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FINAL REPORT OF THE TASK FORCE ON ENVIRONMENTAL PRODUCT PROFILES

Submitted by the delegation of the Netherlands,
lead country of the Task Force */

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*/ Pursuant to a decision taken by the Senior Advisers at their sixth session (ECE/ENVWA/29, para. 41 (b) and annex III, programme element 03.3.3). Apart from minor editorial changes, the document is reproduced in the form it was received by the secretariat.

Preface

1. As a follow-up to the ECE Seminar on Low-waste Technology and Environmentally Sound Products held in The Hague (Netherlands) in 1989, the Senior Advisers to ECE Governments on Environmental and Water Problems entrusted a Task Force with the Netherlands as lead country to prepare criteria, principles and guidelines for establishing environmental product profiles (EPPs). At their sixth session in March 1993, the Senior Advisers invited the Task Force to finalize the preparation of a report on the subject for consideration at their next session (ECE/ENVWA/29, para. 41 (b) and annex III, programme element 03.3.3).

2. In preparing the work of the Task Force, the lead country circulated a questionnaire beforehand addressed to the participants of the Task Force and analysed information contained in replies covering, inter alia, the following issues:

(a) Experience with EPPs for manufacturers in a number of ECE countries;

(b) Product information systems in closely related areas;

(c) Suggestions on aspects and systems of product information;

(d) The role of Governments and governmental instruments in connection with (a) and (b);

(e) International aspects of EPPs.

3. The meetings of the Task Force were attended by experts from Austria, Denmark, Finland, Germany, Netherlands, Slovakia, Sweden, United Kingdom as well as by representatives of the Industry and Environment Programme Activity Centre (IE/PAC) of the United Nations Environment Programme (UNEP), the Organisation for Economic Co-operation and Development (OECD), the International Organization for Standardization (ISO) and the ECE secretariat. Experts were also designated from Israel, Poland, Russian Federation, and the United States of America.

4. In its first meeting (April 1991, Geneva) the Task Force agreed upon a definition of EPPs and formulated some general objectives and conditions. During its second meeting (September 1992, The Hague) different experiences in ECE countries in exchanging information on environmental aspect of a product were discussed. Finally, at its third meeting (June 1993, The Hague) the Task Force discussed the findings of case-studies conducted in the Netherlands and agreed on a set of draft recommendations to ECE Governments.

5. This final report of the Task Force contains conclusions and draft recommendations to ECE Governments with respect to the content and implementation of EPPs. The draft recommendations benefit from the experience gained in the case-studies on product information exchange that have been conducted in the Netherlands. The report describes the objective of an EPP, guidelines with regard to the information that should be incorporated in EPPs and some considerations on implementing an information exchange system like EPP. The main objective of EPPs is to facilitate the exchange of information on environmental issues between producers and professional users.

6. The Senior Advisers at their seventh session (30-31 May 1994) may wish to

take note of this report, adopt its recommendations, thank the Task Force on EPPs and decide on a proper follow-up. Such a follow-up could, alongside further pilot studies to gather practical experience, include a recommendation to start promotional activities to implement EPPs in the ECE member States. The ECE secretariat could be requested to take the initiative for such an exercise. The results of the Task Force on EPPs could also be formally recommended to UNEP/EI/PAC, OECD, ISO and other international organizations working on product-oriented environmental policies.

I. GENERAL DISPOSITIONS FOR AN EPP

7. The Task Force reached a common understanding on the definition of an environmental product profile being "an objective set of relevant environmental information relating to a product and aspects of its life cycle, especially for producers and professional users (e.g. wholesalers and government procurement agencies)".

8. The Task Force concluded that EPP, with the ultimate target of promoting sustainable development, should aim at:

- (a) Reducing hazardous substances, emissions and waste and promoting the rational use of natural resources and recycling;
- (b) Increasing environmental responsibility;
- (c) Improving environmentally sound product design and contributing to the closure of life cycles;
- (d) Stimulating innovations in products and production processes and other measures promoting sustainable development;
- (e) Enhancing materials and energy efficiency.

