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**PREVENTIVE ENVIRONMENTAL MANAGEMENT IN  
SMALL ENTERPRISES BY UTILISATION OF  
EXISTING INFORMATION SYSTEMS.  
(PREMISE)**

**SUMMARY FINAL REPORT**

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## **I. OBJECTIVES**

The goals and objectives of the project were:

to develop simple tools for preventive environmental management on the basis of an integration of existing technical, financial and managerial information systems and practices within small and medium-sized enterprises (SME). In addition, experience from the development and use of environmental auditing, waste minimisation assessment, life cycle assessment, and other environmental management tools was included.

- to write a handbook on preventive environmental management aimed at small enterprises, serving as documentation and dissemination of the tools developed and prepared through interaction between national and international networks of research institutions and consultants co-operating with small enterprises and industries.

The project was been divided into three phases:

- i. identification of simple tools in preventive environmental management,
- ii. testing of the tools based on model companies, and
- iii. integration of the tools into an environmental management handbook.

## **II METHODOLOGY**

The objective of phase one was to exchange experience from Environmental Management Systems (EMS) in the four countries, and to discuss different tools for EMS in SME's. Furthermore, the aim was to decide which tools are suitable for SME's, and to draft appropriate environmental management tools.

The objective of phase two of the project was to describe and test part of the tools. Experience from relevant waste minimisation assessment, environmental reviews, and LCA's was used for evaluating the functionality of the drafted tools.

The project did not include actual field testing of the tools in co-operation with individual companies, but seminars with industrial representatives as well as individual contacts with companies have been used throughout the project period.

The content of the manual was discussed and outlined in this phase as well.

The objective of phase three was to use the experience from phases one and two to write and finalise an environmental management manual aimed at SME's.

Phase three was also used to test the tools at two Portuguese companies.

The five contractors represent different professions, e.g. accountants and environmental engineers. This has ensured that both economic and engineering practise have been discussed and integrated in the manual, thereby making it more comprehensive.

The project has been organised as a series of work meetings of the project team in the five countries combined with industrial seminars, and at the very end of the project, supplemented with testing of the tools in two Portuguese companies. Furthermore, the methodology has been based on literature survey and questionnaires to SME's.

The aim of the meetings has been to collect information on and exchange experience from environmental management systems implemented in SME's. Furthermore, during the meetings and the workshops, different tools and their applicability to SME's was discussed.

## **III. MAIN RESULTS**

The main result of the project was the PREMISE Manual, which describes how to implement environmental management in small enterprises.

The PREMISE Manual has been written for the environmental manager working in a small company who wants to start up an environmental management project. The environmental manager may be an employee of the company appointed to manage environmental issues or an external consultant, authority, or the like hired or designated to cooperate with the company.

The manual is introduced with "why" environmental management is a good idea, and "what" environmental management is in small companies. This should make the user interested in the following five chapters describing the five steps in the PREMISE STAR - the five steps to environmental management. Each chapter combines general guidelines with examples from companies and practical checklists and diagrams to adapt and implement. In the annexes to the manual, references to more information both internationally and nationally can be found together with: work sheets; evaluation methodologies; typical environmental problems and suggestions for their solution; and a long questionnaire which can be used as a guiding checklist.

The introduction is meant to help the environmental manager to motivate and inform the top management as well as employees of the company, resulting in commitment and active involvement in the environmental project.

The five chapters present in more detail practical tools and experience to organise and supervise the environmental project and to integrate the experience and results in a continued preventive environmental management system aimed at improvements in resource utilisation and environmental performance, as well as company relations and image towards suppliers, customers, investors, authorities, and the public.

**The PREMISE star five steps (and chapters) are:**

1. Start the Process
2. Identify Environmental Aspects
3. Make Projects
4. Monitor, Document and Audit
5. Integrate into Management

**1. Start the Process**

It is important that the management is convinced and committed to the project. To start the process it is important that the management discusses the company's environmental strategy and involve personnel in the project.

The simple tools needed for starting up the process are: discussion of environmental problems and strategy, brainstorming, and SWOT-analysis (analysis of company Strengths, Weaknesses, Opportunities and Threats).

Setting up a project team and informing employees about the environmental strategy is a clear signal to the staff that the implementation of an Environmental Management System is taken seriously.

