Selected companies will have to score a minimum of 20 for criterion 1, 15 for criterion 2, and have at least 15 points for criteria 3 with a minimum total of 60 points.

Price: The bid offering the best value for money will be considered, providing the minimum number of points is achieved. This is calculated by dividing the price by the number of points awarded.

11. BUDGET

The total budget of the contract (including fees and **all** other costs⁹) is €75,000

⁹ Attendance and possible accommodation at the expert workshop is to be included within this. The Consultant will not be responsible for the organisation of the workshop.

Annex II

Description of schemes in the automotive sector

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	<p>Volvo Cars has carried out extensive work on LCA and environmental management from the late 80's onwards. They wanted to show the results of their work by presenting objective information about environmental performance of cars, not only in the use phase but also during production and disposal. In the continuous search for unique selling points, the idea of an EPD scheme which would cover the whole product life cycle and provide third party verified objective environmental information arose. As opposed to the Swedish EPD system, where the focus is mainly on production phase of the product life cycle, Volvo Cars wanted to concentrate their efforts on stages which, in their opinion, were most important from an environmental point of view.</p> <p>At this time, no demand for this kind of environmental information had been received from external parties.</p>
<ul style="list-style-type: none"> <i>Target group;</i> 	<p>The main target groups were fleet buyers and other business-to-business customers. Other target groups were authorities, individual consumers and society in general.</p>
<ul style="list-style-type: none"> <i>Involvement of interested parties eg procurers, SMEs, NGOs, consumer organisations;</i> 	<p>Many different LCA and other environmental experts were consulted and used as sounding boards during the process. However, the project steering group consisted of Volvo Cars personnel only.</p>
<ul style="list-style-type: none"> <i>Consideration of inter-relationship with other tools when designing scheme;</i> 	<p>The connection to ISO14001 was obvious and many routines from the environmental management system could be used. However, many new procedures had to be established as well.</p>
<ul style="list-style-type: none"> <i>Time & costs of establishing the scheme.</i> 	<p>According to Volvo Cars, it is impossible to estimate cost and time for the project, since many of the basic principles were already in place when the project was started. For example, Volvo Cars had been applying environmental impact assessments for several years and LCA knowledge within the company was extensive. It took less than a year to develop the EPD program, from idea to printed declaration. However, many people were involved in the project.</p>
B. Organisation and administration	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> 	<p>Also the time and cost of maintaining the EPD program is impossible to estimate, according to Volvo Cars. One person is responsible for the program, which takes up approximately 5 % of that person's time on a yearly basis. A lot of different people are involved in the different phases of the EPD development, from data collection to brochure material. Since the EPD procedures are well integrated into the routines for other environmental management activities, it is impossible to allocate specific costs to EPDs.</p>
<ul style="list-style-type: none"> <i>Possibility for input from interested parties eg procurers, NGOs, SMEs, consumer organisations;</i> 	<p>Since the system is developed internally within Volvo Cars, no external parties are involved. Feedback from interested parties is registered as a natural part of the environmental communication. There are no formal ways of dealing with the incoming information, although suggestions can be incorporated into the scheme on a case-by-case basis.</p>
<ul style="list-style-type: none"> <i>Third party control;</i> 	<p>All declarations within Volvo Cars' system are reviewed by a third party. The third party confirms that:</p> <ul style="list-style-type: none"> All LCA assessments are carried out in line with ISO 14040

Characteristic	Description
	<p>standard series</p> <ul style="list-style-type: none"> • The principles for the indicators are based on ISO 14031 • Data and other information corresponds to the requirements of ISO 14021 • Volvo Cars' internal systems for data collection are organised and implemented in such a way as to allow for continuous quality control of EPD data
	<p>There are no strategic reasons to why Volvo Cars chose to work with a specific third party (Lloyd's). The only prerequisites at the time when the co-operation was established were that the third party must be familiar with product- and LCA-related auditing and that it should not be working with any other major car manufacturer.</p>
<ul style="list-style-type: none"> • <i>Accreditation/ certification & accreditor training;</i> • <i>Quality control of data & programme;</i> • <i>SMEs;</i> • <i>Mutual recognition.</i> 	<p>Not applicable.</p> <p>Volvo Cars' system for environmental auditing with respect to EPDs corresponds to the requirements of ISO 14001. Many of the procedures for EPDs are incorporated in the EMS.</p> <p>Not applicable.</p> <p>Not applicable.</p>
C. Basis of data	
<ul style="list-style-type: none"> • <i>Eg LCA methodology (ISO 14040), LCI, life cycle considerations;</i> • <i>Stage of life cycle covered;</i> • <i>Basis of any additional non-LCA information.</i> 	<p>The LCA methodology is applied in line with the ISO 14040 series. The inventory result is valued according to the internally developed EPS method (Environmental Priority Strategies in product design). A number of indicators are chosen for each main area to be presented in the EPD.</p> <p>All life cycle stages are covered.</p> <p>The percentage of suppliers, Volvo Car Corporation sites and dealers which are certified according to EMAS or ISO 14001 are indicators which are not related to LCA in the EPDs. Obviously, these indicators are the same for all car models.</p>
D. Declaration format	
<ul style="list-style-type: none"> • <i>Is an example available in electronic form;</i> • <i>Format of the declaration eg quantitative/ qualitative information ;</i> 	<p>In the web version , all EPDs are presented in the same format and the user can choose to look at the figures for a specific car model just by clicking on the car model's menu. Every indicator is followed by a short text, which describes the importance of the indicator and explains how the minimum and maximum reference values have been chosen. The web EPDs also include a certificate from the certification body and a short description of the EPD methodology applied by Volvo Cars.</p> <p>Currently, the website is being updated since it turned out to be confusing to certain geographical markets. The revised version will be adapted for each market, showing only the EPDs for models sold in that market.</p> <p>For some markets, e.g. Japan, there are printed versions of the EPDs, since specific market demands for printed material were identified.</p> <p>The EPD is divided into four main areas with three indicators for each area:</p> <ul style="list-style-type: none"> • Environmental management <ul style="list-style-type: none"> ○ Suppliers ○ Volvo Cars units ○ Dealers • Production <ul style="list-style-type: none"> ○ Solvent emissions ○ Waste

Characteristic	Description
	<ul style="list-style-type: none"> ○ Energy ● Use <ul style="list-style-type: none"> ○ Regulated emissions ○ Hydrocarbon emission ○ Carbon dioxide emission ● Recycling <ul style="list-style-type: none"> ○ Labelling of plastics ○ Scrapping ○ Use of recycled plastics
<ul style="list-style-type: none"> ● <i>Use of logo's & combination with company logo;</i> ● <i>Transparency - availability of background info on methodology/LCA</i> 	<p>All indicators are presented as a percentage, where 0 and 100% correspond to a worst and best case situation.</p> <p>No specific logo is used. All printed material is designed according to Volvo general standards and with the company logo.</p> <p>Other than a short description in very general terms, no information about the methodology is available. It is not Volvo Cars' policy to reveal any information about methodology and detailed environmental management issues.</p>
E. Compliance with ISO	
14020 series:	
<ul style="list-style-type: none"> ● <i>ISO 14025</i> ● <i>ISO 14020</i> 	<p>The ambition is that the EPD program shall be compliant with ISO 14025. Since the technical report was released quite recently, there may be areas which are still non-compliant.</p> <p>There is an outspoken compliance with ISO14020 which can also be found in the third party statement.</p>
F. Marketing and Promotion	
<i>Eg Awareness raising, purchaser education, training etc.</i>	The first EPD was launched in 1998 as a part of the launch of the new S80 model. The declaration was noticed in several environmental media as a parallel way to address LCA based product declarations.
G. Status of implementation:	
<ul style="list-style-type: none"> ● <i>Product groups covered;</i> ● <i>Participating companies including SMEs;</i> ● <i>Growth of system;</i> ● <i>Internal/external evaluation of effectiveness.</i> 	<p>All models are covered by the scheme.</p> <p>Not applicable.</p> <p>In 1998, only the S80 model was subjective to a pilot EPD. In 2001, 70% of all models had an EPD. The aim is to have EPDs for all models.</p> <p>No formal evaluation has been carried out.</p>
H. Collected experience	
<i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	<p>As mentioned, reactions from external parties have been overall positive. Nevertheless, not many private car buyers demand EPD information and are often unaware of the existence of Volvo Cars' EPDs.</p> <p>In some circles, the Volvo EPDs have been criticised for the choice of indicators, the critics claiming that indicators in some ways have been chosen subjectively.</p>
I. Interaction with:	
<ul style="list-style-type: none"> ● <i>IPP & voluntary instruments eg EMS, eco-design;</i> ● <i>Regulatory information</i> 	<p>The EPD program is an integrated part of Volvo's environmental management system. The percentage of car models with an EPD is one of the indicators in Volvo Cars' work with Corporate Citizenship. At present time, there are no connections to product development activities.</p> <p>National and European regulations with respect to emissions and</p>

Characteristic	Description
<i>requirements eg safety data sheets.</i>	fuel consumption requirements are incorporated in the indicators of the EPDs. As a result, the indicators have to be adjusted for each different market.
J. Information sources: <i>Eg website, contact person, reports, etc.</i>	http://www.volvocars.com/epd Bo Ljungström, Volvo Cars

II.2

VOLVO TRUCKS EPD SCHEME

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> <i>Target group;</i> <i>Involvement of interested parties eg procurers, SMEs, NGOs, consumer organisations;</i> <i>Consideration of inter-relationship with other tools when designing scheme;</i> <i>Time & costs of establishing the scheme.</i> 	<p>Volvo Trucks has always been open about environmental information and has tried to view environmental communication as equally important to providing information about technical performance of their products. Volvo Trucks consider the EPD scheme as a natural step in the strategy of presenting environmental information impacts of all their operations. Since truck customers demand environmental information, with transport often being one of the main environmental impacts of their business as identified in the customers EMS, Volvo Trucks feels that the EPD scheme provides their customers with environmental information in the most factual and open manner. The customers themselves are seldom sure of what type of information they want. Moreover, Volvo Trucks wants to be able to show potential clients what the environmental improvement will be if they buy an new and 'cleaner' truck.</p> <p>The EPDs are developed to assist customers, transport purchasers and the authorities in their increasingly detailed discussions about environmental impacts from transport.</p> <p>External parties were consulted for technical details, but not in the development of the scheme framework. However, some ideas were informally discussed with client representatives and the Swedish Environmental Steering Council.</p> <p>When the project was initialised, the goal was to develop as few new procedures and information sources as possible. The environmental management system already provided numerous data outputs, which were also used for the EPD scheme.</p> <p>It is not the policy of Volvo Trucks to reveal internal project cost to external parties. The scheme was developed during a time period of approximately two years. It was significantly delayed because the first format was withdrawn just before the launch due to internal credibility issues. The original time plan was approximately one year.</p>
B. Organisation and administration	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> <i>Possibility for input from interested parties eg procurers, NGOs, SMEs, consumer organisations;</i> <i>Third party control;</i> 	<p>As mentioned, it is not the policy of Volvo Trucks to reveal internal project cost. The data in the declaration are updated every year. Since most reporting procedures are incorporated in the EMS, it is not possible to distinguish EPD costs from other costs.</p> <p>There is no formal consideration of input from third parties.</p> <p>No third party verification is carried out. Volvo Trucks can not see the reason for verified information in the environmental area, since no technical information provided by the company is third</p>

Characteristic	Description
	party verified and the approach is to communicate all product information in the same way.
<ul style="list-style-type: none"> • <i>Accreditation/ certification & accreditor training;</i> • <i>Quality control of data & programme;</i> • <i>SMEs;</i> • <i>Mutual recognition.</i> 	<p>Not applicable.</p> <p>Data control is carried out in line with the procedures of the environmental management system, which is third party verified and certified.</p> <p>Not applicable.</p> <p>Not applicable.</p>
C. Basis of data	
<ul style="list-style-type: none"> • <i>Eg LCA methodology (ISO 14040), LCI, life cycle considerations;</i> 	<p>The ISO 14040 series are never mentioned in the information posted on the website or in the printed declarations, although this is the methodology that Volvo Trucks has tried to follow. However, deviations from the standard exist, for example where the company has chosen to work in line with existing data collection systems or approximates certain data which, from their point of view, would be too time consuming to collect.</p> <p>The data collection and presentation of results are divided into four sub-systems, for which the data collection methodology and life cycle considerations are described separately:</p> <ul style="list-style-type: none"> • Materials and production • Fuel and exhaust emissions • Maintenance • End of life
<ul style="list-style-type: none"> • <i>Stage of lifecycle covered;</i> • <i>Basis of any additional non-LCA information.</i> 	<p>All life cycle stages are covered.</p> <p>The declaration contains information about material content, fuel consumption and engine characteristics, measures to reduce fuel consumption, the environmental management system in brief and a bit about the EPS (Environmental Priority Strategies in product design) method. EPS is used by Volvo Trucks to make a valuation of all environmental impacts for creating an overall picture. Such a valuation is presented in the declaration, showing total environmental impacts divided over the different life cycle stages.</p>
D. Declaration format	
<ul style="list-style-type: none"> • <i>Is an example available in electronic form;</i> • <i>Format of the declaration eg quantitative/ qualitative information ;</i> 	<p>The results are available both as web brochures and as online calculated data.</p> <p>Depending on the input, the EPD online calculation site enables the user to calculate the environmental impact of a single transport operation or the complete life cycle of a truck. It is also possible to compare the environmental impacts from two different trucks. In both the printed and web versions, 22 different inventory indicators are given. These are presented under the following headlines:</p> <ul style="list-style-type: none"> • Resources (5 indicators) • Air emissions (7 indicators) • Water emissions (4 indicators) • Waste (4 indicators) <p>Three different environmental effects are provided per life cycle phase, including:</p> <ul style="list-style-type: none"> • Greenhouse effects • Acidification potential • Ozone Depletion Potential <p>A materials content list is also presented, presenting 23 different materials divided in the following groups:</p>

Characteristic	Description
	<ul style="list-style-type: none"> • Iron • Sheet steel • Other metals • Plastics • Other materials <p>The qualitative information described in section 'basis of additional non-LCA information' is found in separate sections in the web version. The same information is found on the first and last pages of the seven-page printed declarations. Also a brief description of the methodology is provided.</p> <p>Fuel consumption, engine characteristics and results from the EPS valuation are presented in connection with the quantitative information described above.</p>
<ul style="list-style-type: none"> • <i>Use of logo's & combination with company logo;</i> • <i>Transparency - availability of background info on methodology/LCA</i> 	<p>No specific logo is used on the EPDs. The printed declarations are designed in line with general company standards including the Volvo logo.</p> <p>The methodology is described in detail on the Volvo Trucks website. Estimations and assumptions are stated and the reader is informed where average or generic data has been used.</p> <p>Information about which parts of the life cycle have been left out and the reasons for this are also mentioned.</p> <p>A shorter methodology description is given in the printed EPDs.</p>
E. Compliance with ISO 14020 series:	
<ul style="list-style-type: none"> • <i>ISO 14025</i> • <i>ISO 14020</i> 	<p>Compliance with ISO14025 was never something the company aimed for. However, the EPDs do comply with ISO 14025 in many ways, according to Volvo Trucks.</p> <p>The same reasoning as for ISO 14025 applies.</p>
F. Marketing and Promotion	
<i>Eg Awareness raising, purchaser education, training etc.</i>	An interactive web-based EPD training tool has recently been launched for internal use. The target groups are the marketing companies and sales personnel and the aim is to be able to fully take advantage of the EPDs in marketing and sales situations.
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> • <i>Participating companies including SMEs;</i> • <i>Growth of system;</i> • <i>Internal/external evaluation of effectiveness.</i> 	<p>The heavier products in Volvo Trucks product selection are included in the scheme. These are the FM and the FH models. Only the ones manufactured in Europe are included. These constitute 60% of all trucks produced by Volvo Trucks. The remaining part is produced in the U.S. or in Brazil.</p> <p>Not applicable.</p> <p>All products for which a declaration was foreseen, were declared at once in September 2001. The aim is to continually declare all new Europe manufactured models within the FM and FH series.</p> <p>The system has only existed for six months. No evaluation of effectiveness has been carried out so far.</p>
H. Collected experience	
<i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	The reactions from customers have been positive so far. The freedom for users to be able to extract information which can be interactively modified directly on the website has been appreciated, even though it requires a high knowledge level. The time and effort put in by Volvo Trucks to establish the EPD scheme has also been externally appreciated.
I. Interaction with:	
<ul style="list-style-type: none"> • <i>IPP & voluntary</i> 	The procedures in the EPD scheme is a fully integrated part of the

Characteristic	Description
<i>instruments eg EMS, eco-design;</i>	environmental management system. It functions only as a reporting tool, which means that the results are not fed back into the company processes at any point.
<ul style="list-style-type: none"> <i>Regulatory information requirements eg safety data sheets.</i> 	The emissions data for the use phase are based on regulatory test methods in Europe.
J. Information sources:	http://www.volvo.com/truck
<i>Eg website, contact person, reports, etc.</i>	Rolf Willkrans, Volvo Trucks

Annex III

Description of schemes in the chemical sector

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	<p>The main instigator of the scheme is the detergent industry federation A.I.S.E. = Association Internationale de la Savonnerie de la detergents et des produits d'Entretien (soap, detergent and maintenance industries). A.I.S.E. counts 1200 members, covering about 90% of the market.</p> <p>One of the driving forces behind the scheme was the European Commission. The A.I.S.E. code of conduct is the response of the sector to the 5th Environmental Action Programme which calls for economic operators to become more proactive in supporting Sustainable Development. For this purpose the detergent industry developed a code of conduct that declares progress towards certain targets and at the same time also involves consumers' education. Another driving force was end consumers concern about environmental and health issues.</p>
<ul style="list-style-type: none"> <i>Target group;</i> 	<p>There are two main target groups, the European Commission and end-consumers.</p>
<ul style="list-style-type: none"> <i>Involvement of interested parties eg procurers, SMEs, NGOs;</i> 	<p>In the establishment of the scheme different interested parties were involved, e.g. branch members, consumers associations, NGO's and the European Commission.</p>
<ul style="list-style-type: none"> <i>Consideration of inter-relationship with other tools when designing scheme.</i> 	<p>Ideas of the Agenda 21-process and IPP were considered when designing the scheme. The idea was to develop a tool which could foster sustainable consumption. Furthermore, education of consumers about Life Cycle Thinking and about impacts of washing could be achieved with the information campaign.</p>
B. Organisation and administration	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> 	<p>From its launch in 1998, the costs of management and development of the Code are about 7 Mio. Euro per year at AISE level (excluding national associations). This covers administration, monitoring (external auditors and consumer research) and the development of communication material.</p> <p>The value of the investments in the advertising campaign has been estimated at about 10 Mio. Euro both in 2000 and 2001. Similar investments are planned for the coming years.</p>
<ul style="list-style-type: none"> <i>Possibility for input from interested parties;</i> 	<p>Beyond the development of the program, input from interested parties is not foreseen. The pre-set categories were put into place when the program was developed and since there is no intention to change this set of parameters no further input of interested parties is needed.</p>
<ul style="list-style-type: none"> <i>Third party control;</i> 	<p>An independent consultant with formal external accreditation reviews the data input once a year.</p>
<ul style="list-style-type: none"> <i>Accreditation/ certification & accreditor training;</i> 	<p>Certification is not part of the scheme.</p>
<ul style="list-style-type: none"> <i>Quality control of data & programme;</i> 	<p>A critical review of the initial LCA took place by a consortium of participating companies. Every year a sample of contributing companies are checked by a third party. Energy data is collected and verified by another third party.</p>
<ul style="list-style-type: none"> <i>SMEs;</i> 	<p>A large percentage of SMEs is taking part in the program.</p>
<ul style="list-style-type: none"> <i>Mutual recognition.</i> 	<p>There is no mutual recognition with other EPD schemes.</p>
C. Basis of data	
<ul style="list-style-type: none"> <i>Eg LCA methodology, LCI,</i> 	<p>A full initial screening LCA was done by a number of companies who contributed their data and averaged it. This LCA was then</p>