9. In order to decide upon the kind of information that should be incorporated in EPP, the following major conditions should be met:

- (a) Fundamental conditions:
 - (i) The information should refer to hazardous substances, emissions and wastes and to the use of energy and resources;
 - (ii) The information should present a generic description of the main environmental factors in the product chain as a whole, but should also provide the possibility of focusing on specific environmental aspects or elements of the product-chain;
 - (iii) An EPP should be presented in a form that is as simple and as understandable as possible to all parties involved;
 - (iv) EPPs should be designed and developed by the users, who should also evaluate the need for appropriate expertise;
- (b) Practical conditions:
 - (i) Environmental product information should be verifiable, reliable and internationally exchangeable;

- (ii) The exchange of environmental product information should be consistent with existing related initiatives carried out by manufacturers;
- (iii) As a management tool, EPP should be economically feasible and advantageous for the manufacturers who provide it;
- (iv) The exchange of environmental product information should be in harmony with existing instruments in areas which are closely related and in compliance with prevailing regulations (environmental policy and freedom of information).

10. Regarding the scope of an EPP, the Task Force agreed that:

(a) EPPs are meant for product manufacturers and their distributors. Their possible use in a broader context - such as ecolabels - will have to be carefully examined by all parties involved;

(b) The main users of an EPP should be the purchasing departments of firms; however the information may concern most other departments such as: product design, process engineering, marketing, etc.;

(c) The sales departments should be responsible for sending out EPP information, which they collect from the relevant departments within the firm.

11. The Task Force made the following suggestions regarding the guidelines for developing EPPs:

(a) An EPP should be based on a consistent internationally oriented methodology;

(b) EPP methodology should be harmonized at the industrial branch level and not at the level of individual industrial companies;

(c) An EPP should preferably be based on Life Cycle Assessment.

12. Several reasons can be enumerated for developing EPP when other related information systems already exist:

(a) An EPP is directed to producers and professional users in particular, while ecolabelling is directed to consumers;

(b) EPPs provide professional users with regularly updated information on the overall environmental descriptors of products. Among other things, this information is useful when certification for "best environmental performance" is sought in the form of an ecolabel that addresses consumers;

(c) An EPP can, in principle, be developed for all products, while ecolabelling is restricted to limited numbers of marketable products;

(d) Unlike EPP, ecolabelling analyses a product group, develops a set of environmental criteria, judges a product on these criteria and reduces the environmental product information;

(e) An EPP is flexible regarding the changing insights into environmental aspects, policy priorities and technological developments;

(f) EPPs can make ecolabelling more efficient, e.g. by providing regularly updated and extensive information on all the components of a product;

(g) EPPs can contribute to decision-making within firms or companies and among designers about the environmental aspects of products. They can also serve customers and suppliers who wish to improve the environmental performance of their products;

(h) EPPs can contribute to the development of pollution prevention strategies within firms.

II. EPP IMPLEMENTATION: MAIN CONSIDERATIONS

A. Introduction

13. On behalf of the Netherlands Ministry of the Environment three case-studies on product information exchange were conducted by the TNO Centre for Technology and Policy Studies together with TAUW Infra Consult BV. The objective of this research project was to gain experience with designing a structured exchange of environmental information about products between manufacturers involved in the Life Cycle of (a specific group of) products.

14. The main part of the research project consisted of three experiments with information exchange performed in close cooperation with manufacturers. Three (groups of) products were selected: printer ribbons, roofing plates and carpets. In the selection of these cases, the product group or the company under scrutiny was checked against several criteria. Amongst others, these criteria refer to the level of environmental expertise within the company, and the complexity of the product chain. The annex presents a more detailed description of research design and results.

B. Observations from the case-studies

15. The research team has taken the above-mentioned objectives and guidelines formulated by the Task Force as a starting-point in developing the content and presentation of the EPPs tested in the case-studies. Consequently, the EPPs presented information on one or more steps in the product chain, including the extraction of natural resources, the transformation of raw materials into primary materials, the production of basic chemicals and intermediates. It was simulated that each manufacturer within the product chain would develop the EPP for his link of the chain.

16. Also, each EPP was built upon its predecessors: the EPP of the production of an intermediate product includes a summary of the EPPs of earlier links of the product chain: the extraction of natural resources, the transformation of raw materials into primary materials and the production of basic chemicals. All EPPs of one product chain enclosed a description of the whole product chain and a list of the EPPs developed, as well as the relevant addresses/contact persons.