**2. Identify Environmental Aspects**

Naturally, the second step is to identify environmental aspects in the company. That is to identify environmental problems, solutions and opportunities. The tools used to identify environmental aspects are: site inspection and walk-through; qualitative environmental review; and quantitative review. The quantitative review can be done at company, department and process level depending on the need of information.

The manual recommends that the project team start with a qualitative review to minimise effort and since many important environmental aspects can be identified during such a review. The project team should list environmental problems and opportunities to solve these problems. Simple and no-cost options should be implemented right away to ensure continued interest and commitment to the project.

In the annex of the manual there are work sheets for the qualitative and quantitative environmental review. Also, a description of typical problems and possible solutions is given in the annex. Areas described are: raw materials, hazardous materials, energy, water input, product, air emissions, wastewater, solid waste, hazardous waste, noise and heat emissions, and finally occupational health and safety.

**3. Make Projects**

To secure on-going commitment and improved environmental performance, it is necessary to make (=implement) projects. The manual recommend to evaluate the identified options and select the best to implement first. This evaluation can in many cases be carried out during a meeting where a few parameters are discussed for each problem (e.g. simple economic, environmental and technical evaluation). However, at a later stage it might be a good idea to

use evaluation tools to help select the best options, e.g. if there are several good solutions to one problem. Thus, five evaluation tools are described in the annex of the manual.

To keep track of projects (options/solutions), deadlines, responsibilities, funding, etc. an action plan should be made. An example of an action plan is given in the manual.

#### **4. Monitor, Document and Audit**

To monitor the success of the implemented options is a key issue. It is essential to build up a monitoring system which provides quantitative data for evaluating the environmental performance, at least on a yearly basis. The collected information should be compiled and used for controlling the production. Different tools for continuous monitoring are described, e.g. Input/Output Analysis, and the concept of Environmental Performance Indicators is introduced.

To ensure that the monitoring is done regularly the method of monitoring should be documented and the results registered. Furthermore, it is very important to communicate the environmental improvements to the personnel.

Auditing is needed to check if the environmental management system (policy, action plan, monitoring and documentation) is up to date, and to ensure compliance with legislation. The auditing process is described briefly and in the annex a list of questions are stated.

#### **5. Integrate into Management**

The four previous steps describe how to define and implement an environmental management system, but to make the EMS a permanent part of the day to day work, new responsibilities and procedures have to be defined. The EMS has to be integrated within the existing management system for reasons of efficiency and continuous improvements. An official policy has to be stated and can be made publicly available.

This last step may require a lot of paper work, especially if the company decides to go for a certified or accredited EMS as ISO 14001 and EMAS. The manual provides some information about the ISO 14001 standard and more about the European EMAS (Environmental Management and Audit Scheme).

#### **Comment**

The approach of the whole manual is built upon the concept that implementation of environmental management system should be as simple and easy as possible. In reality implementation of EMS requires much work and the project team will encounter a lot of problems (barriers from colleagues and management, difficulties when collecting data and evaluation problems, etc.). Thus, the manual provides some more texts and describes different tools to help the project team, the environmental manager and/or the environmental consultant overcoming these problems.

Another important aspect of the PREMISE method is that the company shall focus on their own needs when building up an EMS. This EMS can later be extended to comply with the requirements of ISO 14001 or EMAS. If a company uses ISO 14001 or EMAS to build up an EMS from the bottom, there is a risk that they will end up with an EMS that does not fit their company very well (focus is on procedures and the system, rather than on the problems and solutions).

### **IV. SCIENTIFIC INTEREST AND POLICY RELEVANCE**

#### **(i) Scientific interest and novelty**

Features of implementing EMS and preventive environmental management in SME's are in focus in connection with many ongoing projects - both scientifically- and practically-oriented - in EU Member States. How can SME's be motivated? How are the needed resources mobilised? How can workers be involved? How should the dialogue with external stakeholders be achieved, etc. Compilation of environmental management tools based on existing economic and technical information systems is only part of the issues raised, but to evolve many of these more organised and social questions, the foundation of solid and factual knowledge of the material and energy inputs and outputs of the company and the environmental implications must be made.

#### **(ii) Policy relevance**

The implementation of the Eco Management and Audit Regulation of the EU is a key issue in the environmental policy of the EU and many Member States; also, several Member States have developed environmental management standards to fulfil (part of) the requirements of EMAS. The manual aims, at a very practical level, to translate these policy issues to everyday management of SME's.