Characteristic	Description
<i>life cycle considerations etc.</i>	critically reviewed including a sensitivity analysis on several aspects like influence of energy grid, dosage errors, washing temperature etc. The LCA was meant to identify the main environmental aspects. The result was: the main environmental aspects are to be found in the use phase. First priority is the washing temperature. Dosage is also a problem, next to the contents of the product. On the basis of these results, pre-set categories were identified to be reported in the yearly declaration. These categories are reported as an average across all participating companies: <ul style="list-style-type: none"> • consumption of detergents • packaging • poorly degradable substances • energy use Consumption of detergents is the sum of detergent consumption in Europe. The data is reported to the Commission and can be obtained via the Internet.
D. Declaration format <i>Eg format of the information, logo's, etc.</i>	The Code of Good Environmental Practice is published in the official journal of the EC under reference 98/480/EC 1998. LCA data under the pre-set categories is declared as average data of all participating companies in an update to the European Commission every two years. The reports, including the methodology used, can be downloaded from the Internet (http://www.washright.com/ , http://www.aise-net.org/news.html). Since the use phase was identified as most relevant, the public declarations of this program only concern this phase. Information on the product includes a logo and instructions on how to reduce environmental impacts when washing, focusing on the washing temperature and other practical aspects.
E. Compliance with ISO:	
• ISO 14025	There is compliance with ISO 14025.
• ISO 14020	There is compliance with ISO 14020.
F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i>	The marketing and promotion activities include information websites and TV-spots. Individual manufacturers run their own schemes which includes training for retailers.
G. Status of implementation:	
• <i>Product groups covered;</i>	The scheme covers only detergents.
• <i>Participating companies including SMEs;</i>	About 15 companies per country, mostly SMEs, are participating in the scheme. The countries are Austria, Belgium, Denmark, Finland, France, German, Greece, Iceland, Ireland, Italy, Luxemburg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.
• <i>Growth of system;</i>	The number of companies committed to the Code has steadily increased since his launch in 1998 (126 companies) to reach 185 companies at the end of 2001 (+46%).
• <i>Internal/external evaluation of effectiveness.</i>	Regular monitoring of the progress made by the industry is conducted since the launch of the Code in 1998. The effectiveness of the advertising campaign is also measured. Interim reports have already been published in 1999 and 2001. The next one is due to be published in October 2002.
H. Collected experience <i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	The scheme is not very well known in terms of LCA-background. The TV-Spots were stopped because of little resonance with the general public but the logo is well perceived.

Characteristic	Description
I. Interaction with:	
<ul style="list-style-type: none"> • <i>IPP & voluntary instruments eg EMS;</i> • <i>Regulatory information requirements eg safety data sheets.</i> 	<p>Interaction with IPP is intended. EMS information is not included.</p> <p>No regulatory information is considered.</p>
J. Information sources: <i>Eg website, contact person, reports, etc.</i>	<p>www.washright.com</p> <p>Interviews with Dr. Rainer Rauberger, Henkel AG and Dr. H.J. Klüppel, Henkel AG</p> <p>Contact persons: V. Séjourné, AISE, and C. Laroche, Unilever (Chairman of the AISE Code Steering Group).</p>

Annex IV

Description of schemes in the construction sector

AUB ARBEITSGEMEINSCHAFT UMWELTVERTRÄGLICHES BAUPRODUKT

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	AUB is a federation of producers and retailers of construction materials and the construction industry. Their main issues are to promote ecologically beneficial and healthy products e.g. by providing declaration criteria for products and their use with respect to Life cycle aspects. Declarations since 1998.
<ul style="list-style-type: none"> <i>Target group;</i> 	Business to business information, (municipal) planners, architects, end consumers
<ul style="list-style-type: none"> <i>Involvement of interested parties eg procurers, SMEs, NGOs;</i> 	Involvement of experts of the member organisations and external experts, not government, not NGO.
<ul style="list-style-type: none"> <i>Consideration of inter-relationship with other tools when designing scheme.</i> 	Interaction with database which is available for the public (website AUB)
B. Organisation and administration	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> 	No information available.
<ul style="list-style-type: none"> <i>Possibility for input from interested parties;</i> 	There is an information exchange with academic institutions, committees for standardization, UBA, others.
<ul style="list-style-type: none"> <i>Third party control;</i> 	Verification by AUB, there is no external certification body
<ul style="list-style-type: none"> <i>Accreditation/ certification & accreditor training;</i> 	No accreditation. Plans for reorganising the program. AUB issues its own "certificate" without external accreditation, The AUB management validates the applications and is responsible for the correctness of the procedure.
<ul style="list-style-type: none"> <i>Quality control of data & programme;</i> 	Very extensive and time consuming controls by expert group of AUB, internal control.
<ul style="list-style-type: none"> <i>SMEs;</i> 	Yes, it is intended to facilitate SME participation. AUB provides data and help for SME, members only, to lower the hurdle of having to produce an LCA. The certification procedure is fast and at very low cost for SMEs.
<ul style="list-style-type: none"> <i>Mutual recognition.</i> 	The AUB is a member of the German Federation of construction material producers. Thus they have a voice in the discussion about harmonization in the sector. German Federation is interested in harmonization within the sector in Europe.
C. Basis of data	
<i>Eg LCA methodology, LCI, life cycle considerations etc.</i>	The AUB data sheet contains LCA based pre-set categories of parameters concerning different stages of product life, it also declares proof of conformity with environment related characteristics of the product e.g. statement about "Formaldehyde content" or insulation properties. As such it is a mixture of declared data and conformity statements with certain requirements.
D. Declaration format	
<i>Eg format of the information, logo's, etc.</i>	The participating organisations provide all the relevant information to AUB. The certificate contains pre-set categories. It looks like an environmental datasheet.

Characteristic	Description
	The declaration cites LCA information about product function and contents, about energy input and raw material consumption as well as emission outputs as quantified data. Additionally there is usually a narrative portion describing the product, its production use and disposal. When useful data on toxic contents is given or any special features of the product that may relate to its environmental performance.
E. Compliance with ISO:	
<ul style="list-style-type: none"> • <i>ISO 14025</i> 	No, development started independent of EPDs, but new pilot project based started in 2001 for wall construction material(Ytong). For this project ISO 14025 will be taken into account
<ul style="list-style-type: none"> • <i>ISO 14020</i> 	No, development started independent of ISO 14020.
F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i>	Presentation on internet, articles in print media Communication within Type I label 'Blue Angel' to develop a mutually compatible declaration.
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> 	5 product groups: cement roofing, Insulation material, Wooden construction material, lightweight additive, wall and ceiling elements
<ul style="list-style-type: none"> • <i>Participating companies including SMEs;</i> 	7 companies with certified products
<ul style="list-style-type: none"> • <i>Growth of system;</i> 	On hold because of common project with German Environmental Protection agency (UBA)
<ul style="list-style-type: none"> • <i>Internal/external evaluation of effectiveness.</i> 	There is no evaluation.
H. Collected experience <i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	Good perception by NGOs, UBA. AUB members were actively participating in most discussions about product declarations of construction materials.
I. Interaction with:	
<ul style="list-style-type: none"> • <i>IPP & voluntary instruments eg EMS;</i> 	No
<ul style="list-style-type: none"> • <i>Regulatory information requirements eg safety data sheets.</i> 	Intended model is to investigate the inclusion of Type I criteria and EMS information.
J. Information sources: <i>Eg website, contact person, reports, etc.</i>	www.baunetz.de/arch/aub/ Johannes Kreissig, Product Engineering Johannes Kreissig is project manager in a combined project AUB/ German federation of construction materials' producers/ German EPA to develop a common declaration for construction materials and products in Germany. Dr. Ludwig Wagner, AUB

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> • <i>Instigator/driving forces;</i> 	AIMCC, the French federation of construction product producers, is the main instigator and program holder. AFNOR, the French standard organisation produced the standards.
<ul style="list-style-type: none"> • <i>Target group;</i> 	The target groups are business-to-business customers such as architects, planners etc. It is not aimed at final consumers.
<ul style="list-style-type: none"> • <i>Involvement of interested parties eg procurers, SMEs, NGOs;</i> 	During the development of the standards (part 1: methodology and part 2: program issues) and also for product specific requirements interested parties including NGOs and the government participated.
<ul style="list-style-type: none"> • <i>Consideration of inter-relationship with other tools when designing scheme.</i> 	The scheme is part of the French IPP program.
B. Organisation and administration	
<ul style="list-style-type: none"> • <i>Time and cost of developing declarations including delaying factors;</i> 	<p>It is difficult to estimate time and cost because the program was developed within the AFNOR standardisation procedures and is undertaken in parallel with the development of a generic database. This work took place at different speeds over several years. A delaying factor in the development of the database was the reluctance of associations and companies to deliver data. It was difficult to get all participants in the process to work at the same pace.</p> <p>For the existing declarations most companies within a product group bought the missing generic data from a database provider. Some outsourced the complete assessment. In the future the data can be purchased embedded in a program that is easy to use and the costs will be reduced to a few thousand Euros. Competition between data and software providers will also reduce the price of the information.</p>
<ul style="list-style-type: none"> • <i>Possibility for input from interested parties;</i> 	Product group specific requirements, including discussion of the functional unit and system borders for product groups, are set up with participation of interested parties.
<ul style="list-style-type: none"> • <i>Third party control;</i> 	A third party undertakes the quality control and review of the LCA.
<ul style="list-style-type: none"> • <i>Accreditation/ certification & accreditor training;</i> 	There is no certification, only validation of compliance by AIMCC. At this time certification is still an option under discussion.
<ul style="list-style-type: none"> • <i>Quality control of data & programme;</i> 	The data quality control is done according to the ISO14040 series. The declarations are critically reviewed including plausibility control, sensitivity analysis of data, fulfilment of completeness and transparency of sources. Compliance with the program is checked by AIMCC.
<ul style="list-style-type: none"> • <i>SMEs;</i> 	<p>The cost and entrance rules are tailored to facilitate entry for SMEs.</p> <p>In terms of cost for collecting the data, SMEs should benefit from the establishment of common PSRs and the evolvement of free databases at least for raw materials, like they already exist for the resin producers. This should reduce the costs for SMEs.</p>
<ul style="list-style-type: none"> • <i>Mutual recognition.</i> 	<p>Mutual recognition is not yet an issue.</p> <p>France participates in the work of TC 59 SC3. TC 59 is taking care of being in line with ISO TR 14025. Thus formal barriers to mutual recognition should be avoided.</p>

Characteristic	Description
C. Basis of data <i>Eg LCA methodology, LCI, life cycle considerations etc.</i>	LCA data is produced according to the PSRs and reviewed critically by a third party. Inventory data is assessed to show potential environmental impacts (LCIA).
D. Declaration format <i>Eg format of the information, logo's, etc.</i>	The declaration format includes impact categories and the pre-set-categories energy, resources and emissions. There is no weighting or normalisation nor other information. No logo is used. Toxic materials have to be declared independent of thresholds.
E. Compliance with ISO:	
<ul style="list-style-type: none"> • ISO 14025 • ISO 14020 	<p>There is compliance with ISO 14025.</p> <p>There is compliance with ISO 14020.</p>
F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i>	Discussion with AFNOR and ADEME is ongoing about marketing.
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> • <i>Participating companies including SMEs;</i> • <i>Growth of system;</i> • <i>Internal/external evaluation of effectiveness.</i> 	<p>The scheme includes about 40 declarations.</p> <p>SMEs are taking part.</p> <p>The scheme has just started.</p> <p>An internal or external evaluation of the scheme is not yet done.</p>
H. Collected experience <i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	Experience of applying the scheme is not yet documented.
I. Interaction with:	
<ul style="list-style-type: none"> • <i>IPP & voluntary instruments eg EMS;</i> • <i>Regulatory information requirements eg safety data sheets.</i> 	<p>There is neither interaction with other regulatory information nor parallel interaction with EMS intended.</p> <p>So far there is no health and safety information in the declaration.</p>
J. Information sources: <i>Eg website, contact person, reports, etc.</i>	Phillippe Wetterwald, Rohm and Haas, Mr. Wetterwald is member of TC 207/SC3 and TC 59/TC 3. He is also head of the French delegation for SC 3. He has been involved in the EPD standardisation work from the beginning.

AFNOR standards

IV.3

MRPI MILIEU RELEVANTE PRODUCT INFORMATIE

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> • <i>Instigator/driving forces;</i> 	<p>Holder of the program are the Nederlands Verbond Toelevering Bouw (NVTB), and the Ministry of Bouw. It is an industry owned program.</p> <p>On initiative of the construction materials industry the scheme was developed. The intention was to avoid preference lists, product competition on environment and regulations for products and materials and at the same time providing a green image for buildings.</p> <p>The goal is to develop LCA data in a common format and process in a way to become useful for planners, architects etc. One way of</p>

Characteristic	Description
	processing the data is to fill it into the Eco-Quantum LCA-software, another is to fill it into an MRPI data sheet. The vision is that the standard for assessing environmental impact of a building (MMG) will be the basis for legislation and MRPIs will be elements of the Building permit.
• <i>Target group;</i>	Architects, designer, municipal planners and regulators are the main target group. It refers to Business to Business information.
• <i>Involvement of interested parties eg procurers, SMEs, NGOs;</i>	The branch competitors are involved in the development, but the main instigators are the federations. Within the federations SMEs also take part. If there are single companies applying for MRPIs, they usually are bigger companies. The advisory board of NVTB may also include government or NGO personalities, but it does not at this point. NVTB is undergoing a reconstruction of its organisation in March this year.
• <i>Consideration of inter-relationship with other tools when designing scheme.</i>	A new Building decree and a standard for assessing the environmental impact of buildings are developed. MRPI intends to become level 3 attestation of conformity for the Building decree, based on the MMG standard. Legislation is planned for 2003. Standard is still experimental. Interaction with database, which is available to the public (planners, architects), is a major goal of MRPI's scheme.
B. Organisation and administration	
• <i>Time and cost of developing declarations including delaying factors;</i>	Time and cost of development of program: Development of the program started at 1997. In 1999 the manual was written and updated in 2000. Information about costs is not available. Cost of declaration: Standard costs per declaration are about 1000 EUR. Of these about 320 EUR are administration costs and about 230 EUR costs of producing data. This can vary up to 4 fold if the product is quite complex.
• <i>Possibility for input from interested parties;</i>	Input from interested parties is possible during development of functional unit.
• <i>Third party control;</i>	MRPI is a statement of the producer and validated by third party experts. The producer acquires a license. Conformity is controlled by random audits performed by MRPI foundation. Non-conformity results in withdrawal of license and publication of producer's loss of license.
• <i>Accreditation/ certification & accreditor training;</i>	Third party valuers need to prove LCA competence. "Verification" is intended to verify the program of the scheme. "Verifiers" need to prove LCA and administrative competence. There is no formal accreditation of verifiers.
• <i>Quality control of data & programme;</i>	MRPI manual is developed for each product, which allow for efficient control of LCA data.
• <i>SMEs;</i>	Some holders of a MRPI license are SMEs.
• <i>Mutual recognition.</i>	In Netherlands a standard for the assessment of buildings is in development. France already has an experimental standard for assessing construction products. There is a European Project in progress for defining LCA methodology to assess environmental performance of construction products. Goal is to harmonise existing approaches. This was also the outcome of CEPMC conference May 2001 on EICP. Mutual recognition can be an answer for the different schemes in the construction sector, if harmonisation of key elements proceeds.
C. Basis of data <i>Eg LCA methodology, LCI, life cycle considerations etc.</i>	LCA is according to ISO 14040. The basis of data includes functional units, LCI data and LCIA data. There is no weighting, no associated database and no LCA-program.
D. Declaration format	Declaration sheet contains pre-set categories of parameters and

Characteristic	Description
<i>Eg format of the information, logo's, etc.</i>	mandatory format disclosing: <ul style="list-style-type: none"> - Name of producer - Name of product - MRPI code number of registration - Date of issue - Functional unit - Contents of product - LCI data of pre set parameters - LCIA data of pre-set parameters - Statement of conformity Note: Human toxicity is declared as kg ecotoxicity per m ³ without identification of toxin or effect.
E. Compliance with ISO:	
• <i>ISO 14025</i>	Compliance with ISO 14025 is not intended.
• <i>ISO 14020</i>	Compliance with ISO 14025 is not intended.
F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i>	Marketing and promotion activities like an extensive presentation on Internet, a Newsletter about MRPI and NVTB and education of producers how to make and how to use an MRPI, take place.
G. Status of implementation:	
• <i>Product groups covered;</i>	The scheme covers 100 producers and 40 product groups, e.g. cement, stone, clay, plastics, zinc, lead, walls, tilted roofs, flat roofs, floors, windows participate the program.
• <i>Participating companies including SMEs;</i>	SMEs participate via their federations.
• <i>Growth of system;</i>	First product was declared in 1999. In 2002 the scheme includes 40 product groups. Because of imminent standard and regulation MRPIs are produced at much lower rate.
• <i>Internal/external evaluation of effectiveness.</i>	There is no evaluation.
H. Collected experience <i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	This kind of information is not documented at this time.
I. Interaction with:	
• <i>IPP & voluntary instruments eg EMS;</i>	Information about interaction with IPP and other voluntary instruments is not available.
• <i>Regulatory information requirements eg safety data sheets.</i>	There is no regulatory information. MRPIs may become the formal conformity statement for the future building decree. For this purpose the upcoming standard and MRPIs are developed to produce maximum overlap.
J. Information sources: <i>Eg website, contact person, reports, etc.</i>	www.nvtb.nl/mrpi/ Agnes Schuurman, Intron Newsletter MRPI Presentation Jerome Bartels for CEPMC