17. The purchasing departments and the sales departments of firms are the main actors in the exchange of EPPs between producers and professional users. As to the actual use of the information within each firm, however, other departments are more relevant, such as: product design, and safety and environment.

18. Although most respondents preferred concise information, all respondents expressed a sceptic attitude in response to the statement that the information of an EPP should preferably be limited to one or two pages. A one-or two-page summary was commonly regarded useful, but more detailed information should be available if necessary. Most respondents added that the reasoning behind the selection of information should be verifiable; for instance by means of a more substantive background report, containing the detailed information.

19. The position a firm takes within the product chain was found to influence its specific need for environmental information. Especially respondents from companies in close contact with the consumer (i.e. wholesale trade) expressed a need for concise and simple information. They evaluated the EPPs from the viewpoint of their costumers: in what environmental information might the consumer be interested? Several respondents referred to the system of environmental labelling or 'ecolabelling' 1/. A few respondents even preferred one grade for all environmental aspects together. This last group of respondents had problems understanding the quantitative information presented in the EPPs. They preferred grades because of their concise and simple nature. It should be mentioned, however, that most respondents did not agree with this viewpoint.

20. In contrast, manufacturers of primary materials and intermediates more often preferred detailed information. These companies evaluated the EPPs from their own viewpoint: what information might be useful to us? Some respondents regarded the information as a potential support of their environmental management activities. Other respondents assessed the usefulness of EPPs in view of product innovation. In addition, EPPs were regarded useful in view of official requirements for information provision under national or international regulations.

21. All the EPPs developed presented concise information as follows:

- General information about the product, the production process and the manufacturer;
- Specific information regarding the use of energy and resources, significant releases from the product's manufacture and significant hazardous substances.

In the interviews it was found that all the items mentioned in paragraph 27 (d) were seen as useful. The environmental data, in particular, were regarded important.

22. In order to test different ways of presenting environmental data, two approaches have been compared: an indicator-oriented approach and a substance-oriented approach. In the EPPs that were based on an indicator-oriented approach, the environmental data were presented quantitatively in terms of environmental indicators. Per product unit the amount of energy used, and the amount of several categories of emissions and waste products were quantified. Although, in general, quantitative data were regarded useful, most respondents felt that the way in which the data were presented did not have any meaning. They lacked the expertise to understand the quantitative indicators without a lengthy explanation about the reasoning behind the methodology and about the reliability of the resulting data.

23. It was found that, in the short term, the substance-oriented approach seemed more promising. In the EPPs that were based on a substance-oriented approach, the names of all primary materials and additives used were

mentioned, as well as the names of chemical substances emitted to soil, water and air. For each substance a quantitative indication was given of the amount used or emitted per product unit. This type of information resembles the information demanded by those companies which have already taken their own initiatives in asking their suppliers for environmental information. However, since some of the information (e.g. the names and amounts of additives) might be advantageous for their competitors, confidentiality is an important issue in the substance-oriented approach.

24. If an EPP only comprises an inventory of the environmental aspects of a product and its life cycle, it does not provide starting-points for environmental improvement. According to all respondents a minimum requirement with respect to the content of an EPP is that it should point out the most important (potential) environmental effects. So, in addition to an inventory of environmental aspects, an EPP should enclose an evaluation of environmental priorities. Particularly respondents of companies in close contact with the consumer expressed the need for a set of criteria by means of which it is possible to point out the main environmental aspects. Several of these respondents explicitly asked for the official environmental standards set for the topics addressed.

25. Up to now, no structured system exists that brings together the environmental expertise of all companies active within one product chain. The implementation of EPPs might provide an important instrument for promoting sustainable development. Since most companies focus solely on the environmental implications of their activities, the exchange of EPPs may make a vital additional contribution to the reduction of the use of energy and natural resources, and the reduction of emissions and wastes in the product chain as a whole. We found that, in general, the potential users of environmental product profiles are in favour of exchanging EPPs. However, we also found that most companies are not prepared to provide detailed information that might be advantageous to their competitors. Therefore, authorities should take a cautious step-by-step approach in the implementation of EPPs. In close cooperation with manufacturers and their professional organizations the content and presentation of environmental product profiles should be developed.

III. CONCLUSIONS

26. The Task Force, through its meetings, and the careful examination of the case-studies on the use and implementation of EPPs presented by the Netherlands, reached the following conclusions:

(a) The implementation of EPP requires a step-by-step approach; through learning by doing the system can gradually be elaborated;

(b) The experts concluded that no similar activities concerning EPP were performed within intergovernmental organizations, although activities are undertaken in related areas, such as:

- (i) Certification systems (international certification bodies);
- (ii) Material safety data sheets (international standardization bodies);
- (iii) Environmental labelling (OECD, European Union and the Nordic Council of Ministers).

So far, only a few companies have taken the initiative to ask their suppliers for environmental data or have developed 'environmental report cards' or product dossiers on the basis of information collected throughout the life cycle of their products;

(c) With respect to the issue of verification, the data contained in the EPP should rely on the existing uniform standardized common practices and should be well documented, referring to the data sources used. In the introductory phase of EPP no formalized verification procedures are necessary, but in the course of time these should be taken into account seriously;

(d) Concerning the strategy to be followed, it is important to develop EPP at an international level. In order to stimulate international initiatives, countries will have to make efforts at a national level. There is a strong need for cooperation between Government and industry in developing and implementing EPP;

(e) EPPs cannot be restricted to end-products only. Every link in the product chain needs to add its own information to that of previous links. The EPP is a tailor-made system adjusted to the particular product chain at stake. In the first instance it will be a document designed to exchange information between suppliers, producers and professional users and not a document for informing the public about products. The provision of EPPs is of particular relevance when business contracts have to be renewed or amended;

(f) EPP should be developed on a voluntary basis, so as to:

- (i) Evaluate the extent of spontaneous participation of industry;
 - (ii) Allow time for industry to adapt to the system and define it coherently with the needs of involved parties;
 - (iii) Promote a steering process by market forces;
- (g) The (potential) benefits of EPP are, inter alia:
- (i) To allow the environmental benefits of the product to be better understood by suppliers, producers and professional users;
 - (ii) To increase the efficiency of energy and materials use in processes and products;
 - (iii) To reduce the environmental impacts of the products;
 - (iv) To stimulate networking between companies within a product chain;
 - (v) To provide information that may be used to reduce liability risks;
 - (vi) To improve the health and safety conditions of the workers;
 - (vii) To encourage a responsible, environmental behaviour of firms;
 - (viii) To support environmental management activities within firms.

Particular attention should be paid to the costs of implementing EPP, especially for small and medium-sized firms;

(h) The implementation of EPPs might provide an important instrument for promoting sustainable development. Since most companies focus solely on the environmental implications of their own activities without considering subsequent production phases, the exchange of EPPs will make an additional contribution to the reduction of the use of energy and natural resources, and the reduction of emissions and wastes in the product chain as a whole. Up to now, no structured system exists that brings together the environmental expertise of all companies active within one product chain;

(i) In the long run, EPPs could create advantages for Governments in the application of existing policy tools (e.g. ecolabelling) or in the development of new environmental policy tools (e.g. tax-differentiation; structured provision of environmental information to consumers).

IV. DRAFT RECOMMENDATIONS TO ECE GOVERNMENTS

27. It is proposed to the ECE Governments that:

(a) The development of Environmental Product Profiles (EPPs) should be promoted for all steps in the product chain, including the extraction of natural resources, the transformation of raw materials into primary materials, the production of basic chemicals and intermediates; each manufacturer within the product chain should develop the EPP for his link of the chain. Also, each EPP should build upon its predecessors: the EPP of the production of an intermediate product should include a summary of the EPPs of earlier links of the product chain; the extraction of natural resources, the transformation of raw materials into primary materials and the production of basic chemicals. Each step in the product chain should be described in a similar way and every EPP along one product chain should enclose a description of the whole product chain and a list of the EPPs developed, as well as the relevant addresses/contact persons;

(b) Because product chains may vary widely with respect to both the type of relevant information and the diversity of the manufacturers involved, the EPP should be tailored according to the particular product chain;