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	<p>SIA (Schweizerischer Ingenieur- und Architektenverein), Swiss Society of Engineers and Architects. 12 000 members and 4000 participating companies. The SIA Guide 493 for "Deklarationsraster" was first developed in 1994, a second, amended version was written in 1997.</p> <p>Switzerland's regulatory requirements in the construction sector are oriented along the European directives. Therefore regulatory pressure is felt comparable to the other European countries. Furthermore companies taking part in the "Deklarationsraster" Scheme, e.g. Isover are producing for the European market as well.</p>
<ul style="list-style-type: none"> <i>Target group;</i> 	<p>The scheme is targeted at business-to-business customers including planners, architects and big housing organisations.</p>
<ul style="list-style-type: none"> <i>Involvement of interested parties eg procurers, SMEs, NGOs;</i> 	<p>SIA founded a committee involving producers, members of SIA (that is architects, planners, engineers) members of local authorities, social housing companies and community procurement officials. This committee is responsible for defining the pre-set categories.</p>
<ul style="list-style-type: none"> <i>Consideration of inter-relationship with other tools when designing scheme.</i> 	<p>The scheme was designed primarily to help architects to plan environmentally acceptable constructions and buildings. Secondly it was also meant to enable companies to communicate their efforts in developing environmentally improved materials and products.</p>
B. Organisation and administration	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> 	<p>The original studies to determine the relevant requirements were done by external experts, the costs announced to ca. 200 000 Swiss Francs (today's value). Additionally the costs for SIA for providing the platform and secretarial work, and the costs for meetings and presentations of documents amounted to another 200 000 Swiss Francs up to the development of the 2nd version of the SIA Guide. The program has developed steadily; no explicit delaying factors are mentioned. These days the interest in the declaration seems to be reduced.</p>
<ul style="list-style-type: none"> <i>Possibility for input from interested parties;</i> 	<p>2-3 meetings of the relevant committee are taking place each year. Interested parties are invited to participate, but rarely do.</p>
<ul style="list-style-type: none"> <i>Third party control;</i> 	<p>An independent company (Büro für Umweltchemie) takes random samples and spot tests.</p>
<ul style="list-style-type: none"> <i>Accreditation/ certification & accreditor training;</i> 	<p>There is no external accreditation required.</p>
<ul style="list-style-type: none"> <i>Quality control of data & programme;</i> 	<p>SIA does not take liability. The quality control of data is the participating companies' responsibility. If third party checks find mistakes or implausible results, the license for the declaration is withdrawn.</p>
<ul style="list-style-type: none"> <i>SMEs;</i> 	<p>Only few SMEs are participating. SIA member says this is due to the extra effort to produce data that will be financed by SMEs, due to lacking comprehension of Life Cycle Considerations and due to the fact that the major benefit for big companies is an image benefit. This is not necessary for regionally well known SMEs.</p>
<ul style="list-style-type: none"> <i>Mutual recognition.</i> 	<p>No efforts have been taken for mutual recognition. The SIA</p>

Characteristic	Description
	interview partner did not know about the MRPI or the BRE scheme, even though some companies declaring their environmental performance under the "SIA Deklarationsraster" also do so under the other schemes (eg. Isover).
C. Basis of data <i>Eg LCA methodology, LCI, life cycle considerations etc.</i>	The SIA Committee developed a set of pre-set categories in a 'life cycle considerations' approach, which are specific for each of the 14 product groups. It provides functional unit, allocation rules and system boundaries only for energy calculations (Graue Energie). Other data is provided according to pre-set rules and is not really comparable to LCA data. This involves data like insulation values, limit values for certain chemical substances etc. It was the explicit policy of SIA not to expect the companies to do a whole LCA study, but rather to define the relevant data beforehand and have the companies only produce that data. The data is produced according to consensual rules laid down in the "Deklarationsraster" requirements. There is no screening instrument to justify the selection of pre-set categories.
D. Declaration format <i>Eg format of the information, logo's, etc.</i>	<p>The declaration is published on the Internet.</p> <p>Pre-set categories of parameters:</p> <ul style="list-style-type: none"> • Product name, producers name, address (for each and any product) • Person responsible for data (for each and any product) • Product composition, physical data • Raw material categories in mass % (primary, recycled, renewable, mineral) • Total primary energy from cradle to gate • Substances which are regulated to be declared by Health and Safety terms (safety sheets) • End of life processes like deposition, incineration • No primary flows of material but complex material input: gate to gate <p>It is not required to fill out the declaration matrix completely. If there is no data, the category stays blank. The company has to explain why the data is missing. An explanation like: too much effort to supply data is acceptable.</p>
E. Compliance with ISO:	
<ul style="list-style-type: none"> • ISO 14025 • ISO 14020 	<p>There is no compliance or reference to ISO 14025.</p> <p>There is no compliance or reference to ISO 14020.</p>
F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i>	<p>There is a very thorough internet documentation about SIA: http://www.sia.ch</p> <p>Furthermore SIA educates both target groups: producers of production materials on how to fill out the matrix and planners on how to interpret the matrix. Interest about the education on the side of the planners has slackened, but not from companies. The "Deklarationsraster" has become part of the construction engineers university curriculum as "Ökologie am Bau" (DfE for buildings and constructions).</p>
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> 	<p>14 Product groups covered:</p> <ul style="list-style-type: none"> – Concrete, wall stones and other solid construction materials – Mortar and plaster – Flat glass – Metallic constructed material – Wooden Constructed material – Adhesives – Sealing compounds)

Characteristic	Description
	<ul style="list-style-type: none"> - Protection foil - Insulation material - Tapestry - Flooring material - Doors - Pipes - Coating and laminated material
<ul style="list-style-type: none"> • <i>Participating companies including SMEs;</i> • <i>Growth of system;</i> • <i>Internal/external evaluation of effectiveness.</i> 	<p>25 companies, e.g. Geberit, Isover, Kronospan, Eternit, Flumroc, Foamglas have declared products according to the 2nd version of the Guide.</p> <p>The number of declarations is stagnant this year. SIA says this is due to a decreasing image value of environment.</p> <p>There are no studies to evaluate the effectiveness. The Scheme is well accepted by authorities and is part of community procurement requirements in several communities.</p>
H. Collected experience	
<i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	There is no documentation of industry reaction to the Scheme. Complaints or new ideas are picked up in the yearly meetings of the Committee.
I. Interaction with:	
<ul style="list-style-type: none"> • <i>IPP & voluntary instruments eg EMS;</i> • <i>Regulatory information requirements eg safety data sheets.</i> 	<p>SIA has been involved recently in the Swiss discussion about declarations of sustainable building and construction. It is not yet decided whether this shall become an input to ISO TC 59.</p> <p>Regulatory requirements in terms of safety and health requirements are part of the declaration matrix.</p>
J. Information sources:	
<i>Eg website, contact person, reports, etc.</i>	<p>http://www.sia.ch/</p> <p>Johann Frei, chairman of the SIA committee</p> <p>The SIA Guide 493 can be purchased from SIA on the website</p>

IV.5

BREEAM - BUILDING RESEARCH ESTABLISHMENT ENVIRONMENTAL ASSESSMENT METHOD (UK)

BREEAM is a registered trademark of the Building Research Establishment Ltd (BRE). BREEAM is a method for assessing the environmental quality of a building throughout its life and benchmarking this against other buildings. The assessment is based on the granting of 'credits' against a set of performance criteria, resulting in an overall rating of Excellent, Very Good, Good or Pass. The result is publicised via a certificate awarded to individual buildings having undergone assessment. The certificate provides a 'label' for the building that enables the owners or occupants to gain recognition for the building's environmental performance.

BREEAM is not a type III environmental product declaration for buildings as it sets performance levels that must be achieved to obtain a certain BREEAM rating and the end output is a certificate rather than a detailed product declaration. Although the assessment report contains both quantitative and qualitative performance data, it also cannot be said to constitute an EPD in its present form. As such, the reason for including BREEAM here is for

information purposes due to the significant influence that it has within the construction sector as an environmental 'label' for buildings, leading to similar schemes in several other countries.

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> Instigator/driving forces; 	<p>BREEAM was initially developed by the BRE and ECD Partnership, and financed by a number of leading companies within the sector. The first version for offices was released in 1990. Particularly since 1997, BRE has been working with a number of partners in developing and revising BREEAM versions.</p> <p>The development of EcoHomes (a version of BREEAM developed for the residential housing sector) was sponsored by the National House Building Council (NHBC).</p> <p>The development of a version of BREEAM for the retail sector is being sponsored by a number of retail organisations.</p> <p>The development of a similar self-assessment tool for hospitals (NHS Estates Environmental Assessment Tool, NEAT) is being funded by DTI (Department of Trade and Industry) and NHS (National Health Service) Estates.</p> <p>BREEAM was developed to provide owners, users and designers with a means to review and improve the environmental impact of their buildings and benchmark their performance. More specifically, its objectives are (Baldwin et al, 1998):</p> <ul style="list-style-type: none"> To distinguish buildings of reduced environmental impact in the market place; To encourage best environmental practice in building design, operation, management and maintenance; To set criteria and standards going beyond those required by law and regulations; To raise awareness of owners, occupiers, designers and operators of the benefits of buildings with reduced environmental impact.
<ul style="list-style-type: none"> Target group; 	<p>As stated above, one of BREEAMs primary objectives is to raise awareness of owners, occupiers, designers and operators of the benefits of buildings with reduced environmental impact. The target group consists of:</p> <p>architects, product developers, planners, and end consumers such as owner occupiers and private house-owners.</p>
<ul style="list-style-type: none"> Involvement of interested parties eg procurers, SMEs, NGOs; 	<p>BREEAM was developed based on many years of construction and environmental research carried out at BRE, together with the input and experience of the construction and property industries, Government and building regulators.</p> <p>The development of each version always includes an opportunity for stakeholder input. For example, the development of EcoHomes involved:</p> <ul style="list-style-type: none"> A market survey to identify demand; Expert discussions to identify key impacts based on research outputs; Development of a practical assessment tool overseen by a steering group. <p>The consultation phase involved the top 100 builders in the UK by</p>

Characteristic	Description
	<p>turnover. Given the nature of the industry, it is possible that this included several SMEs.</p> <p>The weighting system applied is the result of a consultation process across a wide range of professional actors and other stakeholders in the UK (including activists and lobbyists), which is updated from time to time. This means that priorities are assigned between issues based on stakeholder consensus.</p>
<ul style="list-style-type: none"> • Consideration of inter-relationship with other tools when designing scheme. 	<p>EcoHomes – uses SAP (existing Standard Assessment Procedure) to calculate CO₂ emissions.</p> <p>BREEAM – there is no existing SAP for offices therefore couldn't incorporate – if there had been it would have been used.</p> <p>BREEAM – latest versions include EMS as one of the criteria.</p> <p>BREEAM – has links with other BRE tools such as Envest and "Green Guide to Specification - An Environmental Profiling System for Building Materials and Components" (see <i>Section 1.3.6</i> below for further information).</p>
<ul style="list-style-type: none"> • <i>Time & costs of establishing the scheme.</i> 	<p>Actual cost information is confidential and therefore not available. In any case, costs vary significantly between the different assessment tools. It should be noted that development of the schemes relies heavily on input from previous research studies and hence this would have to be taken into consideration to identify the real cost of developing each assessment tool.</p> <p>BRE estimates that each version of BREEAM takes approximately 1 – 2 years to develop and enter into operation. BREEAM '98 and EcoHomes each took approximately 18 months.</p> <p>Following the costs for its initial development, BREEAM is now financially self-supporting. This means that BRE is able to self-finance the annual revisions to the scheme. However, if a major redevelopment/revision is required then they would have to seek external funds to support this.</p>
<p><i>B. Organisation and administration</i></p>	
<ul style="list-style-type: none"> • <i>Time and cost of developing declarations including delaying factors;</i> 	<p>BREEAM:</p> <p>The process of undertaking a formal assessment, culminating in BRE issuing the certificate, takes approximately 1-2 months. However, this timescale depends heavily on how readily the client is able to provide the necessary information (in an appropriate format) and how quickly a meeting can be arranged for all participants, which is a key part of the process.</p> <p>Eco-Homes:</p> <p>Licensed assessors will be able to provide a quote for the assessment process, which will be dependent on the size and complexity of the site, specification or house types. The assessment does not include detailed advice on how to achieve the best rating, however, assessors are able to provide this service for an additional fee and developers are encouraged to make use of this.</p> <p>For a typical 40 unit housing development, with four different house types, which has not had the specification or house types assessed previously, the typical cost would be £1100 + VAT (at 17.5%). This includes provision of an official BRE certificate for the development, with an original of this being produced for each</p>

Characteristic	Description
	<p>house unit.</p> <p>As with BREEAM, the timescale depends on how readily the client is able to provide the necessary information, although with EcoHomes no meeting is required.</p>
<ul style="list-style-type: none"> • <i>Possibility for input from interested parties;</i> 	<p>BREEAM for offices and EcoHomes are revised on an annual basis. Any stakeholder feedback is discussed and any necessary changes made at this point. The main source of feedback is via the assessors. However, BRE is also open to feedback or input from any stakeholders on an ad hoc basis. For example, if they were contacted mid-way through the year by an NGO asking for a certain issue to be incorporated or amended, BRE would typically undertake dialogue with the NGO and then consider the issue raised during the annual revision.</p>
<ul style="list-style-type: none"> • <i>Third party control;</i> 	<p>BREEAM, EcoHomes etc are a private scheme. The tools are developed and operated by BRE, although external licensed bodies undertake the actual assessments. Beyond this there is no third party control.</p> <p>BRE and BRE Certification Ltd are both wholly owned subsidiaries of the Foundation for the Built Environment (FBE). Profits made by BRE and BRE Cert. Ltd. are passed on to FBE. This ownership structure enables BRE to be held as a national asset on behalf of the construction industry and its clients, independent of specific interests. FBE is a foundation and non-profit organisation which uses the profits of its subsidiary companies to fund research and other non profit activities.</p>
<ul style="list-style-type: none"> • <i>Accreditation/ certification & accreditor training;</i> 	<p>The BRE licenses external assessors to review the design and operation of buildings. Assessment organisations are licensed by BRE to carry out formal assessment reviews, prepare assessment reports and offer related consultancy services under the BREEAM label. Stringent quality management procedures have been adopted to ensure a consistent approach and level of service. BRE is responsible for specifying the criteria and methods of assessment and for quality assurance of the assessment process used.</p> <p>Use of the methodology is tightly controlled so as to maintain quality and consistency. The formal assessment process also uses a number of tools that are only available to licensed assessors and are maintained and updated by BRE. A list of individuals and firms licensed to undertake BREEAM and EcoHomes assessments is available from BRE.</p> <p>Many consultancies now offer a range of BREEAM services from an informal BREEAM assessment to full formal BREEAM consultancy leading to a formal Assessment and Certification. The certificate is issued on the basis of a report prepared by the registered assessor.</p>
<ul style="list-style-type: none"> • <i>Quality control of data & programme;</i> 	<p>External assessors must be licensed by BRE. BRE then undertake a quality assessment procedure on 1 in 5 of each assessors first 20 reports, and 1 in 10 thereafter. This quality procedure involves ensuring that the right information has been obtained and that the assessment has been properly undertaken and decisions justified. As an additional quality control check, 1 in 50 assessors are</p>

Characteristic	Description
	shadowed by a BRE official.
	<p>Quantitative data such as energy and water consumption is collected/calculated by the assessment consultants in collaboration with the design team. It is therefore largely provided by the participant and there is no formal verification of the data itself by either the assessor or BRE. However, for some of the qualitative elements of the assessment further checks may be undertaken. For example, for criteria such as existence of an environmental policy or operations manual, the assessor may ask to see the documents in question. It should be noted that if an assessment is undertaken at design stage, it is not possible to verify all data at this point as it can only be verified once the building has not been constructed.</p> <p>At the moment, BRE offers a post-construction review as an optional extra (ie non-mandatory and at extra cost). BRE may consider making this review mandatory at some point in the future. The review involves checking that the levels of environmental performance included in the design have actually been achieved. For example, if it was stated that FSC certified timber would be used, the post-construction review would ask for copies of the relevant FSC certificates.</p>
<ul style="list-style-type: none"> • <i>SMEs;</i> 	There are no special measures for SMEs in terms of reduced fee rates, simplified criteria etc.
<ul style="list-style-type: none"> • <i>Mutual recognition.</i> 	<p>None. Although several similar schemes have been developed in other countries based on BREEAM, there is no reason for BRE to officially recognise these as equivalent as BREEAM is a UK based scheme.</p> <p>Applying the UK version of BREEAM directly to buildings in other countries, or applying other countries' versions in the UK should be avoided as each is deliberately tailored to the national context to take into account differences in regulations, climatic conditions etc.</p>
<p>C. Basis of data <i>Eg LCA methodology, LCI, life cycle considerations etc.</i></p>	<p>Although BREEAM, EcoHomes etc cover the building's impacts over its life-cycle, the criteria/categories are not developed based on a specific LCA. Instead they are based on the output of relevant research studies, expert opinion and so on as explained in <i>Section A</i> above (see <i>Involvement of interested parties</i>). Thus they are based on life cycle considerations rather than LCA.</p> <p>For the materials section of BREEAM and EcoHomes, information is taken from the BRE Environmental Profiles system and this is based on generic LCA data (LCA data is not required of users). Further information is provided in <i>Section 1.3.6</i> below.</p> <p>The weighting system is predetermined through a national consultative process (mentioned above) and so users cannot apply their own individual weighting priorities.</p>
<p>D. Declaration format <i>Eg format of the information, logo's, etc</i></p>	<p>It should be re-iterated that BREEAM is not a type III environmental product declaration for buildings as it sets performance levels that must be achieved to obtain a certain BREEAM rating and the end output is a certificate rather than a detailed product declaration. The assessment report does contain</p>

Characteristic	Description
	<p>both qualitative and quantitative data on environmental performance but, as stated above, the categories are based on life cycle considerations rather than LCA.</p> <p>Both quantitative and qualitative data are considered in parallel in the assessment process and report. Quantitative data is provided on elements such as energy and water consumption. Qualitative dimensions of assessment involve checking whether a wide range of features are present in the building and site landscape. E.g. the use of high frequency ballasts in fluorescent lighting, (a health and comfort factor) or whether efforts have been made to plant new trees (a site ecology factor).</p>
<p><i>BREEAM Assessment Report</i></p>	<p>A BREEAM Offices assessment is comprised of three modules to facilitate assessment of new and refurbished buildings, existing and occupied buildings. A core assessment of the building fabric and services is carried out in all cases, and then 2 optional parts deal with the quality of the design & procurement and management & operating procedures. The Core module provides for the assessment of the buildings potential environmental performance and allows cross comparison between existing buildings and between new designs and existing buildings. The Design and Procurement module is for the assessment of new build and refurbishment at the design stage and covers additional issues over the core module relevant to design such as land use and selection of materials and components. The Management and Operation module is for assessment of buildings that are in use (ie occupied) and adds additional issues such as the health and well-being of users.</p> <p>The assessment examines the environmental implications of a building's design at three levels: (i) the global environment eg use of resources, (ii) local environment and (iii) indoor environment eg the health and well being of building occupants. The assessment is based on 'credits' awarded for a set of performance criteria. Where buildings have attained or exceeded various benchmarks of performance, an appropriate number of credits are awarded. For example, under the EcoHomes assessment there are 10 credits available depending on the level of emissions of carbon dioxide (CO₂) relating to energy consumption in the building. These range from 1 credit for less than or equal to 60 kg/m²/yr to 10 credits for zero or less kg/m²/yr.</p> <p>Under BREEAM for offices, environmental performance is assessed under nine main categories, under which specific credit requirements are grouped:</p> <ol style="list-style-type: none"> 1. Management Overall policy and procedural issues 2. Health and Well being Indoor and external issues 3. Energy Operational energy and CO₂ issues 4. Transport Transport related CO₂ and locational issues 5. Water Consumption and leakage related issues 6. Materials Environmental implications of materials selection 7. Land Use Greenfield and brownfield site issues 8. Site ecology Ecological value of the site issues 9. Pollution Air and water pollution issues (excl CO₂) <p>Similarly, for Eco-Homes the issues assessed are grouped into 7 categories: Energy • Transport • Water • Ecology and land use • Pollution • Health and well being • Materials.</p>