(c) In order to build up experience with EPPs, this information exchange system should be introduced step-by-step beginning with a simple system of information exchange and gradually extending the system based on the experiences gained in the course of time. The simple system could include the following information:

(i) Description of the product:

- a. A list of types of materials and substances composing the product;
- b. Quantities per product unit of hazardous substances for which, according to international regulation (e.g. EEC list of dangerous substances and preparations annexed to Directive 67/548/EEC and Directive 76/464/EEC), it is imperative to supply a material safety data sheet;
- c. General history/origin of the product and packaging;
- d. Life cycle stage (raw materials, manufacturing, use, waste management);

(ii) Environmental data:

- a. Relevant data about the environmental policy of the manufacturer (e.g. data about standards, regulations and licences applied to the product and about the company's environmental management system);
- b. Relevant (preferably quantitative) information and guidance for interpretation of the most important environmental aspects of the product and its life cycle;

(iii) Process-technology data:

A simple description and flow sheet of the technology used in preparing the product;

(d) In the long run the content of an EPP should contain, in principle, the following information:

(i) Description of the product:

- a. Quantities (e.g. materials, compounds and substances) per product unit;
- b. Specifications (e.g. physical/chemical properties) of the product, preferably in quantity;
- c. History/origin of the product and packaging in general (e.g. percentage of recycled material content);
- d. Life cycle stage (raw materials, manufacturing, use, waste management);

(ii) Environmental data:

- a. General data (e.g. data about standards, regulations and licences applied to the product and about the company's environmental management system);
- b. Company-specific data based on a sector-specific, user-friendly check-list similar to those used in simplified Life Cycle Assessment (LCA) (e.g. the use of energy and resources, significant releases (air, water and solid waste) from the product's manufacture, use and disposal and significant hazardous substances);

(iii) Process-technology data:

A simple description and flow sheets of the technology used in preparing the product;

(iv) Guidelines for, inter alia:

- a. Using the product (including the life span);
- b. Repairing the product;
- c. Recycling and reusing the product and packaging;
- d. Final disposal of the product and packaging;
- e. Packaging the product;

(e) The EPP system should be established as a voluntary system. Governments should take the lead in initiating and promoting EPPs. The development and implementation of EPP should be done primarily by manufacturers supported by Governments and research institutes. EPP should not be considered a legal instrument in its own right, but one of the instruments

in the process of self-regulation in industry. In the course of time, an assessment should be made of whether a voluntary system is effective, especially with respect to:

- (i) EPP as an environmental management tool;
 - (ii) The degree of participation of industry in the implementation of EPP;
- (f) After the initial implementation of EPP, it is recommended to improve its application through a review and assessment of its use in a variety of product chains and sectors. It is advised to involve the manufacturers and their organizations in this process. Based on the results of the review and assessment, it can be decided in what way and sequence additional information can be included in EPPs;
- (g) The credibility and success of EPPs should be enhanced by harmonization of this procedure at the international level. In this process the possible effects of harmonization on international trade should be taken into account;
- (h) Following the review and assessment of the implementation of EPPs, appropriate measures should be taken to support small and medium-sized firms and countries in transition;
- (i) Governments, international organizations (e.g. UNEP, OECD, ISO) and industrial trade organizations should be actively involved in developing the appropriate EPP system and evaluating the progress made in the course of time.

Note

1/ Environmental labelling refers to the use of labels for the purpose of informing the consumer and thus promote those consumer products which have been found to be more environmentally sound than other similar products.

Annex

SUMMARIES OF CASE-STUDIES ON ENVIRONMENTAL PRODUCT PROFILES

1. On behalf of the Netherlands Ministry of the Environment three case-studies on product information exchange were conducted by the TNO Centre for Technology and Policy Studies together with TAUW Infra Consult BV. The objective of this research project was to gain experience with designing a structured exchange of environmental information about products between manufacturers involved in the life cycle of (a specific group of) products 1/.

2. The research project consisted of three experiments with information exchange performed in close cooperation with manufacturers. Three (groups of) products were selected: printer ribbons, roofing plates and carpets.