Characteristic	Description
	Finally an environmental weighting system is applied across the 9 category scores (for BREEAM for Offices) or 7 category scores (for EcoHomes). The number of credits attained is then interpreted in the form of an overall rating of Excellent, Very Good, Good or Pass.
<i>BREEAM Certificate</i>	<p>The basis of the scheme is the award of a certificate to provide a 'label' for the environmental performance of a specific building, which can be displayed in the building or used as part of an organisation's overall environmental statement.</p> <p>The certificate shows a BREEAM rating of Pass, Good, Very Good or Excellent derived from the accrue ment of 'credits' awarded under various issue categories such as Energy, Materials and Transport.</p>
E. Compliance with ISO:	
• ISO 14025	No
• ISO 14020	No (although BRE may consider this in future revisions)
<i>F. Marketing and Promotion Eg Awareness raising, purchaser education, training etc.</i>	<p>BREEAM is marketed on the basis that there is a commercial advantage to a client or developer in being able to demonstrate a good environmental rating to clients and occupiers.</p> <p>BRE publicise the scheme through a variety of channels such as presentations and related research work. They focus on marketing the scheme to strategically important players in the industry, such as investors, the government, government bodies, local authorities and property portfolio developers. In addition, BRE are starting to target Regional Development Agencies (RDAs). BRE are also working with English Partnerships to jointly market BRE to developers.</p> <p>The majority of marketing directly to the private sector is undertaken by the external assessors, who market BREEAM assessments (and hence the tool itself) as part of their consultancy services.</p>
G. Status of implementation:	
• <i>Product groups covered;</i>	<p>The first version for offices was released in 1990 and subsequent versions of BREEAM have followed for:</p> <ul style="list-style-type: none"> • new and existing offices (updated 1998 and 2002); • new superstores and supermarkets; • new and refurbished homes (EcoHomes); • new industrial units. <p>EcoHomes was launched on 6th April 2000 and updates and replaces the earlier Environmental Standard scheme.</p> <p>Other versions of BREEAM are under development, for hospitals and for the retail sector (see <i>Growth of System</i>).</p>
• <i>Participating companies including SMEs;</i>	<p>The first version of BREEAM for offices was released in 1990 and since then, over 500 buildings have been assessed. In 1998, it was estimated that 25-30 % of new office space in the UK had been assessed using this method, but that there had been a slower uptake among owners of existing buildings.</p> <p>A large number of offices in both the private and public sector</p>

Characteristic	Description
	<p>have been "Breeamed" with support being given by organisations such as Barclays Bank, Prudential, NatWest, the Environment Agency and Government departments including MOD, Scottish Office and DETR.</p>
	<p>BREEAM has received strong support from the public sector including government, local authorities and universities. Central Government (as part of its 'greening government' operations) set a target that "all departments when undertaking new or refurbishment construction projects should, wherever appropriate, use BREEAM or equivalent." This policy appears to have been a success as it was reported in 2001 that "almost all departments have used BREEAM for new office buildings and refurbishments." Among the Government departments which have achieved "excellent" ratings under BREEAM are DEFRA, Inland Revenue and the Ministry of Defence.</p>
	<p>Local authorities are setting targets, such as that all new building projects should achieve at least a 'very good' BREEAM rating.</p>
	<p>Eco-Homes is relatively new and so far only 3 schemes in the UK comprising of over 100 houses have achieved a BRE EcoHomes rating, however a number of smaller developers have also obtained an EcoHomes rating. Its uptake has not been as successful as BREEAM for Offices.</p>
<ul style="list-style-type: none"> <i>Growth of system;</i> 	<p>Since its establishment in 1990, BREEAM has been revised and extended in scope as illustrated by the list of product groups covered. Each assessment tool is revised on an annual basis to incorporate new research, reflect changing priorities in regulations and in the market place and to build on experience gained. The aim is to ensure that BREEAM continues to represent current best practice, going beyond what is required by regulations.</p>
	<p>The latest version of BREEAM for offices (2002), was launched in September 2001. The update includes some changes to existing credits and the addition of some new credits, including a commitment to the "Considerate Contractors Scheme" (see <i>Interaction with Voluntary Instruments</i>).</p>
	<p>Previously updated in 1998, BREEAM 98 for offices brought together earlier versions for new and existing offices to create a much more flexible assessment method that is valid throughout the whole life of the building. This gave greater emphasis to issues such as transport, water consumption and construction materials and, for the first time, included a "Green Guide to Specification: an environmental profiling system for building materials and components".</p>
	<p>ECD are working in partnership with BRE to develop a BREEAM scheme for the retail sector. Retail development leaders such as Chelsfield, Chartwell Land, Grosvenor Investments and Marks & Spencer have so far pledged support for the scheme that should be launched in early 2003. WSP and Environmental Governance are also partners in the project.</p>
<ul style="list-style-type: none"> <i>Internal/external evaluation of effectiveness.</i> 	<p>BRE commissioned Deloitte & Touche consulting group to undertake a market study in 1997 to assess the effectiveness of BREEAM in the office sector. The aim of the study was to inform</p>

Characteristic	Description
	<p>the scheme's ongoing development using a 100-interview survey of current and potential users of BREEAM, the main business benefits identified were:</p> <ul style="list-style-type: none"> • Financial – achieving higher rental incomes, increasing energy efficiency, and higher productivity. • PR/marketing – a selling point to potential customers or tenants. • Benchmarking – ensuring best practice, providing a thorough checklist for comparing buildings and guiding their best improvement. • Staff/user benefits – creating a better place for people to work more productively • Environmental improvement – to support a wider corporate strategy or act as a stand-alone review. <p>However, due to their nature many of these benefits were not measured quantifiably and hence are often perceived rather than measured.</p> <p>Other studies have also been undertaken by academics such as “An evaluation of the objectives of the BREEAM scheme for offices: a local case study”, Holmes & Hudson, University of Northumbria.</p>

<p>H. Collected experience Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</p>	<p>BREEAM is now widely accepted and respected as an authoritative environmental assessment tool for buildings in the UK and has also been adapted for and marketed in other jurisdictions outside the UK.</p> <p>In the UK it has been widely accepted as representing best practice, with significant market penetration. BREEAM has become an important component of the environmental policy of many major businesses.</p> <p>BREEAM has gained supported from both Government and industry. As previously mentioned, it has received strong support from the public sector including government, local authorities and universities.</p>
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<p>I. Interaction with:</p> <ul style="list-style-type: none"> • <i>IPP & voluntary instruments eg EMS;</i> 	<p>Links with Considerate Constructors Scheme (CCS) are now incorporated into the revised BREEAM for offices. The CCS, which is voluntary, requires contractors to sign up to an eight-point Code of Considerate Practice which commits them to be Considerate and Good Neighbours, as well as Clean, Tidy, Safe, Environmentally-conscious, Responsible and Accountable. Adherence to the code is checked through some 40 experienced and qualified senior monitors drawn from all parts of our industry. BREEAM assessors carrying out a post construction assessment will use the CCS monitor's report to confirm compliance with this part of the revised method. The inclusion of CCS within BREEAM also encourages clients to specify the scheme as part of the contract. The collaboration of the two schemes and the resulting enhancement of CCS have been funded by DEFRA's [Department of Environment] Construction Division.</p> <p>There are a number of key windows of opportunity when the scheme can be most effectively used. These include:</p> <ul style="list-style-type: none"> • During the design of both new and refurbished offices
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Characteristic	Description
	<ul style="list-style-type: none"> To specify environmental requirements in the procurement and management of office accommodation of any age or type As an independently verifiable measurement tool for use within an Environmental Management Systems (both formal certification schemes such as ISO1400 and EMAS to simple locally developed systems) To providing an independently verifiable environmental label for marketing and promotional purposes <p>There are also links between BREEAM and EMS: (i) a corporate EMS is one of the criteria within a BREEAM assessment; (ii) BREEAM has become an important component of the environmental policy of many major businesses and is used to set targets within a company's EMS. In addition, the BREEAM certificate can be used as part of an organisation's overall environmental statement.</p>
<ul style="list-style-type: none"> Regulatory information requirements eg safety data sheets. 	Not specifically.
<p>J. Information sources: Eg website, contact person, reports, etc.</p>	<ul style="list-style-type: none"> Interview with Susheel Rao, BRE undertaken on 20/03/02. Tel: + 44 1923 664 565 http://www.bre.co.uk/ http://products.bre.co.uk/breeam/default.html http://www.bre.co.uk/sustainable/ecohomes.html Baldwin, R., Yates, A., Howard, N., and Rao, S., (1998) <i>BREEAM 98 for Offices, an environmental assessment method for office buildings</i>, Construction Research Communications, Watford, UK. ISBN 1 86081 238 4

IV.6

BRE ENVIRONMENTAL PROFILES FOR CONSTRUCTION MATERIALS AND COMPONENTS (UK)

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> Instigator/driving forces; 	<p>The BRE's Environmental Profiles scheme was developed to provide a standardised method of presenting environmental data to cut through the confusion of claims and counterclaims about the performance of building materials. It was driven by high demand for reliable and independent environmental information about building materials and components. Previously, the lack of a standardised approach meant that comparing different products on the basis of individual claims was difficult, as there was no way of knowing if the assessment methods used in each case considered the same factors. This made comparisons of information from different sources meaningless in some cases.</p> <p>Environmental profiles were developed through a 3-year Department of Environment (DETR) Partners in Technology project, which was completed in 1999. The project was undertaken by the Building Research Establishment (BRE) in collaboration with representatives from the construction materials sector. More than 20 trade associations participated – see <i>involvement of interested parties</i> for a full list.</p>

Characteristic	Description
	<p>The scheme aims to provide a methodology for comparing the environmental performance of construction materials, components and systems in a standardised way - identifying and assessing the environmental effects of building materials over their entire life cycle, through their extraction, processing, construction, use and maintenance, and their eventual demolition and disposal.</p> <p>The project has achieved two significant results: a methodology document and a UK national database providing access to Environmental Profiles generated by the industry.</p> <p>The methodology is clearly set out in a BRE document and establishes a set of common rules and guidelines for applying life cycle assessment (LCA) to UK construction products. This methodology enables producers of construction materials in the UK to produce LCA data in the form of Environmental Profiles. Conformity with this methodology means that materials users eg designers, can have confidence in the "level playing field" status of Environmental Profiles, for every material type. BRE and the Steering Group of materials industry representatives believe that this method represents the most objective and workable approach that could be developed to deal with all building materials.</p>
<ul style="list-style-type: none"> • Target group; 	<p>Architects, product developers, planers, end consumers like private house-owners.</p> <p>Environmental Profiles were developed to:</p> <ul style="list-style-type: none"> • Give suppliers the opportunity to present credible environmental information about their products; • Allow designers to demand reliable and comparable environmental information about competing building materials, and therefore assess the relative environmental impacts of different design options; • Provide independent and comparable information for producers to pass to clients and incorporate into various assessment tools. <p>The methodology is publicly available, allowing all construction materials manufacturers to explore the impacts of their products, and specifiers to request information about the product they wish to use.</p>
<ul style="list-style-type: none"> • Involvement of interested parties eg procurers, SMEs, NGOs; 	<p>The following organisations participated in the steering group for the DETR Partners in Technology project. It is the view of the majority of the members of the steering group that the methodology developed is a practical, consistent and comprehensive method for the life cycle assessment of all types of building materials and components.</p> <p>Aluminium Federation Brick Development Association British Cement Association British Lime Association British Plastics Federation British Non-ferrous Metals Federation British Precast Concrete Federation British Wood Preserving and Damp-proofing Association British Woodworking Federation</p>

Characteristic	Description
	<p>Cementitious Slag Makers Association Celotex Ltd. Clay Pipe Development Association Eurisol Forestry Commission Gypsum Products Development Association National Council of Building Materials Producers Nickel Development Institute Quarry Products Association Reinforced Concrete Council Steel Construction Institute Stone Federation of Great Britain Timber Trade Federation UK Forest Products Association Wood Panel Industries Federation</p>
	<p>After some consideration, BRE actively decided not to involve NGOs or other interested parties specifically at this stage in case it jeopardised industry participation and open information sharing.</p>
<ul style="list-style-type: none"> • Consideration of inter-relationship with other tools when designing scheme. 	<p>Environmental Profiles interact with a number of other BRE tools in this area eg:</p> <p>BRE Environmental Assessment Method for Buildings (BREEAM). Environmental profiles can be used as a basis to obtain credits in the materials section of BREEAM, EcoHomes etc.</p> <p>BRE's "Green Guide to Specification - An Environmental Profiling System for Building Materials and Components" Linked to BREEAM, the 3rd edition of BRE's Green Guide to Specification provides designers and specifiers with a quick and easy way to assess the environmental performance of a wide range of building materials. The guide provides information for each specification and environmental impact by using a simple A B or C rating, where A represents good environmental performance. The Guide uses Environmental Profiles (data from industry) as well as additional data collected from a range of situations and converted to the UK situation.</p> <p>Software application: ENVEST Information from the Environmental Profiles is used in ENVEST, a software tool designed to provide instant assessment of the impacts of building designs. The software allows designers to consider the life cycle environmental impact of building materials at the building inception stage. Envest uses data from the Environmental Profiles as a measurement of material impact and combines this with other data assessing energy impacts etc. The results from Envest are measured in 'Ecopoints', to provide a single score assessment/rating of the environmental impact of selected key design elements.</p> <p>Envest is designed to be a complementary tool to BREEAM and is authorised for demonstrating materials credits in BREEAM 98. Further information on 'Envest' is available at: http://www.bre.co.uk/sustainable/envest.html</p>
<ul style="list-style-type: none"> • <i>Time & costs of establishing the scheme.</i> 	<p>The 3-year initial development project completed in 1999 cost £250,000 including 50% industry in-kind contribution and was funded jointly by the Department of Environment (then DETR)</p>

Characteristic	Description
	<p>and industry partners.</p> <p>It then required a further 1 year of development to produce a fully operating scheme. Cost figures for this year are not available but are estimated to account to 6 months FTE (full time equivalent).</p> <p>BRE have not undertaken a full breakdown of costs for the development of the profiles so this information is not available.</p>
<i>B. Organisation and administration</i>	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> 	<p>The average time taken to develop an Environmental Profile is 3 months for applications from individual manufacturers. This comprises 6 weeks – 2 months to collect the information and then 1 month for BRE to process it and provide the final Environmental Profile. This timescale is longer for applications from Trade Associations due to the need for more time to collect the data from their members.</p> <p>The main delaying factor is obtaining the necessary information.</p> <p>Environmental Profiles vary in cost depending upon the nature of the material and size of the manufacturing base. Prices typically begin at 8000 Euro.</p>
<ul style="list-style-type: none"> <i>Possibility for input from interested parties;</i> 	<p>None at present in ongoing administration and management of the scheme. BRE is looking at options to establish a steering group which would be principally composed of manufacturers and users but could also include other interested parties such as NGOs.</p>
<ul style="list-style-type: none"> <i>Third party control;</i> 	<p>All information is collected in accordance with the standard BRE data collection process described in the BRE Environmental Profiles Methodology. This involves the following procedure:</p> <ol style="list-style-type: none"> BRE issue the applicant with a questionnaire; BRE provide assistance to the applicant in completing the questionnaire either via telephone or a site visit; Applicant returns data (all applications from individual manufacturers require certification and must therefore provide supporting documentation to justify the data. This documentation consists of utilities bills, waste transfer notes etc. Applications from trade associations do not require supporting documentation); Data is processed by BRE; Data is returned to manufacturer for checking ie to ensure it is correct; BRE provide the finalised Environmental Profile. <p>BRE enter the data into an initial database that processes it into the desired "per tonne" format. Thus BRE retains a record of the raw data and can easily update it with any changes industry partners may provide. The processed data is combined or adapted to produce UK average figures for generic building materials and calculated to include "upstream" impacts of input material.</p> <p>Certification is undertaken by BRE Certification Limited. BRE Cert. Ltd. is, like BRE, a wholly owned subsidiary of the Foundation for the Built Environment (FBE). Profits made by BRE</p>

Characteristic	Description
	and BRE Cert. Ltd. are passed on to FBE. This ownership structure enables BRE to be held as a national asset on behalf of the construction industry and its clients, independent of specific interests. FBE is a foundation and non-profit organisation which uses the profits of its subsidiary companies to fund research and other non profit activities.
7. <i>Accreditation/certification & accreditor training;</i>	<p>Certification required for external claims by companies. Generic information does not require certification.</p> <p>BRE Certification Ltd. is accredited by UKAS, UK Accred. Service, Acc. No. 007, Quality control within certification process</p>
8. <i>Quality control of data & programme;</i>	<p>All information is collected in accordance with the standard BRE data collection process described above.</p> <p>The information contained in the database and Environmental Profiles is supplied by building trade associations or individual building product manufacturers. In providing this data, BRE requires the applicant to follow certain data quality requirements, including:</p> <ul style="list-style-type: none"> • Data provided must cover a 12 month timeframe; • All materials which contribute more than 2% by mass or have a significant environmental impact are requested <p>Whilst BRE endeavours to ensure that the information is correct, neither BRE, the data suppliers or Government accept any liability for errors or omission.</p>
9. <i>SMEs;</i>	No special considerations are made for SMEs in terms of reduced fee rates, simplified criteria etc. However, it is recognised that the costs may be prohibitive for SMEs. As a result, BRE is constantly looking for ways to encourage and enable SMEs to participate. To this end, BRE have applied for funding to investigate how it can overcome the barriers to SME providing LCA information to their customers.
10. <i>Mutual recognition.</i>	None.
C. Basis of data <i>Eg LCA methodology, LCI, life cycle considerations etc.</i>	<p>A methodology document has been produced to ensure transparency of the methods employed in creating Environmental Profiles. This methodology describes in detail the consistent approach to the identification and assessment of the impacts of all construction materials and components over their life cycle, including:</p> <ul style="list-style-type: none"> • Standard goal and scope; • Inventory data collection procedures; • Preferred data sources; • Consistent treatment of transport; • Calculation of emissions from fuel use; • Allocating impacts to products from multiple product lines; • Adjusting Profiles for recycled content; • Impact assessment procedures-for classification; characterisation and normalisation (based on CML); • Formats for Environmental Profiles. <p>The following experts in Life Cycle Assessment and Building have undertaken a peer review of the methodology and have confirmed that the choices used in the methodology conform with</p>

Characteristic	Description
	<p>International Standard Organisation Guidelines ISO14041:</p> <ul style="list-style-type: none"> • Sverre Fossdal, Senior Researcher, Norwegian Building Research Institute. • Tarja Hakkinen, Chief Research Scientist, VTT Building Technology, Finland. • Jean Luc Chevalier, Head of the Environment and Durability Division, Materials Department CSTB (Centre Scientifique et Technique du Batiment), France. • Wayne Trusty, Wayne B Trusty and Associates Ltd, Canada. <p>The declaration contains characterised data according to ISO 14042 but also normalised data. In this respect the declaration does not comply with ISO 14042, which does not allow for normalisation. Normalisation in the Environmental profile is calculated to compare environmental impacts of a given product to the same category caused by an individual UK citizen (national impact/total UK population).</p> <p>Under Envest, the associated software tool, the results are measured in 'Ecopoints', to provide a single score assessment/rating of the environmental impact of selected key design elements. Ecopoints provide a weighted score for impacts in 12 categories such as climate change and waste disposal. 100 ecopoints are equal to the impact of 1 UK Citizen for 1 year. Alternatively, ecopoints can be described as equal to 320 kWh electricity or landfilling 1.3 tonnes of waste.</p>
<p>D. Declaration format <i>Eg format of the information, logo's, etc.</i></p>	<p>The Profiles consist of:</p> <ul style="list-style-type: none"> Pre-set categories of Inventory data (see <i>Table 1.4</i>) Pre-set categories of Impact Assessment data (see <i>Table 1.5</i>) Pre-set categories of Normalised data (see <i>Table 1.5</i>) <p>Profiles which have been created over the life of the project are held in The UK Database of Environmental Profiles of Construction Materials and Components, which are available via an Internet subscription service. Users must pay an annual subscription to use the database. Materials producers can add new Profiles for additional products at any time and the database will be regularly updated.</p> <p>BRE uses data from industry in the Environmental Profiles Database in two ways:</p> <ul style="list-style-type: none"> • Confidential database for use in different formats within BRE assessment tools. • Publicly available data. This information has several formats and material producers have discretion over which formats are publicly released. <p>BRE have created a series of data formats to satisfy the varying needs of construction professionals. The method used is the result of a BRE project undertaken for the Department of Environment (then DETR) entitled, 'Eco-points –a consensus for building'. Two types of data format are available:</p> <p>A) Raw "inventory" data of inputs and outputs: eg</p> <ul style="list-style-type: none"> • Material use • Water use • Emissions to air • Emissions to water • Embodied energy

Characteristic	Description
	<ul style="list-style-type: none"> • Emissions to land
	B) Environmental impacts caused by the inputs and outputs:
	<ul style="list-style-type: none"> • Climate change • Acid deposition • Water pollution: Eutrophication • Water pollution: Eco-toxicity • Ozone depletion • Minerals extraction • Fossil fuel depletion • Water extraction • Air Pollution: human toxicity • Air Pollution: low level ozone creation • Waste disposal • Transport Pollution and Congestion

Elements and materials

Three types of Profiles can be created. Profiles may be calculated for materials, components and building elements. The building elements profiles can be presented "as built" or over a nominal life. Manufacturers have the discretion to publish any or all of the Profile types on the UK database. The 3 types of profile are calculated and presented as follows:

1. **Materials** - from cradle to gate (per tonne);
2. **Installed elements** - from cradle to site (per tonne, per m² of construction element);
3. **Life elements** - from cradle to grave (per 60 years, per m² of construction element) - taking account of their maintenance, replacement and disposal rates for a sixty year life.

1. These profiles are calculated for building materials (steel, aluminium, concrete, etc). Materials profiles are presented on a per tonne basis, and the environmental impacts considered are those occurring from cradle to factory gate. Materials Profiles are used to provide the "building blocks" of the elements. They can also be used to compare two equivalent products from competing manufacturers, or as a measurement of environmental performance within the supply chain.

2. Profiles can be calculated for building elements as they are installed in to the building, these being limited to an assessment from cradle to installation. They are for use by designers who have specific life information about the elements - for example, an element may be in a building designed to have a life span of just 20 years or a particular maintenance plan may be envisaged.

3. Cradle to grave Environmental Profiles are calculated for building elements (walls, floors, roofs, etc) with a 60 year lifetime. This anticipated lifetime is needed to allow maintenance, replacement and disposal factors to be taken into account.

2 & 3. All "element" Profiles are assessed on a per-square-metre basis so that the quantities of different materials needed to produce the same functional building element can be compared - for example the mass of steel and the mass of aluminium needed to produce a square metre of wall cladding.

Characteristic	Description
	<p>The following databases have been developed:</p>
	<p>Materials and Components Inventory Data</p>
	<p>The data provided in the project is provided as per tonne inventory data for materials and components, for example "manufacture of one tonne of Portland cement". This data is in the form of individual Profiles, which provide information about the inputs and outputs involved in extracting, processing or making the material. Thus there will also be individual Profiles for "one tonne chalk" dealing with extraction of a raw material and then a Profiles for "one tonne lime" which incorporates the chalk Profiles and also covers the processing of this raw material. The Profiles of upstream material inputs must be included to achieve the full picture of the manufacture of one tonne of cement.</p>
	<p>Materials and Components Characterised and Normalised Data</p>
	<p>The data in this database uses the inventory information, which has been classified into environmental impact categories and the process contribution to each category calculated i.e. characterised and then normalised to give the contribution relative to one UK citizen.</p>
	<p>Installed Building Elements: Inventory Data</p>
	<p>In this database, individual materials Profiles are combined to provide Environmental Profiles for building elements, on a square metre basis, up to the point of installation. Example building elements are: windows; external walls; upper floors. The individual generic data contributions from each component material are hidden within the element. Where materials are used in elements which have not been included in the Environmental Profiles project, then additional per tonne data are sourced from other databases.</p>
	<p>Installed Building Elements: Characterised and Normalised Data</p>
	<p>The inventory information has been classified into environmental impact categories and the process contribution to each category calculated and then normalised to give the contribution relative to one UK citizen.</p>
	<p>60 year life Building Elements Inventory Data</p>
	<p>In this database, the individual materials Profiles are combined to provide Environmental Profiles for building elements, on a square metre basis, for the life of a typical office building of 60 years. It is in this database that the lifetime information about maintenance, replacement and disposal is applied. The individual data contributions from each component material are hidden within the element.</p>
	<p>60 year life Building Elements Characterised Data</p>
	<p>The inventory information has been classified into environmental impact categories and the process contribution to each category calculated and then normalised to give the contribution relative to one UK citizen.</p>
E. Compliance with ISO:	<p>The data is based on LCI according to ISO 14041 & ISO 14042, with the exception of additional interpretation which includes normalisation and an aggregated score.</p>
<ul style="list-style-type: none"> • ISO 14025 	No

Characteristic	Description
<ul style="list-style-type: none"> ISO 14020 	No
<p>F. Marketing and Promotion Eg Awareness raising, purchaser education, training etc.</p>	<p>BRE raise awareness of the Environmental Profile scheme via a number of channels which include:</p> <ul style="list-style-type: none"> BRE website (contains comprehensive information); Articles; Presentations at seminars and conferences; Individual meetings with industry; User guide for clients (currently in preparation).
G. Status of implementation:	
<ul style="list-style-type: none"> Product groups covered; 	<p>Data is available for the following products (see Table 1.3 for further details):</p> <p>Concrete Blocks (Aerated) Granite, Limestone and Sandstone Aggregates Brick Cement Clay Roof tiles Concrete Blocks (dense) Concrete Roof tiles GGBS (Ground Granulated Blastfurnace Slag) Glass Wool Insulation Lime (Ground, Screened and Hydrated) MDF (Medium Density Fibreboard) OSB (Orientated Strandboard) Particleboard Mineral Wool Insulation Roundwood Sand and Gravel Steel Reinforcement Steel Sections Steel Sheet UK Consumed Kiln Dried Timber</p> <p>Data is currently being processed for:</p> <p>Aluminium Extrusion Aluminium Foil Aluminium Sheet Copper Strip Copper Tube Copper Wire Lightweight Concrete Blocks Plaster and Plasterboard Polyisocyanurate Insulation Foam PVC Stainless Steel Wall Ties Timber Joinery Timber preservation</p>
<ul style="list-style-type: none"> Participating companies including SMEs; 	<p><i>Individual company applications ie certification:</i></p> <p>One completed - Etex Group SA:</p> <ul style="list-style-type: none"> Marley Building Materials Eternit Building Materials Tegral Building Products <p>Two other companies are currently undergoing certification but cannot be named until completed.</p> <p>No SMEs to date.</p>

Characteristic	Description
	<p><i>Industry Association applications:</i></p> <p>Numerous completed – covering all of the materials listed above e.g. brick, cement, steel, timber etc.</p> <p>3 Trade Associations are currently going through the application process for generic Profiles and again, must remain confidential until this has been completed.</p>
<ul style="list-style-type: none"> <i>Growth of system;</i> 	<p>Future development</p> <p>The methodology will continue to be developed and improved. While it currently focuses on environmental impacts (from energy, minerals and water consumption, and waste, air and water emissions - these being the impacts most relevant to construction materials) the long-term aim of this work is to comprehensively account for all key parameters of environmental, economic and social impact. Other environmental issues, notably land use and biodiversity, may be added to future editions as the methodology evolves.</p>
<ul style="list-style-type: none"> <i>Internal/external evaluation of effectiveness.</i> 	<p>None to date – too early in the process.</p>
<p>H. Collected experience <i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i></p>	<p>Generally very positive reaction from industry – assisted and demonstrated by the fact that Environmental Profiles were developed with significant industry participation. Construction manufacturers view strong points as being ease of interpretation and ease of communication, resulting from the use of aggregated data.</p> <p>Although not proactively involved in the development or operation of the scheme, NGOs view it positively – mainly as a source of information for inclusion in guidance such as the ‘Good Wood Guide’. NGOs have also reacted positively to the broad range of impacts covered by the Profiles which they regard as being comprehensive e.g. inclusion of toxicity data re PVC.</p>
<p>I. Interaction with:</p>	
<ul style="list-style-type: none"> <i>IPP & voluntary instruments eg EMS;</i> 	<p>Environmental profiles are seen by the BRE as the solution to information requirements for procurement activities related to construction materials in both the public and private sector. They therefore fit into the general framework of IPP in being an information tool which is actively used within procurement and eco-design (of buildings).</p>
<ul style="list-style-type: none"> <i>Regulatory information requirements eg safety data sheets.</i> 	<p>None.</p>
<p>J. Information sources: <i>Eg website, contact person, reports, etc.</i></p>	<p>Interview: Suzy Edwards, BRE, 27/03/02. http://www.bre.co.uk/ http://www.bre.co.uk/envprofiles http://www.bre.co.uk/recycle/index.html Report from Jane Anderson BRE at CEPMC Conference May 2001</p>

Table 1.3 Data Contents of BRE Environmental Profiles Database

x = data released

Material	Per tonne		Element Installed per m ²		Elemental 60 year Life	
	Inventory data	Impact data	Inventory data	Impact data	Inventory data	Impact data
Concrete Blocks (Aerated)	-	x	-	-	-	-
Granite, Limestone and Sandstone Aggregates	-	-	-	x	-	x
Brick	-	-	-	-	-	x
Cement	-	-	-	x	-	x
Clay Rooftiles	-	x	x	x	X	x
Concrete Blocks (dense)	-	x	-	-	-	-
Concrete Rooftiles	-	x	x	x	X	x
GGBS (Ground Granulated Blastfurnace Slag)	x	x	x	x	X	x
Glass Wool Insulation	x	x	x	x	X	x
Lime (Ground, Screened and Hydrated)	-	-	x	x	X	x
MDF (Medium Density Fibreboard)	-	x	x	x	X	x
OSB (Orientated Strandboard)	-	x	x	x	X	x
Particleboard	-	x	x	x	X	x
Mineral Wool Insulation	-	x	x	x	X	x
Roundwood	x	x	x	x	X	x
Sand and Gravel	-	-	-	x	-	x
Steel Reinforcement	-	-	-	x	-	x
UK Consumed Kiln Dried Timber	x	x	x	x	X	x

Table 1.4 Example of Inventory Profile Format for D1 and D3, Materials and Components Inventory Data, D5 Installed Element Inventory Data and D7 60 year Element Inventory Data.

INVENTORY PROFILE FORMAT	
APPROVED ENVIRONMENTAL PROFILE	
Environmental Profile of Inventory Data for:	Manufacture of 1 tonne/1 m3 [product]
Start Date	
End Date	
Source of data	e.g. aggregated responses of average data from 5 UK manufacturers
Geography	e.g. UK
Representativeness	e.g. Current practice in UK
LCA methodology	e.g. BRE
Allocation	e.g. 100% to Product

Date of Data entry	Text
Boundary	e.g. Extraction of Raw Material and production to Factory gate
Comments	Text
INVENTORY – Inputs	
Materials Input	tonnes
Water Use	
Water from Water Company	m ²
Water from Surface Water	m ²
Water from Ground Water	m ²
Energy Use	
Primary Energy	MJ
INVENTORY – Outputs	
Product	tonnes
Co-products, by products, other output for recycling/reuse	tonnes
Emissions to Air	grams
Emissions to Surface Water	
Water discharged to surface E.g. suspended solids	m ³ mg
Emissions to Sewer	
Water discharged to sewer	mg
Emissions to Land	
Emissions to landfill	kg
Emissions to incinerator	kg

See: <http://collaborate.bre.co.uk/envprofiles/example1.html> for further information

Table 1.5 *Example of Inventory Profile Format for Profiles D2, D4, D6 and D8.*

CHARACTERISED AND NORMALISED DATA PROFILE FORMAT
APPROVED ENVIRONMENTAL PROFILE
Environmental Profile of Characterised and Normalised data for (add product type/name):
Start date:
End date:
Source of Data:
Geography:
Representativeness:
LCA Methodology:
Allocation:
Date of Data Entry:
Boundaries:

Comments:

Quality of Data (select one):

1 tonne of product

1 square metre of building element installed

1 square metre of building element 60 year life

ISSUES	UNITS	CHARACTERISED DATA
Climate Change	kgCO ² eq. (100yr)	text
Acid Deposition	kgSO ² eq	text
Ozone Depletion	kg CFC ₁₁ eq	text
Pollution to Air: Human Toxicity	kg.tox.	text
Pollution to Air: Low level Ozone Creation	kg ethene eq.(POCP)	text
Fossil Fuel Depletion and Extraction	tonnes oil eq.	text
Pollution to Water: Human Toxicity	kg.tox.	text
Pollution to Water: Ecotoxicity	m ³ tox	text
Pollution to Water: Eutrophication	kgPO ₄ eq	text
Minerals Extraction	tonnes	text
Water Extraction	litres	text
Waste Disposal	tonnes	text
Transport Pollution & Congestion: Freight	tonne/km	text

ISSUES	ONE UK CITIZEN	NORMALISED DATA
Climate Change	12270 kgCO ₂ eq. (100yr)	text
Acid Deposition	58.88 kgSO ₂ eq	text
Ozone Depletion	0.29 kg CFC ₁₁ eq	text
Pollution to Air: Human Toxicity	90.7 kg.tox.	text
Pollution to Air: Low level Ozone Creation	32.23 kg ethene eq. (POCP)	text
Fossil Fuel Depletion and Extraction	4.085 tonnes oil eq.	text
Pollution to Water: Human Toxicity	0.02746 kg.tox.	text
Pollution to Water: Ecotoxicity	837600 m ³ tox	text
Pollution to Water: Eutrophication	8.006 kgPO ₄ eq	text
Minerals Extraction	5.04 tonnes	text
Water Extraction	417600litres	text
Waste Disposal	7.194 tonnes	text
Transport Pollution & Congestion: Freight	4140.84 tonne/km	text

IV.7

FINLAND RTS

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	<ul style="list-style-type: none"> - Finnish Building Information Foundation (RTS) (Rakennus=Building; Tieto=Information; Säätiö=Foundation) (a non profit institute based on and financed via a foundation. The foundation is a separate organisation from VTT), - Technical Research Centre of Finland (VTT), - Construction industry, together with producers of building products <p>The role of RTS is to create and keep information for building industry that designers and architects are using.</p> <p>The declaration is a common format.</p> <p>The information is gathered from product manufacturers.</p>

Characteristic	Description
<ul style="list-style-type: none"> • <i>Target group;</i> 	Business to Business, planners, procurement, architects, consultants, research and development. (Not end consumers) The construction industry use the information for designing and for their own environmental declaration purposes
<ul style="list-style-type: none"> • <i>Involvement of interested parties eg procurers, SMEs, NGOs;</i> 	The establishment of the Finnish system was driven by RTS and VTT together with SME: s but without participation of NGOs.
<ul style="list-style-type: none"> • <i>Consideration of inter-relationship with other tools when designing scheme.</i> 	Active actions have been taken to avoid any conflicts with other norms/ standards, etc. like Building Directive, Standardisation (New Approach), Development of a database for a simple and short program based on Excel 97: LCA-house + a database → Calculate the environmental profile of a whole building
B. Organisation and administration	
<ul style="list-style-type: none"> • <i>Time and cost of developing declarations including delaying factors;</i> 	500EUR for keeping the data in the website+ publishing the data within the format. Time and cost depends on the size of the project → No defined price. These projects are rather small projects and no big LCAs research projects. (~5000EUR) Approximate 2 weeks of work
<ul style="list-style-type: none"> • <i>Possibility for input from interested parties;</i> 	RTS have a working group with representatives of producers of products; construction industry; and others + VTT ~30persons are involved The role is to be a discussion forum for the discussion of the declaration systems and for putting up new research projects The role is also to check declarations as an in house control However the official role of the group is not clear
<ul style="list-style-type: none"> • <i>Third party control;</i> 	Verification by VTT (not 3 rd party) VTT checks the information <u>and</u> the results. However VTT is one of the format “owners” so it is not strictly an independent third party. VTT probably plays the double role of a LCA-reviewer and a third party verifier of the declaration at the same time.
<ul style="list-style-type: none"> • <i>Accreditation/ certification & accreditor training;</i> 	No certification
<ul style="list-style-type: none"> • <i>Quality control of data & programme;</i> 	Quality control by VTT
<ul style="list-style-type: none"> • <i>SMEs;</i> 	Yes, many producers of products are SMEs and that’s why the system/format should not be too heavy. SMEs were involved in the creation of the common format within RTS.
<ul style="list-style-type: none"> • <i>Mutual recognition.</i> 	No, it is not yet in place, but some efforts have been made to change information with Svensk Byggtjänst, Norges Byggeforsknings Institut (NBIN), no data has been exchanged so far.
C. Basis of data	
<i>Eg LCA methodology, LCI, life cycle considerations etc.</i>	LCI and {CO2 equivalent; Ethene equivalent; SO2 equivalent}. Data according to ISO 14040 The system will be changed into LCIA data
D. Declaration format	
<i>Eg format of the information, logo’s, etc.</i>	Product identification according to Finnish hierarchical system Producer information Material resources, Energy, Emission Inner air according to a Finnish classification Information about Recycling - instructions given by the producer Information about the calculations and how they were done; generic data with references, assumptions, etc. ISO14040 is followed in general. Especially 14041
E. Compliance with ISO:	
<ul style="list-style-type: none"> • <i>ISO 14025</i> 	Yes, in the way it deals environmental declarations based on LCA