A. Product chains studied

3. The printer ribbons are manufactured in a company with limited environmental expertise. The product chain is simple. Although the printer ribbon itself consists of multiple parts (e.g. steel springs, ribbon, ink, polystyrene box), these parts are all assembled by the manufacturer of the final product.

4. In contrast, the product chain of roofing plates is more complex. A large oil company supplies pentane and styrene to a company manufacturing polystyrene. Several other companies supply other semi-manufactured products (e.g. polyethylene film, chipboard and polyurethane kit) to the company that manufactures the final roofing plates. The environmental expertise at the company manufacturing the final plates is substantial. Important is also the fact that this company and several of its suppliers and buyers are all members of the same holding.

5. The product chain for the type carpets studied starts with chemical companies producing nylon (polyamide) fibres and polypropene. The next link in the chain is the manufacturer of the carpet. On a primary backing of polypropene the nylon fibres are knotted. This 'preliminary' carpet is then coloured. Subsequently several layers of styrene-butadiene rubber are attached and finally the secondary backing of the carpet, produced from polypropene.

B. Research design and methodology

6. Each experiment consisted of two phases. In the first phase TAUW Infra Consult B.V. made an inventory of the product chain, resulting in a 'process tree' mentioning all companies, materials and (semi-manufactured) products that are part and parcel of the life cycle of the product. For selected companies the environmental impact was assessed in a quantitative manner, at least as far as possible. TAUW Infra Consult B.V. applied what can be called a "screening" life cycle analysis. In this approach quantitative data are presented by means of environmental indicators representing the priority topics from the Netherlands National Environmental Policy Plan. The set of indicators addresses issues like the consumption of raw materials, energy consumption, greenhouse gas emissions, emissions of gases contributing to acidification, and wastes. This approach resulted in environmental product profiles in which quantitative indicators play a crucial role.

7. In the second phase, the TNO-Centre for Technology and Policy Studies discussed the EPPs with a large number of key individuals in the companies producing raw materials, semi-manufactured products and end-products. Structured interviews have been conducted in order to test the product information presented against the requirements concerning the content and presentation of environmental product information, as well as to gain insight into the specific information needs of the respondents. A check-list of questions was developed as a guideline for these interviews. Some of the main questions were:

(a) Does the information give an accurate picture of the environmental pollution connected with the product and its life?

(b) In order for this kind of product-information system to function properly, what minimum requirements would you set for environmental product information on products that are to be purchased?

(c) Does the package give you new information? If so, what? Or does its added value lie particularly in offering an overview of knowledge you already had?

(d) Are you considering any action as a result of the (new) information? (If so, what?)

(e) What information on your products do you think is important and should be passed on to the buyer of your products? What is the minimum information you wish to pass on? (How far does this deviate from the information that seems important?)

(f) Is the time required to read and process the information reasonable given the benefits which the product information offers you?

(g) Are you able to check sufficiently how the environmental data and assessments in the package were created?

(h) Do you have any other comments on the package regarding matters not yet covered?

The interviews have been conducted with the managing director of the company, the head of the purchase or sales department, or the head of the environmental and safety department. In some of the minor companies these positions were taken by one individual.

C. Present information exchange

8. Up to this moment a structural system for the exchange of environmental information on products between producers does not exist in the Netherlands. The existing information systems focus on information exchange within companies (environmental management systems), on information from producers to consumers (environmental labelling), or do not focus at all on environmental aspects (i.e. certification systems, material safety data sheets). Consequently, in our case-studies we found limited experience with the exchange of environmental information with suppliers and buyers. Some companies had taken the initiative to send a check-list to their suppliers with questions about environmental characteristics of the compounds and materials supplied and about the implementation of an environmental care system. Others had never communicated about environmental aspects with

companies in their product chain. It is partly because of this limited experience that we did not come across a clear and well expressed need for environmental information. Nor did any of our respondents define clearly why providing environmental information to other companies within the product chain would be advantageous. With respect to the provision of information several respondents even took a somewhat defensive stand. Although they welcomed detailed information from their suppliers, they themselves were not prepared to provide detailed information that might be advantageous to their competitors. These observations indicate that, at this moment, the potential users of environmental product profiles in general perceive the exchange of EPPs with a slightly positive attitude, but have numerous questions as to the potential drawbacks that providing information might have.