Characteristic	Description
<ul style="list-style-type: none"> • <i>ISO 14020</i> 	Yes
F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i>	<p>Not much is done in order to market or promote the system.</p> <p>The format is a public format; any enterprise can use the format.</p> <p>Many companies have environmental declarations and programs which not have given the information back to the system because the format is free to use.</p> <p>The system is well known inside the companies.</p> <p>The awareness has been rather high for about 5 years and it is still high.</p> <p>There is a penetration in the market for the use of the format but still not all companies are giving back information; therefore figures about the penetration can be misleadingly low</p> <p>General information/education is given to but not together with the format</p> <p>Workshops and seminars inside the construction industry so the level of awareness is high generally speaking.</p> <p>No specific education for purchasers is given</p> <p>No format training is given</p>
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> 	<p>The product group is building products.</p> <p>Examples of products are:</p> <p>Light weight concrete bricks, lime sand bricks, mineral wool, concrete hollow hole slab, concrete elements; beams, concrete facade element, aluminium facade element, different kinds of mortars, gypsum boards, glass wool, kitchen equipment, chipboard, glued beams, Plywood board, sawn timber, different kinds of plywood boards, gravel, crushed aggregate concrete, two types of ready mixed concrete, steel pipes, steel beams, steel thin plates, steel roofing panes, light weight steel elements, asphalt board elements of different kinds(tar fibreboard for wind tightening purposes) Polyurethane insulation materials SPU, etc</p>
<ul style="list-style-type: none"> • <i>Participating companies including SMEs;</i> 	<p>Producers participate by providing data and using data. Many of these companies are SMEs. The information is for designers and consultants, etc.</p> <p>H + H Siporex Oy, Optiroc Oy AB, Paroc Oy Ab, Ormax Oy, Ekovilla Oy, Termex-Eriste Oy, Parma Betonila, Nordic Aluminium Oyj, Gyproc Oy, Isover Oy, Harjalvalta Oy, Isku Oy, Marcello-Keittiöt Oy, Metsäpuu Oy Domus Keittiöt, Nixi-Kaluste Oy, Topi-Kalustaja Oy, Puhos Board Oy, Finnforest Oy, Suomen Puututkimus Oy, Lohja Rudus Oy Ab, Rautaruukki Oyj, PPTH Teräs Oy, Rannila Steel Oy, Suomen Kuitulevy Oy</p>
<ul style="list-style-type: none"> • <i>Growth of system;</i> 	<p>The system is not growing but it still has a market penetration. However the information in the system is not growing, Due to the fact that the information is often used in companies outside, like companies who does not provide information back to the system, and therefore the information is not being put on the RTS website.</p>
<ul style="list-style-type: none"> • <i>Internal/external evaluation of effectiveness.</i> 	No measures or key factors are being used
H. Collected experience <i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	<p>PROGRESS project/programme is a reaction with many industrial parties involved</p> <p>Basic problem: difficult information to be used in design. It is good for verification but not in early stages of design.</p> <p>In addition other kind of tools is needed like indicators that can guide the design process.</p>

Characteristic	Description
	<p>For procurers LCA based data is not easy to use. The functional unit is often a difficulty that depends on the case And in this perspective the use of product specific data is necessary to compare element of building on functional unit basis SMEs are providers and users of data and need information No reactions from NGOs because it is business to business data</p>
I. Interaction with:	
<ul style="list-style-type: none"> • <i>IPP & voluntary instruments eg EMS;</i> • <i>Regulatory information requirements eg safety data sheets.</i> 	<p>No connections to IPP and other instruments, but LCA programs like Ecoquantum uses this kind of information. These programs need product specific information.</p> <p>Not using information from these sources or having interaction with them. (Only indirectly / authors remark)</p>
J. Information sources:	
<i>Eg website, contact person, reports, etc.</i>	<p>http://www.rts.fi/english.htm, http://www.rts.fi/ http://www.rts.fi/ymparistoselosteet/selostelista.htm Tarja Häkkinen, VTT Presentation of Tarja Häkkinen for CEPMC conference Conference presentations Nordic Workshop in Copenhagen: "Applications of environmental data, declarations for building materials"; Danish Building Research Institute SBI 306, 1998. (Consisting of short presentations; Markku Salmi from RTS describes the Environmental Declarations of Building Products, the Finnish system.)</p>

Annex V

Description of schemes in
the electrical and electronic
equipment sector

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	<p>Svenska IT-Företagen (the Association of the Swedish IT and Telecom Industry, formerly SITO), IKT in Norway and IT-Brancheforeningen (ITB) in Denmark jointly developed the Nordic Information Technology Organisation's (NITO) Eco-declaration in January 1996. Its development was driven by market needs in order to provide a standardised, and therefore comparable, format for answering the most frequently asked customer questions on the environmental performance or attributes of IT products.</p>
<ul style="list-style-type: none"> <i>Target group;</i> 	<p>Suppliers and customers.</p> <p>By providing the information in a standardised form, suppliers are able to provide a standard response to customer queries rather than spending significant time and effort in providing tailored responses to each individual query.</p> <p>For customers, receiving the information in a standardised format enables comparisons between different products and their environmental attributes.</p>
<ul style="list-style-type: none"> <i>Involvement of interested parties eg procurers, SMEs, NGOs, consumer organisations;</i> 	<p>Members of SITO, IKT and ITB were involved in the development of the eco-declaration.</p> <p>The declaration is regularly adjusted to incorporate changes in regulations, environmental standards, product features or market demands. In addition changes are made in response to comments from authorities, customers, users and other interested parties.</p> <p>According to IT Foretagen, since the start of the scheme in 1996, they have been very keen to ensure that users have confidence in the declaration. One way of ensuring this is by undertaking a survey, which is sent to both participating producers and users to obtain feedback on proposals for revisions to the declaration. In the last survey, approximately 20 different external interests were able to comment on the new proposal. These included representatives of major public procurers, environmental and public procurement authorities.</p>
<ul style="list-style-type: none"> <i>Consideration of inter-relationship with other tools when designing scheme;</i> 	<p>Later versions of the NITO declaration are adjusted to accord with the document 'Product-related Environmental Attributes' issued by the European Association for Standardizing Information and Communication Systems (ECMAS), TR/70, June 1999.</p>
<ul style="list-style-type: none"> <i>Time & costs of establishing the scheme.</i> 	<p>Detailed information on the costs of establishing the NITO declaration is not kept. The declaration was established without any external subsidies, instead it was developed using internal resources and was funded out of general membership fees for Svenska IT-Företagen, IKT and ITB. It is estimated that the initial start up involved 2 months of man-time (1 month Svenska IT-Företagen and 1 month external consultant). The external consultant was used to analyse public procurement enquiries.</p> <p>Svenska IT-Företagen estimates that the annual running costs are 600,000 Swedish Kroner. This covers revision to existing categories and development of new categories, quality control,</p>

Characteristic	Description
	information provision and so on.
	It is difficult to estimate the costs of developing additional product groups or revisions as these are not based on direct economic transactions. Instead the work is undertaken primarily by task groups, each comprised of 4-5 people from the scheme's member companies. These groups will typically meet 5 - 10 times during the course of developing a new or revised declaration.
	To assist with the latest revision to the declaration for IT products, they have hired a high school/university student for 6 months.
B. Organisation and administration	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> 	<p>The company pays an annual fee based on the company's total turnover for the product. This fee is calculated based on different 'bands' or categories of turnover. These bands are set at:</p> <ul style="list-style-type: none"> 0 - 49 million Swedish Kroner 50 - 99 million Kr 100 - 199 million Kr etc. <p>Based on these bands, the annual fee for member companies varies from 6,000 Kr to 32,000 Kr. Fees for non-member companies are some 30 - 40% higher, ranging from 8,600 to 45,000 Kr.</p>
<ul style="list-style-type: none"> <i>Possibility for input from interested parties eg procurers, NGOs, SMEs, consumer organisations;</i> 	<p>As stated above, the initial proposals developed by the task group will initially be circulated to all the scheme's members, and then after comments have been incorporated, they are circulated to 20-25 external organisations for further comment and revision. These external organisations are primarily potential or existing users of the declaration such as major public procurers and public procurement authorities (eg the Organisation of Swedish Municipalities and the Swedish Government's Procurement Agency) but also include environmental and regulatory organisations (eg the Swedish Environmental Protection Agency and Swedish Chemical Inspectorate).</p>
<ul style="list-style-type: none"> <i>Third party control;</i> 	<p>There are certain terms and conditions which companies must agree to comply with in order to use an eco-declaration. The declaration is issued by the manufacturer after signing an agreement with the relevant industry association (ie IT Företagen, IKT or ITB). By signing this agreement the company therefore agrees to abide by the terms and conditions. Amongst other things, the T&C require the company:</p> <ul style="list-style-type: none"> Upon request to at any time be able to document its stated fulfilment of environmental criteria by providing measured results or similar; To aid investigations in the event of complaints; To immediately remedy any shortcomings which have been discovered in the course of such an investigation.
<ul style="list-style-type: none"> <i>Accreditation/ certification & accreditor training;</i> 	None.
<ul style="list-style-type: none"> <i>Quality control of data & programme;</i> 	<p>On request, the company should be able to verify compliance by signed declaration from the manufacturer(s), including vendors/sub-contractors, OR third party document eg certificate, test report etc.</p> <p>There are two procedures by which IT-Företagen verify the quality and validity of the eco-declarations they issue. In both cases,</p>

Characteristic	Description
	<p>verification is carried out retrospectively as a 'check' procedure covering selected, rather than all, products carrying eco-declarations. It should also be noted that it is based on <i>document verification</i> and no tests or evaluations are performed on the products by IT Foretagen, IKT or ITB.</p> <p>1) Companies are randomly selected and asked to provide documentation. This method is much less resource intensive than requiring all companies to provide documentation with their applications.</p> <p>2) In addition to the ad-hoc testing, IT-F have undertaken verification studies. In these studies, each participating company is asked to answer a questionnaire and submit documentation on selected elements for up to four different products/models.</p> <p>The last study was completed on 3 July 2000 and covered the period June 1999 – May 2000. It asked companies to provide documentation on the following elements of the declaration: compliance with EMC Directive, emissions, use of brominated flame retardants and PVC. The study found that:</p> <ul style="list-style-type: none"> • 72% of declarations were correctly filled in and displayed the correct information; • 13% of the declarations had errors in the properties or were not correctly filled in; • 15% of the declarations had minor errors which resulted in corrective comments. <p>The full results of the study are available via the internet at http://www.itforetagen.se/pdf/SITO%20Verification%20Report.pdf.</p> <p>Another study is not expected to be carried out until 2004.</p>
<ul style="list-style-type: none"> • <i>SMEs;</i> 	<p>SMEs are able to access lower annual fee rates based on the turnover categories described above. There are no simplified declarations or any other measures specifically aimed at SMEs.</p>
<ul style="list-style-type: none"> • <i>Mutual recognition.</i> 	<p>None.</p>
<p>C. Basis of data</p> <ul style="list-style-type: none"> • <i>Eg LCA methodology (ISO 14040), LCI, life cycle considerations;</i> 	<p>According to IT-Företagen, the Nordic IT and telecomms industry has agreed that LCA is not an appropriate tool to describe environmental performance on an individual product basis. This is due to the complex content of IT and telecomms products (often involving components from hundreds of different suppliers) and rapid changes in product development. The sector consider Type 3 to be more relevant for raw material based products.</p> <p>As a result, the format of the eco-declaration and information therein is not based on specific LCAs but does cover the products' life cycle environmental impacts. The eco-declaration was designed from a market driven perspective and hence its format presents information based on customer information needs/requests which includes information on compliance with regulatory requirements. As such the eco-declaration contains 3 types of information:</p> <ol style="list-style-type: none"> 1. Response required (O) 2. Response required by law (O(\$)) 3. Voluntary information (V)

Characteristic	Description
	The legal requirements can be found in Danish, Norwegian and Swedish laws and ordinances. Non-legal requirements are based on international and/or industry standards, de facto standards or market requirements.
<ul style="list-style-type: none"> • <i>Stage of life cycle covered;</i> 	<p>All. For example:</p> <ul style="list-style-type: none"> • Raw materials – materials used and chemical content (flame retardants, heavy metals); • Design – use of environmental conscious design; • Manufacture – environmental policy, EMS, reporting; • Use – energy consumption, noise and air emissions; • Disposal – re-use or recycling system in place.
<ul style="list-style-type: none"> • <i>Basis of any additional non-LCA information.</i> 	See response above.
<p>D. Declaration format</p> <ul style="list-style-type: none"> • <i>Is an example available in electronic form;</i> 	<p>An example can be viewed at: http://www.itforetagen.se/Pdf/Eco-declaration-IT-eng.pdf Several companies have completed NITO declarations available on their internet sites, for example Hewlett Packard Sweden at: http://www.hp.se/index.phtml?id=257</p>
<ul style="list-style-type: none"> • <i>Format of the declaration eg quantitative/ qualitative information ;</i> 	<p>The declaration describes approximately 50 environmental aspects of the products. The declaration is primarily comprised of tick boxes to indicate whether a certain requirement has been fulfilled, but also contains a limited amount of quantitative data.</p> <p>For the IT declaration, quantitative information is provided for:</p> <ul style="list-style-type: none"> • Energy consumption; • Noise (sound power and pressure levels); • Emissions: dust, ozone, styrene (mg per metre cube); • Weight of product packaging.
<ul style="list-style-type: none"> • <i>Use of logo's & combination with company logo;</i> 	<p>A logo has been developed comprised of a globe and the words 'IT eco-declaration' in different languages which companies can use. There are few restrictions or conditions for how the logo should be used. In general, most EEE companies are wary of putting environmental logos on their products due to difficulties in identifying which national market the product will end up in (and hence which language should be used, or whether the logo is applicable to that market etc).</p>
<ul style="list-style-type: none"> • <i>Transparency - availability of background info on methodology/LCA</i> 	<p>The declaration is not based on LCA or a set methodology. Instead, it is developed by the task force as described above based primarily on the information needs of public and private procurers. Transparency is achieved via the subsequent consultation process.</p>
<p>E. Compliance with ISO 14020 series:</p>	<p>Given the nature of the declaration, the focus has been on ISO 14021 (Type II) rather than ISO 14025. The declaration was originally developed in January 1996, some years before ISO 14021 was finalized, and was driven largely by market needs. As the declaration is regularly updated and revised, the fifth version is currently being prepared and the working group has tried to follow the ISO 14021 standard in this case.</p> <p>However, it is also important to recognize the difference between the eco-declaration (which is a common/sectoral industry declaration) and a typical type 2 declaration in the form of an individual company declaration.</p>

Characteristic	Description
	The NITO declaration competes with Type I eco-labels such as TCO 99, EU flower, Blue Angel and Nordic Swan. This is illustrated by a document which compares these eco-label criteria against that of the NITO declaration – see http://www.itforetagen.se/pdf/Jamdok-IT%202000.pdf .
<ul style="list-style-type: none"> • ISO 14025 	No
<ul style="list-style-type: none"> • ISO 14020 	Yes via compliance with ISO14021.
F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i>	<p>Once a company registers, it is set out in the terms and conditions that the industry association (ie IT Foretagen, IKT or ITB) will:</p> <ul style="list-style-type: none"> • Create publicity concerning the eco-declaration scheme and the company's affiliation to the scheme; • Ensure that the company is registered on the official list of affiliated companies; • Provide a certificate of participation showing that the company is participating in the eco-declaration scheme.
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> 	<p>There are two separate declarations, one for IT products and one for Telecommunication products. These cover the following:</p> <p>IT products:</p> <p>Computer system unit (CPU) CRT display/monitor LCD display/monitor Keyboard Laptop computer Server Photocopier Scanner Fax machine Printers (laser, inkjet, matrix) Multi-function IT products</p> <p>Telecommunication products:</p> <p>Switchboard Radio system Network terminal (eg ISDN, Home LAN) Base station Mobile handheld unit Telephone (fixed) Router Telephone control equipment Antenna CLID display Answering machine</p>
<ul style="list-style-type: none"> • <i>Participating companies including SMEs;</i> 	<p>Table 1.1 below provides a list of participating companies in Sweden and the number of products with eco-declarations. Not all companies have provided information about the number of products carrying eco-declarations, however it is estimated that the Swedish part of the system covers 41 brands and about 1 600 products. At present, more than 1000 products with eco-declarations are available on the market.</p>
<ul style="list-style-type: none"> • <i>Growth of system;</i> 	<p>The current version of the declaration is the fourth since its inception in 1996. A working group is currently developing a revised, fifth version.</p>

Characteristic	Description
<ul style="list-style-type: none"> Internal/external evaluation of effectiveness. 	<p>In addition to receiving external feedback on proposed revisions to the scheme, the verification study is also used to identify problems experienced by participating companies. The 2000 survey found that, "Many IT products tend to be similar in construction and it seems that properties declared by 'yes/no' can be too coarse to give a good picture of the situation. To improve this, the declaration could be turned from yes/no to a value-declaration in some cases to distinguish the products. Otherwise the declaration can be seen more as another form of certificate or label, which it is not intended to be."</p>
<p>H. Collected experience Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</p>	<p>Environmental authorities have expressed their satisfaction with the eco-declaration scheme. In addition, their views on proposed revisions are actively sought via a survey.</p> <p>The high level of uptake and participation of most major multinationals is a good indicator of the scheme's success.</p> <p>Government procurers, agencies and environmental organisations all welcome the declaration. The declaration is seen as an indicator that IT-F, IKT and ITB have been pro-active in developing environmental information and this is welcomed by stakeholders. However, it should also be noted that some environmental NGOs support Type I or certified Type III declarations as their preferred form of product environmental information.</p>
<p>I. Interaction with:</p> <ul style="list-style-type: none"> IPP & voluntary instruments eg EMS, eco-design; Regulatory information requirements eg safety data sheets. 	<p>According to IT-Företagen, the eco-declaration is "a good example of Industry self regulation well in line with EU's new approach and the CE-marking system".</p> <p>The eco-declaration contains information which confirms that the product complies with certain regulatory requirements (Danish, Norwegian and Swedish laws and ordinances). For example, the declaration for IT products asks companies to confirm that:</p> <ul style="list-style-type: none"> the product does not contain CFCs, HCFCs, asbestos, PCB or PCT; ink does not contain cadmium; any batteries defined as hazardous are labelled according to EU Directive 93/86/EEC; the product is CE marked; the product meets the Low Voltage Directive (LVD); the product meets the EMC Directive on electromagnetic compatibility; <p>etc.</p>
<p>J. Information sources: Eg website, contact person, reports, etc.</p>	<p>Bjorn Axelsson, Swedish IT & Telecom Industry http://www.itforetagen.se/itmiljodeklaration/ http://www.nito.no/</p>

Table 1.1 *List of participating companies in Sweden*

Company	Product	Number of products each company has declared**
Acer Computer Sw. AB*	Personal Computer (PC)	11
APC Sweden AN*	Uninterrupted power supply (UPS)	
Apple Computer AB*	Personal Computer (PC)	

Brother Intern. Sw. AB	Fax machines Printers	15
Canon Svenska AB	Photocopiers Fax machines Printers Multi-function IT products	83
Carl Lamm AB	Photocopiers Fax machines Multi-function IT products	55
Comex Electronics AB*	Personal Computer (PC) Printers	2
Compaq Computer AB	Personal Computer (PC)	43
Danka Sverige AB	Photocopiers Printers Multi-function IT products	40
Dell Computer AB*	Personal Computer (PC)	
DGC Systems AB*	Personal Computer (PC) Printers	
DORO Sverige AB	Telecommunication (telecom) products	
Eizo Nordic AB*	Personal Computer (PC)	
Ericsson, Telefon ABLM	Telecommunication (telecom) products	
EUD Teknik AB*	Personal Computer (PC) Printers	
Fujitsu Siemens Computers AB	Personal Computer (PC) Servers, work stations	31
Gestetner AB	Photocopiers Fax machines Printers Multi-function IT products	30
Hewlett-Packard Sv. AB	Personal Computer (PC) Printers Servers, work stations Multi-function IT products	171
IBM Svenska AB	Personal Computer (PC) Printers Servers, work stations	100
Integris AB	Personal Computer (PC)	
Kyocera Mita Svenska AB	Photocopiers Fax machines Printers Multi-function IT products	17
Lex Mark Sverige	Printers	17
Minolta BES AB	Photocopiers Fax machines Printers	11
Network Technical AB	Personal Computer (PC)	8
OCE Svenska AB	Photocopiers	
OKI Systems (Sw.) AB	Printers Fax machines Multi-function IT products	58

Olivetti Lexikon Nordic AB*	Photocopiers Fax machines	
Panasonic Svenska AB*	Personal Computer (PC) Photocopiers Fax machines	14
Samsung Electronic Svenska AB*	Personal Computer (PC)	
Scribona Brand Alliance AB	Photocopiers Fax machines Multi-function IT products	25
Sekvencia AB	Personal Computer (PC)	
Sharp Electronics (Nordic) AB	Photocopiers Printers Fax machines	54
Skanova	Telecommunication (telecom) products	
Solid*	Passersystem	
Sun Microsystems AB	Personal Computer (PC)	
Telia Nara AB	Telecommunication (telecom) products	4
Toshiba DM AB	Personal Computer (PC)	45
Unisys AB	Printers Servers, work stations	
Vice Computer AB*	Personal Computer (PC) Servers, work stations	3
Wolber AB	Photocopiers Multi-function IT products	30
Xerox AB	Photocopiers Printers Fax machines Multi-function IT products	101

* Not members of IT-företagen

** Not all companies have stated the number of products. However, approximately 1600 products in total are estimated to carry a NITO eco-declaration.

Annex VI

Description of schemes in the paper and pulp sector

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	<p>In the middle 90's, the CPPA's (Canadian Pulp and Paper Association; CPPA changed name to the Forest Product Association of Canada, FPAC, in 2001) reviewed existing market surveys and a questionnaire was sent to twenty North American and European pulp and paper buyers to verify the CPPA's understanding of market demands. Three key messages emerged from the review:</p> <ul style="list-style-type: none"> Companies are increasingly selling products on the basis of one or more environmental attributes; Companies are increasingly seeking environmental information associated with product life cycles; Environmental claims are considered more credible when verified by an independent authority. <p>In the basis of these key issue, the EPDS scheme started to be developed. The scheme aims to be a standardized method for communicating reliable environmental information regarding production of pulp and paper products. The purposes are:</p> <ul style="list-style-type: none"> to help the members to determine and handle their own environmental impacts; to be able to give the customers scientific data for use at environmental labelling and environmental procurement (type I and II). to demonstrate the willingness of the members to commit themselves to full openness; to give the members advantages with regard to competition at the international market; to give the members the possibility of continuous improvement of own environmental aspects.
<ul style="list-style-type: none"> <i>Target group;</i> 	<p>The target group of the declaration are professional customers, i.e. buyers of paper pulp and paper products. These are mainly public procurers. Secondary target groups are NGOs and people with various professional interest in pulp and paper products.</p>
<ul style="list-style-type: none"> <i>Involvement of interested parties eg procurers, SMEs, NGOs, consumer organisations;</i> 	<p>When the development of scheme started in 1995, the CPPA decided to establish a steering group with participants from NGOs, consumer groups and industry representatives. Later during the process, when the basic structure of the scheme had been developed, experts with specialist knowledge in areas covered in the context of the scheme were consulted.</p>
<ul style="list-style-type: none"> <i>Consideration of inter-relationship with other tools when designing scheme;</i> 	<p>No interrelationships with other schemes were formally considered during the establishment phase. However, the information collected for an EDPS declaration is partly the same information that has to be collected when applying for a type I label.</p>
<ul style="list-style-type: none"> <i>Time & costs of establishing the scheme.</i> 	<p>The total time for developing guidelines and actual format of declaration was approximately two years. The cost was estimated to be CAD 200 000-250 000 (EUR 145 000-180 000).</p>
B. Organisation and administration	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> 	<p>The scheme is developed by the CPPA in co-operation with TerraChoice Environmental Services Inc.</p> <p>The declarations are always based on data from a time period of 12 months and have to be revised every year. Naturally, the time for collecting and structuring data for a declaration depends on the level of sophistication of the company in question. The average is</p>

Characteristic	Description
	<p>be 2.5 weeks person hours, spread over a time period of approximately 2 months.</p> <p>Examples of costs for declaring one product is CAD 10 500 (EUR 7600) per year and for three products CAD 19 500 (EUR 14 100) per year.</p>
<ul style="list-style-type: none"> • <i>Possibility for input from interested parties eg procurers, NGOs, SMEs, consumer organisations;</i> 	<p>There is no formalised forum for input from interested parties, although there is an ongoing review process in which the need for e.g. a steering group as a forum for input from interested parties will be evaluated.</p>
<ul style="list-style-type: none"> • <i>Third party control;</i> 	<p>All EPDS declarations are verified by TerraChoice. EPDS auditors are internally trained for this purpose.</p>
<ul style="list-style-type: none"> • <i>Accreditation/ certification & accreditor training;</i> 	<p>At present time, TerraChoice is licensed by FPAC to run the program. Since the EPDS scheme is not formally connected to any national or international standard and is not a part of any other program, why accreditation of certifiers is not applicable.</p>
<ul style="list-style-type: none"> • <i>Quality control of data & programme;</i> 	<p>The EPDS's User's Guide, which is maintained and updated by FPAC through TerraChoice, provides manufacturers with detailed step by step instruction of what is required to accurately complete an EPDS. The EPDS is then verified against this methodology. The user's guide describes and outlines the product system and boundaries, definitions of environmental parameters, inventory methodology, allocation principles, required calculations, reporting mechanisms and requirements for independent verification.</p>
<ul style="list-style-type: none"> • <i>SMEs;</i> 	<p>Administrative and organisational routines have not been developed with SMEs specifically in mind. Even though pulp and paper producers are often very large companies, there is no formal hinder for smaller companies to join the program. However, the cost and the amount of time it takes to collect the data for a declaration may be an implicit barrier. The cost may not be reduced due to the size of an affiliated company, but it would probably be possible to organise special paying plans for SMEs.</p>
<ul style="list-style-type: none"> • <i>Mutual recognition.</i> 	<p>FPAC does not officially recognise any other product declaration schemes as equal to the EPDS, even though the national EPD schemes in Sweden and in Italy are very similar.</p>

C. Basis of data

- *Eg LCA methodology (ISO 14040), LCI, life cycle considerations;*

The development of the scheme guidelines has been combined with the Canadian guidelines for LCIA: paper pulp and paper production (CSA, 1996) in connection with selection of relevant environmental impacts. The LCIA guidelines are based on the methodology in the 14040 series.

Companies developing declarations are supported by the EPDS User's Guide that gives instructions in systematic data collection and data processing.
- *Stages of life cycle covered;*

All life cycle stages from harvesting/forestry to the gate of the site where the product is manufactured are covered. Use and disposal are not covered.
- *Basis of any additional non-LCA information.*

Except for quantitative LCA information and general information about product and manufacturer, the following information must be stated:

 - Possible EMS, environmental/sustainability reporting and sustainable forest management system;
 - Ownership of forest land;
 - Forest management plans;
 - % of natural forest and native/non-native species;
 - Fibre use, fibre type and raw fibre source.

Characteristic	Description
D. Declaration format	
<ul style="list-style-type: none"> • <i>Is an example available in electronic form;</i> • <i>Format of the declaration eg quantitative/ qualitative information ;</i> 	<p>Yes. Most affiliated companies post their declarations on their homepages. The FPAC or TerraChoice do not publish any declarations on their own websites.</p> <p>The declaration is a standardised format of four pages with the following headlines:</p> <ul style="list-style-type: none"> • Product/manufacturer information • Corporate Environmental Management Attributes • Forestry Attributes of Raw Fibre Source (manager of forest land, forest management plans, forest renewal) • Resource Attributes (fibre use, fibre type, raw fibre source, energy use, water use) • Process Attributes (liquid effluents, solid waste, air emissions) • Other Information <p>All above headlines are specified in more detail in the EPDS. On the last page of the declaration, a verification statement by TerraChoice and some explanatory footnotes on the different sections can be found.</p> <p>In a proposed revision of the EPDS, the order of the headlines have been switched so that most of the quantitative information can be found in the beginning of the declaration. The purpose is to make it easier to compare two different declarations and make it more user friendly.</p>
<ul style="list-style-type: none"> • <i>Use of logo's & combination with company logo;</i> • <i>Transparency - availability of background info on methodology/LCA</i> 	<p>At present time, the format does not allow for company logos. However, the proposed revision of the EPDS has a specific place on the declaration where the company logo can be inserted. Information about the scheme, the EPDS User's Guide and information about verification procedures etc. is publicly available. At the moment, none of this can be found on any website and must be personally acquired through TerraChoice.</p>
E. Compliance with ISO 14020 series:	
<ul style="list-style-type: none"> • <i>ISO 14025</i> • <i>ISO 14020</i> 	<p>There is no outspoken compliance with ISO14025. However, the EPDS scheme was one of the schemes consulted and examined when developing the Technical Report. There might be advantages for the EPDS scheme to be fully compliant with ISO14025, but no adjustments will be made until ISO14025 is an approved international standard. Then, each possible change to the EPDS scheme has to be judged with respect to the usefulness to the pulp and paper sector and other interested parties.</p> <p>The same reasoning as for ISO14025 applies.</p>
F. Marketing and Promotion	
<p><i>Eg Awareness raising, purchaser education, training etc.</i></p>	<p>Marketing and awareness rising activities carried out by Terrachoice involve presentations to industry, large procurers and NGOs and at international conferences. It also includes training for industry groups. Some large producers have internal training sessions for marketing staff on how to use EPDS in marketing activities.</p>
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> • <i>Participating companies including SMEs;</i> • <i>Growth of system;</i> • <i>Internal/external</i> 	<p>Pulp, paper and paperboard.</p> <p>So far, 21 big mills owned by 5 large pulp and paper companies are using EPDS.</p> <p>The system has grown 10-20% each year since it was first released.</p> <p>TerraChoice and FPAC have received a lot of valuable feedback</p>

Characteristic	Description
<i>evaluation of effectiveness.</i>	from industry and other parties. The ongoing review process aims at making EPDS easier to use and to improve the auditing process, for example with combinations of audits for EPDS and ISO14001.
H. Collected experience	
<i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	The reactions from interested parties including affiliated companies and their customers as well as NGOs, have been very positive. TerraChoice is continuously getting feedback from these parties on improvement possibilities. Since not many SMEs are involved, neither as producers nor as customers in the pulp and paper business, no immediate reactions have been received from this segments.
I. Interaction with:	
<ul style="list-style-type: none"> <i>IPP & voluntary instruments eg EMS, eco-design;</i> 	The EPDS concept allows a close interaction with environmental management systems, as it is a reporting tool for environmental performance and therefore measures the effectiveness of the EMS. The data collected for an EPDS declaration is also of valuable use when applying for a type I label. EPDS has not been known to interact with any activities in the product development stage so far. The use of EPDS for such purposes might be looked at in the current review process.
<ul style="list-style-type: none"> <i>Regulatory information requirements eg safety data sheets.</i> 	Regulated flows have to be stated in the verification process together with the regulating authority in each specific case. In this way, the declaration functions as a summary of regulated in- and outflows for the company behind the declaration. In the development of the EPDS format, the steering group had the format of MSDS (Material Safety Data Sheet) in mind to provide a possibility for the users to draw parallels between the two.
J. Information sources:	
<i>Eg website, contact person, reports, etc.</i>	www.terrachoice.ca Susan Herbert, TerraChoice Environmental Services Inc.

VI.2

PAPER PROFILE SCHEME

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	Several large pulp and paper manufacturers had experienced customer requests for more detailed product information. Type I labels had not been a sufficient means of communicating product information. Especially among business-to-business customers, there was an outspoken need for a sector specific tool for communication of environmental aspects of pulp and paper products. The decision to develop the Paper Profile was not based on the initiative of a single organisation, but on the fact that the situation had matured to a point where a group of companies were able to address the issue collectively. Since the companies follow their customer feedback in a very organised manner, the need for more information was explicitly registered by many different companies. In addition, some of the sectoral committees provided a forum for companies to discuss the emerging needs and to begin working on Paper Profile. The idea of the Paper Profile arose and was developed within a forum of the Finnish Forest Industries Federation (FFIF) and the

Characteristic	Description
	Swedish Forest Industries Federation (Skogsindustrierna). In the initial stages of the project, the Federation of Norwegian Process Industries (PIL) was also participating.
<ul style="list-style-type: none"> • <i>Target group;</i> • <i>Involvement of interested parties eg procurers, SMEs, NGOs, consumer organisations;</i> • <i>Consideration of inter-relationship with other tools when designing scheme;</i> • <i>Time & costs of establishing the scheme.</i> 	<p>The target group is primarily business-to-business customers.</p> <p>The project group included European manufacturers, suppliers, customers and other sectors within the pulp and paper sector. Most of these parties operate on the global market.</p> <p>To a large extent, the information in the declarations can be verified when e.g. verifying the environmental management systems at the mills if the company in question decides to have a third party verification.</p> <p>The development work for the Paper Profile lasted about 3 years. Thousands of working hours in single organisations/companies during the three year period led to the final declaration format. A more exact estimation on the cost is impossible to make according to the Finnish Forest Industries Federation.</p>
B. Organisation and administration	
<ul style="list-style-type: none"> • <i>Time and cost of developing declarations including delaying factors;</i> • <i>Possibility for input from interested parties eg procurers, NGOs, SMEs, consumer organisations;</i> • <i>Third party control;</i> • <i>Accreditation/ certification & accreditor training;</i> • <i>Quality control of data & programme;</i> • <i>SMEs;</i> • <i>Mutual recognition.</i> 	<p>The proper establishment/application of the scheme in a company or a mill takes about 1-5 months depending on the size and production process at the mill.</p> <p>All the relevant stakeholders can participate in the yearly review process of the scheme. Ideas and requests for further improvements of the scheme are possible and welcome from all stakeholders. However, there is no formal forum where external parties can give their input, although it will be possible for anyone to submit comments via the Paper Profile website starting spring 2002.</p> <p>An verification of the declaration by a certification body is recommended but no third party control is obligatory.</p> <p>Not applicable.</p> <p>The data in the Paper Profile is verified in the verification process of the EMS of the mills. Harmonisation of the implementation is being planned between the participating companies.</p> <p>If a mill has an EMS, the scheme is relatively easy to apply. Even in the case of SMEs, all pulp and paper mills have to maintain a certain size for reasons of profitability in a capital intensive sector. In other words, there are no small mills, but there might be companies in the possession of only one or two mills. The companies taking part in the Paper Profile initiative vary considerably in size.</p> <p>Other similar schemes do not exist in the sector.</p>
C. Basis of data	
<ul style="list-style-type: none"> • <i>Eg LCA methodology (ISO 14040), LCI, life cycle considerations;</i> 	<p>No standards are referred to in the descriptions of the methodology. Allocation within a mill must be production-line specific in such a way that data of all co-processes add up to 100% of the total emission load of the site. Information may be based on annual averages. Furthermore, allocation must be based on a cause-effect approach (e.g. air emissions of a power plant should be allocated to different paper machines at the site based on the power plant steam used by the paper machines.)</p>

Characteristic	Description
	The life cycle of the product is considered to a certain level. The important production and product parameters of the product during its life cycle, as judged by the participating companies, are included in the scheme. A strict LCA approach would not have responded to the needs of the customers since these are mostly well-educated professionals to whom the data in a Paper Profile declaration is more informative than any LCA information.
<ul style="list-style-type: none"> • <i>Stage of life cycle covered;</i> 	Emissions from both pulp and paper production are to be included in the declaration. The declaration also includes relevant aspects of forest management and wood procurement. All operations at the mills from receiving the raw material through to wastewater treatment and waste disposal shall be included.
<ul style="list-style-type: none"> • <i>Basis of any additional non-LCA information.</i> 	Product composition must be stated with respect to chemical pulp, mechanical pulp, pulp from recovered fibre, other pulp, pigments and fillers, binders and moisture. The declaration may also include information about the approach of environmental management and the year of any certificates. However, this is not compulsory.

D. Declaration format

<ul style="list-style-type: none"> • <i>Is an example available in electronic form;</i> 	A template for the Paper Profile is available on http://www.paperprofile.com/ . The declarations made by individual companies can in some cases be found on the companies' own website. The general Paper Profile site does not display declarations for individual companies.
<ul style="list-style-type: none"> • <i>Format of the declaration eg quantitative/ qualitative information ;</i> 	The declaration format must contain information about: <ul style="list-style-type: none"> • Product • Company • Site • Data collection time period • Information about environmental management • Environmental parameters <ul style="list-style-type: none"> • Water emissions (COD, AOX, N_{tot}, P_{tot}) • Air emissions (SO_2, NO_x, fossil CO_2) • Product composition • Grid electricity • Contact details
<ul style="list-style-type: none"> • <i>Use of logo's & combination with company logo;</i> 	The Paper Profile logo is to be used together with a company logo in a Paper Profile declaration to make the link between the declaration and the Paper Profile initiative. The company logo indicates that the company itself is responsible for the information given in a Paper Profile declaration. Individual companies may only use the logo for this specific purpose. To be able to use the logo elsewhere, permission must be given by the owner of the trademark.
<ul style="list-style-type: none"> • <i>Transparency - availability of background info on methodology/LCA</i> 	The document "Instructions for environmental product declaration for the pulp and paper industry - Paper Profile" can be found on the Paper Profile website. The document describes the scope of the declaration, general data aspects and what directions apply for different types of data.

E. Compliance with ISO

14020 series:

<ul style="list-style-type: none"> • ISO 14025 • ISO 14020 	The Paper Profile initiative does not claim to be compliant with the ISO 14020 series
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F. Marketing and Promotion

Eg Awareness raising, purchaser education, training etc.

The Paper Profile was launched in June 2001. The companies using and supporting the scheme have marketed and spread the word about the Paper Profile to their customers. The Paper Profile customer brochure is translated into ten different languages. The web site includes the basic information in English.