D. Content and presentation of Environmental Product Profiles

9. The EPPs developed in each of the case-studies provided information on one or more steps in the product chain, including the extraction of natural resources, the transformation of raw materials into primary materials, the production of basic chemicals and intermediates. It was simulated that each manufacturer within the product chain would develop the EPP for his link of the chain. Also, each EPP was built upon its predecessors: the EPP of the production of a intermediate product include a summary of the EPPs of earlier links of the product chain. All EPPs of one product chain enclosed a description of the whole product chain and a list of the EPPs developed, as well as the relevant addresses/contact persons.

10. In order to compare different ways of presentation, three versions have been developed.

(a) EPP based on environmental indicators. In the case-studies on printer ribbons and roofing plates, the environmental product profiles were based on an environmental indicator approach. The EPPs consisted of the following:

- A colophon, which also made reference to the sources of the information, plus the name of the person to contact for additional information;
- A table of contents;
- A description of the product, including its main applications, the technical specifications and the material composition;
- Technological process data, including a short description of the raw materials used in the manufacture of the product and their origins, as well as a description of the production process, plus the environmental management activities of the company;
- Environmental data.

This approach covered two versions which differed with respect to the level of data aggregation. In the shorter version (approximately 5 to 10 pages) the environmental data consist of an environmental matrix presenting the (potential) environmental effects per step in the product chain and a table of the most important environmental aspects. In addition to this information, the more extensive version (approximately 10 to 20 pages) also gives more background information on the matrix and the table. The EPPs also contain

several appendices, among others a list of abbreviations and a graphical presentation of the process tree of the product in question. The above-mentioned environment matrix gives five environmental indicators for each step of the product's life cycle. These five key indicators are: (i) the raw materials used to manufacture the product; (ii) the amount of energy consumed; (iii) emissions of acidifying, eutrophying and/or toxic substances and greenhouse gases; (iv) nuisance; and (v) wastes. The data in this environmental matrix are quantitative only; they are neither explained nor evaluated in the EPPs. The table gives some indication of the most relevant environmental aspects. The table shows which of the product's substances or materials may cause the most significant environmental impacts, and which steps of the product chain are most relevant in this respect. Only those substances and materials responsible for more than 50% of the final environmental impacts are contained in this table. Although, in general, quantitative data were regarded useful, most respondents felt the way in which the data were presented did not have any meaning. They lacked the expertise to understand the quantitative indicators without a lengthy explanation about the reasoning behind the methodology and about the reliability of the resulting data;

(b) EPP based on a list of substances. Differing from the two previous case-studies, in the case-study on carpets a third version of environmental product profiles was developed. Like the two other versions, this third version has a colophon, followed by a product description and technological process data. Based on the experiences in the two earlier cases, a short summary has been included. The presentation of the environmental data is completely different in terms of structure and content. The main element is a table that provides the reader with an overview of the environmental aspects of the manufacture of carpets. Quantitative indications are given per metre of finished product of the energy consumption, the intermediate products and additives used and of the emissions to water, soil and air, plus the amount of waste that is generated during the manufacturing process. In addition to this inventory, and by means of applying several rules of thumb, the main environmental aspects are revealed. These rules of thumb relate to:

- (i) The use of substances for which, according to international regulation, it is imperative to supply a material safety and data sheet;
- (ii) Emissions, the weight of which per unit of finished product exceeds 5% of the weight of the finished product per unit;
- (iii) Additives, of which more than 50% of the amounts used leave the process in the form of emissions.

11. It was found that, in the short term, the substance-oriented approach seems more promising than the indicator approach. The type of environmental information requested in the substance-oriented approach is similar to the information demanded by those companies which have already taken their own initiatives in asking their suppliers for environmental information. However, since some of the information (e.g. the names and amounts of additives) might be advantageous for their competitors, confidentiality is an important issue

Note

1/ The results of this study have been published in Dutch:
R. Weterings, M. Smits, J. Cramer, R. Korenromp, E. Langkamp, J. de Zeeuw
(1994) Experimenten met produktinformatie-uitwisseling binnen de
bedrijfsketen. VROM-Publikatiereeks Productenbeleid.