Characteristic	Description
	Some companies have informed their stakeholders of the declaration in their annual environmental reports. Some form of reporting by the companies is likely to arise in the future, when the system has been in use for a longer period. Paper Profile material can and has been used to support the companies environmental reporting.
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> • <i>Participating companies including SMEs;</i> • <i>Growth of system;</i> • <i>Internal/external evaluation of effectiveness.</i> 	<p>All paper products are covered by the scheme.</p> <p>The following companies have given their support for the initiative. However, not all of them are using it at the moment at their mills: Holmen AB, Klippan AB, M-real Corporation, Myllykoski Paper Oy, Norske Skog, Sappi Fine Paper Europe, Stora Enso, Trebruk AB and UPM-Kymmene Corporation.</p> <p>The system was launched in June 2001. The system has only taken its very first steps and the first revisions will take place in spring/summer 2002.</p> <p>Since the scheme was launched recently, no evaluation has been conducted so far.</p>
H. Collected experience	
<i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	The feedback received so far has been very positive. The comments given to the companies using the Paper Profile have been encouraging. Therefore, the companies are confident that the Paper Profile will spread and have more users in the future.
I. Interaction with:	
<ul style="list-style-type: none"> • <i>IPP & voluntary instruments eg EMS, eco-design;</i> • <i>Regulatory information requirements eg safety data sheets.</i> 	<p>Being a voluntary scheme designed to give information about the environmental aspects of paper products, the scheme fits well under the IPP scope. Companies declaring products according to the Paper Profile can use the declarations in connection to public procurement.</p> <p>Information about environmental management and possible third party verification is included in the declaration.</p> <p>Eco-design is more directed towards the manufacturing industries, not process industries. Consequently, the Paper Profile will not be used in connection to product development.</p> <p>The Paper Profile scheme does not interact with any regulatory information requirements.</p>
J. Information sources:	
<i>Eg website, contact person, reports, etc.</i>	<p>http://www.paperprofile.com/</p> <p>Mr Heikki Hamunen, Finnish Forest Industries Federation (FFIF)</p> <p>A customer brochure also exists, and some company specific flyers for customers.</p>

Annex VII

Description of the schemes in the textiles sector

Characteristic	Description
A. Establishment	
<ul style="list-style-type: none"> <i>Instigator/driving forces;</i> 	<p>IVN (Internationaler Verband der Naturtextilwirtschaft, International Natural Textile Association) includes 90 members of the textile industry along the textile chain, including SMEs. IVN is holder of the program and issues a license after a successful application.</p> <p>The driving force was the final consumer's concern about health, environmental and social issues, e.g. toxic chemicals in the product, type of agriculture for producing the raw materials and child labour.</p>
<ul style="list-style-type: none"> <i>Target group;</i> 	<p>The main target group is the final consumer.</p>
<ul style="list-style-type: none"> <i>Involvement of interested parties eg procurers, SMEs, NGOs;</i> 	<p>Interested parties, such as other trade members, retailers and NGOs were involved in developing the extensive guideline. There was no mentioning of government participation.</p>
<ul style="list-style-type: none"> <i>Consideration of inter-relationship with other tools when designing scheme.</i> 	<p>No interrelationships with other schemes were considered during the establishment phase.</p>
B. Organisation and administration	
<ul style="list-style-type: none"> <i>Time and cost of developing declarations including delaying factors;</i> 	<p>Development of program: The development of the program lasted from the start of the discussion to the first labels in total 3 years (1997-2000).</p> <p>IVN grew out of the working group 'Arbeitskreis Naturtextil' (AKN). This working group hired one fully paid project manager. After the first declarations were out and IVN was newly founded, the project was finalised. Further work then took place on a voluntary basis. Now IVN is confronted with a growing interest in the declaration project and will probably hire a project manager again.</p> <p>Cost of declaration: The cost depends on the location of the company and the expenditure of work (e.g. travelling costs, cost for certification..). An approximate value is about 1000 Swiss Francs, but this can vary considerably.</p>
<ul style="list-style-type: none"> <i>Possibility for input from interested parties;</i> 	<p>After the input into the development of the guidelines, no specific input into the process of declarations from interested parties is intended. However there is an advisory board within the IVN that includes branch members and NGOs but has no government representatives. The advisory board meets regularly and among other topics discusses issues related to the declaration.</p>
<ul style="list-style-type: none"> <i>Third party control;</i> 	<p>An accredited verifier checks the information. Verification includes audits at different sites along the production chain. After a successful audit, a license is issued which certifies compliance with the rules of the program.</p>
<ul style="list-style-type: none"> <i>Accreditation/ certification & accreditor training;</i> 	<p>The verifier needs an accreditation as auditor and as certifier under Regulation EEC 2092/91 on organic production of agricultural products and indications referring thereto on agricultural products and foodstuffs.</p>
<ul style="list-style-type: none"> <i>Quality control of data & programme;</i> 	<p>The 'Best-Better' guideline is very specific on how to fulfil data requirements, but the licensee has liability for data quality.</p>

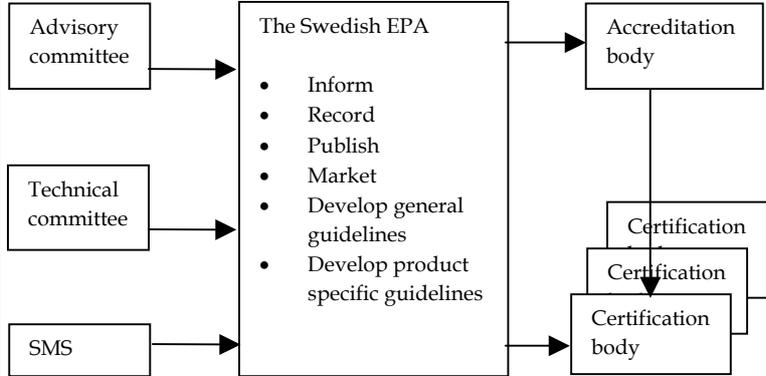
Characteristic	Description
<ul style="list-style-type: none"> • <i>SMEs;</i> • <i>Mutual recognition.</i> 	<p>SMEs are taking part in the scheme.</p> <p>There is no mutual recognition with other declarations.</p>
<p>C. Basis of data <i>E.g. LCA methodology, LCI, life cycle considerations etc.</i></p>	<p>Data of all product life cycle phases is taken into account in the guidelines. But the data considered is not explicitly LCA data. For the raw material production it is stated whether it is in accordance with EEC regulation 2092/91.</p> <p>The focus of the declaration is informing the final consumer. The IVN considered an LCA produced by 'Hess-Natur' to identify hot spots, which mainly related to toxicity issues, not the typical impact categories of an LCA. Discussion is ongoing within IVN to include LCA data into the declaration, because it is recognised that inventory categories like energy use and their related emissions are also important impacts in the textile chain.</p>
<p>D. Declaration format <i>Eg format of the information, logo's, etc.</i></p>	<p>There are two levels of compliance 'best' or 'better', with 'better' often being only slightly below the 'best' performance. The product carries a label "best" or a label "better" and a control number. The control number gives access to a file containing the complete information required by the guideline. This information is sent out on request to anyone. It is not available on the Internet. The declaration contains in terms of environment</p> <p>Part 1: Product related requirements</p> <ul style="list-style-type: none"> • Basic requirements <ul style="list-style-type: none"> – Statement of toxicity, degradability, elimination of ancillary materials – Conformity with black list of chemicals, generic • Conformity with criteria for raw material IFOAM or EEC reg. 2092/91 • Conformity with criteria for manufacturing <ul style="list-style-type: none"> – Conformity with criteria for dyeing – Conformity with black list and/or limits for dyes and related chemicals – Conformity with black list of confectioning – Declaration of accessories, conformity with materials' black list – Declaration of full account of all used materials and their declarations • Use and maintenance • Statement of conformity with standards: sensitivity to light, sweat, ironing etc. • Description of storage • Description of transport • Description of end of life, e.g. recycling possible <p>Part 2: Quality assessment, program related requirements Conformity statement with the rules of the program</p> <p>It is planned to publish a 'product pass' to go with the product. The information to be declared in this pass is not yet decided upon.</p>
<p>E. Compliance with ISO:</p>	<ul style="list-style-type: none"> • <i>ISO 14025</i> Compliance with ISO 14025 is not intended. • <i>ISO 14020</i> Compliance with ISO 14020 is not intended.
<p>F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i></p>	<p>There is an internet presentation of the program.</p> <p>IVN members are offered training programs on how to fulfil the requirements.</p>

Characteristic	Description
G. Status of implementation:	
<ul style="list-style-type: none"> <i>Product groups covered;</i> <i>Participating companies including SMEs;</i> <i>Growth of system;</i> <i>Internal/external evaluation of effectiveness.</i> 	<p>The intention is that all products along the textile chain are considered. In that case the final product can be claimed to be environmentally preferable.</p> <p>SMEs are participating to a very high percentage in the scheme. About 100 companies are already certified.</p> <p>The declaration system grows steadily.</p> <p>There is no evaluation.</p>
H. Collected experience	
<i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i>	A growing interest in the declaration is noticeable. But there is no experience documented. This will be part of future developments.
I. Interaction with:	
<ul style="list-style-type: none"> <i>IPP & voluntary instruments eg EMS;</i> <i>Regulatory information requirements eg safety data sheets.</i> 	<p>An interaction with IPP is not intended, whereas EMS information is included.</p> <p>Regulatory information as well as SHE information is included in the declaration requirements.</p>
J. Information sources:	
<i>Eg website, contact person, reports, etc.</i>	<p>www.naturtextil.com</p> <p>Markus Brügel, Institut für Marktökologie</p>

Annex VIII

Description of the Swedish EPD scheme

Characteristic	Description
A. Establishment <ul style="list-style-type: none"> • <i>Instigator/driving forces;</i> 	<p>In Sweden an official environmental product declaration system is established (Certified Environmental Product Declaration, EPD™). This system is set up in a similar way as the technical report regarding environmental product declarations prepared by ISO.</p> <p>The instigator behind the initiative was the Swedish business sector, which today is still one of the driving forces for the scheme together with the Swedish government.</p> <p>The purpose of the EPD scheme is to deliver environmental documentation to meet various information needs:</p> <ul style="list-style-type: none"> • Within the supply-chain • About end products • General information to marketing and information departments <p>The Swedish EPA established regulations for Type III declarations, which describe:</p> <ul style="list-style-type: none"> • Fundamental conditions of the system • Organization of the system and the involved parties • Conditions which shall be fulfilled by companies and organizations as well as accreditation, certification and registration organs • Information which shall be a part of a certified environmental product declaration • Registration procedures • Information and marketing regulations • Follow-up on certified environmental product declarations <p>The basis for preparation of environmental product declarations in Sweden is product specific guidelines that form a part of a hierarchical structure:</p> <ol style="list-style-type: none"> 1. Product specific guidelines 2. "Regulations for certified environmental product declarations" (the Swedish Environmental Protection Agency) 3. ISO/TR 14025 "Environmental labels and declarations - Type III environmental declarations" 4. ISO 14040-43 Life cycle assessment
<ul style="list-style-type: none"> • <i>Target group;</i> • <i>Involvement of interested parties eg procurers, SMEs, NGOs;</i> • <i>Consideration of inter-relationship with other tools when designing scheme.</i> 	<p>The target group for the environmental product declarations is primarily professional purchasers within public institutions and companies as well as private companies.</p> <p>Interested parties have been involved in the establishment of the scheme and are still involved in its running (see below).</p> <p>The scheme was established purely as an Type III EPD scheme and other tools were not formally considered.</p>
B. Organisation and administration <ul style="list-style-type: none"> • <i>Time and cost of developing declarations</i> 	<p>The applicant finances preparation of a life cycle assessment for relevant products/services. Beyond this, the applicant pays a</p>

Characteristic	Description
<p><i>including delaying factors;</i></p> <ul style="list-style-type: none"> • <i>Possibility for input from interested parties;</i> • <i>Third party control;</i> • <i>Accreditation/ certification & accreditor training;</i> • <i>Quality control of data & programme;</i> • <i>SMEs;</i> 	<p>registration fee of 10,000 SEK and a yearly fee of 0.1 ‰ of the “improvement work” (which is an expression of the value increment that the applicant adds to the product/service) minimum 10,000 and maximum 25,000 SEK. There are no expenses at adjustment of information or new certification.</p> <p>The Swedish environmental product declaration system is organised as an actor chain. The central organisations are accredited certification bodies and a registration body. <i>SWEDAC</i> (the Agency for Accreditation and Technical Control) manages the accreditation of the certification bodies; the accreditation is made for one or more product areas (decided by the product-specific guidelines). The certification bodies are responsible for controlling the companies that have certified environmental product declarations. The Swedish Environmental Management Council administrates the EPD System.</p> <p><i>AB Svenska Miljöstyrningsrådet</i> (the Swedish Environment Management Council) manages the registration function, among this being incentive for the system, informing about system and regulations, managing the secretary function in the advisory and the technical committee, preparing product specific guidelines, registering and publishing certified environmental product declarations. They co-operate with SMS (the Swedish Material and Mechanics standard) on the development of product-specific guidelines.</p> <p>An advisory committee and a technical committee support the registration body. The advisory committee consists of representatives from Government departments and authorities, industry and trade, standardisation organisations, accreditation companies, representatives of certification bodies, consumer, as well as environmental NGOs. The committee takes the overall decisions about the preparation of product-specific guidelines, prepares the basis for a possible revision of the scheme and contributes to the promotion of the scheme. The Technical committee consists of LCA experts. The committee assesses new product-specific guidelines, prepares the technical (LCA etc.) basis for a possible revision of the scheme and participates in the implementation of new developments on LCA methodology in the Swedish system. The organization is illustrated below:</p>  <ul style="list-style-type: none"> • <i>Mutual recognition.</i> <p>The Swedish scheme is in mutual recognition with the Italian scheme (they are virtually the same) and is currently discussing mutual recognition with the Canadian EPDS scheme.</p>
C. Basis of data	

Characteristic	Description
<i>Eg LCA methodology, LCI, life cycle considerations etc.</i>	The data basis for the EPDs is an LCA of the products and services in question. The LCA shall be carried out in accordance with ISO 14040-14043; among these, data collection, processing, evaluation and interpretation shall be reviewed in accordance with the standards.
D. Declaration format <i>Eg format of the information, logo's, etc.</i>	<p>The environmental product declaration shall be built-up in three blocks:</p> <ol style="list-style-type: none"> 1. Description of importer/manufacturer, description of product/service as well as a possible list of contents 2. Presentation of environmental information 3. Other information from company or certification body including a possible recycling declaration <p>The environmental information shall contain facts about consumption of resources, emissions and possible environmental impacts as well as information about waste.</p> <p>There is not a fixed format of the declaration. In first instance the focus has been on getting started and also to give flexibility to the companies producing EPDs. However, discussions are ongoing to establish a more fixed format. Companies have the possibility of using a logo with the following contents:</p> <p><i>EPD™ "This product/service has a CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION consisting of a description of <u>XXX</u>, contents and recycling which is examined and approved by ... according to regulations MSR 1999:1 Registration number: S-P-xx."</i></p> <p>Environmental product declarations that affect private consumers have another choice of words:</p> <p><i>EPD™ "This product/service has a CERTIFIED ENVIRONMENTAL PRODUCT DECLARATION which gives facts about environmental characteristics without assessing these. The declaration has been examined and approved by that it complies with regulations MSR 1999:1 and thus has got registration number S-P-xx."</i></p> <p>Compared with private consumers, reservations on the environmental quality of the product/service are made by emphasising that the declaration gives facts about environmental characteristics but that they are not assessed.</p> <p>As an option, the declaration can carry a special EPD logo showing that the declaration is certified. This logo also contains information about who has examined and approved the declaration.</p>
E. Compliance with ISO:	
<ul style="list-style-type: none"> • ISO 14025 • ISO 14020 	<p>Yes.</p> <p>Yes.</p>
F. Marketing and Promotion <i>Eg Awareness raising, purchaser education, training etc.</i>	The system is primarily promoted through the official Swedish homepage for Environmental Management Market. Each EPD is presented on the homepage in either Swedish or English or both languages.
G. Status of implementation:	
<ul style="list-style-type: none"> • <i>Product groups covered;</i> 	At present 19 PSRs are approved and 27 EPDs are registered.

Characteristic	Description
<ul style="list-style-type: none"> • <i>Participating companies including SMEs;</i> • <i>Growth of system;</i> • <i>Internal/external evaluation of effectiveness.</i> 	<p>Ongoing work with development of product specific guidelines includes the following products/product groups/services: cars, electricity and district heating production including power (planted heat), chemicals (chemical products), paper and paper pulp, electrical machines, engines ("variable speed drives"), IT services as well as switches ("high voltage disconnectors; 36-550 kV, 800-4000 A"). The work is partly initiated by co-operations between manufacturers/trade associations partly by individual companies.</p> <p>The registered EPD are mainly for products marketed in Sweden but also products from Finland, Poland, and Japan have a EPD registration.</p> <p>Not undertaken so far.</p>
<p>H. Collected experience <i>Eg industry reaction, perception of users, procurers, SMEs, NGOs etc.</i></p>	<p>Experiences with the Swedish EPD scheme are not published. However, the scheme is one of the fastest growing schemes in Europe (if not worldwide) which indicates that at least the industry seems happy with participating in the scheme.</p>
<p>I. Interaction with:</p> <ul style="list-style-type: none"> • <i>IPP & voluntary instruments eg EMS;</i> • <i>Regulatory information requirements eg safety data sheets.</i> 	<p>Interaction with public procurement.</p>
<p>J. Information sources: <i>Eg website, contact person, reports, etc.</i></p>	<p>www.environdec.com Sven-Olof Ryding, Swedish Environment Management Council Kristina Sandberg, SIS</p>

Annex IX

People contacted during the research

Table IX.1 *Overview of people contacted for country descriptions*

Sector	Organisation	Contact Person
Canada	TerraChoice	John Polak
Denmark	dk-TEKNIK	Leif Hoffmann
France	Rohm & Haas	Phillip Wetterwald
Germany	Umweltbundesamt	Hans-Herman Eggers
Italy	APAT	Francesco Tarisciotti
Japan	JEMAI	Zenichi Murata
Norway	Confederation of Norwegian Business and Industry	Björn Sveen
South Korea	Korean Environmental labelling Association	Jung Jong-Yeon
	Korean Environmental labelling Association	Seoung-Shik Moon
Sweden	Swedish Environmental Management Council	Sven-Olof Ryding
	SIS	Kristina Sandberg
	SIS	Lars Jonsson
United Kingdom	DEFRA	Bob Ryder

Table IX.2 *Overview of people contacted for sector descriptions*

Sector	Organisation	Contact Person
Automotive	Volvo Cars	Bo Ljungström
	Volvo Cars	Agneta Wendel
	Volvo Cars	Christer Larsson
	Volvo Trucks	Rolf Willkrans
	ACEA	Hans-Martin Lent-Phillips
	BIL Sweden	Karin Kvist
Chemicals	AISE/Henkel	Rainer Rauberger
	AISE/Henkel	H.J. Klüppel
Construction	AIMCC/Rohm & Haas	Phillip Wetterwald
	AUB	Ludwig Wagner
	Product Engineering, Univ. Stuttgart	Johannes Kreissig
	MRPI	Agnes Schuurmans
	MRPI	Roger Goes
	SIA	Johann Frei
	VTT Finland	Tarja Häkkinen
	UK Building Research Establishment	Suzy Edwards
UK Building Research Establishment	Susheel Rao	
Electrical & Electronic Equipment	TCO	Jan Rudling
	TCO	Arne Nilsson
	NITO/Swedish IT & Telecom Industry	Björn Axelsson
	IBM UK	Stephen Bushnell
	ECMA/Kodak Ltd	Greg Batts
	Sun Microsystems	Roy Reed
Energy & Transport	EK Jørgensen	Ninkie Bendtsen
	Bombardier	Åsa Lithen
	DSB Miljø	Rikke Næraa
Food	CIAA	Elizsabeth Comere
	BioZert	Mrs. Häusler
Packaging	Europen	Julian Carroll
	SCA Packaging	John Swift
Paper & Pulp	CEPI	Annick Carpentier
	ETS	Phil Mogel

Sector	Organisation	Contact Person
	EPDS/TerraChoice	Susan Herbert
	Paper Profile/Finnish Forest Industries	Hekki Hamunen
Textiles	Institut für Marktökologie	Marcus Brügel
	IVN	Udo Westermann
Tourism	UNEP	Oliver Hillel
	International Eco-tourism Association	Fergus Maclaren