



The Danida Private Sector Development Programme

Company Guidelines 2c

Applications for Support for
Environmental Measures



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Guidelines on the PSD Programme

This is the fourth publication in a series of company guidelines on the Danida Private Sector Development Programme (The PSD Programme). The purpose of the present guidelines is to offer to the companies a practical set of tools for preparing an assessment of the status of the external and working environment. The guidelines also offer indications concerning the way in which an environmental action plan should be developed and how applications for support for environmental measures are submitted to Danida.

The series of guidelines also includes:

- Company Guidelines 1: Outline of the Support Facilities
Applications for Visits and Studies**
- Company Guidelines 2a: Project Preparation**
- Company Guidelines 2b: Applications for Support for Technical Assistance and Training**
- Company Guidelines: The Start-Up Facility**

*All guidelines including application and reimbursement forms are available in both Danish and English at the homepage of the PSD Programme:
www.ps-program.dk /
www.psdprogramme.dk*

In addition to the guidelines listed above, several reports about the establishment of business co-operation in specific countries and sectors are available. These reports can be downloaded or ordered at the homepage of the PSD Programme.

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1 Introduction

The objective of the Danida Private Sector Development Programme (the PSD Programme) is to contribute to the economic and social development in selected developing countries. The PSD Programme offers advisory services and financial support for Danish companies wishing to establish long-term and mutually binding co-operation arrangements with local companies in those countries.

Furthermore, the PSD Programme aims at contributing to the improvement of employment standards and environmental protection in developing countries, thereby contributing to sustainable development. Environmental consideration is a cross-cutting issue in Danish development aid.

Improvement of environmental conditions will, in many cases, be economically beneficial as it increases the profitability of production by minimising the use of raw materials, energy and water, minimising waste and waste water, and likewise minimising the costs of handling and treatment. Furthermore, improving environmental conditions will ultimately decrease the incidence of accidents and work-related illnesses etc.

The purpose of Company Guidelines 2c is to give the companies the tools necessary to assess which measures need to be implemented in order to improve the environmental aspects of a PSD project.

The objective of these guidelines is to provide companies with tools for preparing an environmental impact assessment of the current situation in the partner company with regard to both the external environment and the working environment. The guidelines also give instructions on how to devise an environmental action plan and how to apply for financial support from the PSD Programme.

There are no requirements that applications for support from the PSD Programme should be drawn up in a specific way. Companies are therefore welcome to submit an application in the form they find most appropriate. Applications must, however, be drawn up in such a way that they can serve as a basis for a possible pledge of support.

These guidelines offer an overview of the information that should be presented in the application in relation to the environmental aspects of a PSD project. To that end, four checklists are enclosed that can be used as a starting point for preparing environmental measures:

- Checklist 1 Environmental Action Plan
- Checklist 2 Detailed Design of the Environmental Action Plan
- Checklist 3 Environmental Impact Assessment
- Checklist 4 Examples of and Principles for Support

2 Definition of Concepts

Although the PSD Programme considers the external environment and the working environment as two related dimensions, it is useful for the company to know what these dimensions cover and how an Environmental Impact Assessment (EIA) might be conceptualised.

The working environment and the external environment are to be considered as two inter-dependent dimensions.

2.1 Working Environment

The terms "working environment" and "occupational health and safety" (OHS) are understood to be all factors in the workplace that influence the safety, health and well-being of employees.

Within the working environment, the following examples may be included for assessment and potential improvement with the aim of minimising/eliminating the risks of industrial accidents and physical/psychological injuries to workers:

- Existing procedures for OHS may be insufficient after the introduction of new machinery. Therefore, it is necessary that companies include updating of handling procedures, emergency plans and equipment in relation to technological improvements.
- Process equipment, storage and handling of raw materials, waste and products could represent potential risks to employees. Such risks may require procurement of personal protective equipment and improved instruction and training of employees.
- General working conditions for employees in conjunction with, for example, ILO standards may need to be discussed with the local partner company.
- Substitution of dangerous chemicals with less dangerous ones and the establishment of the necessary safety systems could decrease the risk of major accidents.

An assessment should not be limited to the examples above. Checklist 3 covers items to be included in an EIA of the working environment.

Checklist 3 contains a detailed list of subjects to be considered when preparing an EIA of the working and external environment.

2.2 External Environment

The external environment is understood to be any kind of environmental impact on the surroundings caused by the workplace and from the extraction or exploitation of local raw materials.

Within the external environment, the following examples may be included for assessment and potential improvement with the aim of minimising/eliminating any negative impact on the external environment:

- Storage and transportation of raw materials may be organised in a way that causes unnecessary pollution.
- Process technology may be environmentally harmful with regard to high emissions that may cause pollution of air, soil, surface and ground water.
- Use of energy and water may be inefficient and produce high rates of wastage that are costly for the company, and may, for example, require extensive treatment of waste water.
- Influence on surface water, ground water resources, air quality, wildlife, agriculture and fisheries are examples of important issues to be considered in connection with planned production.

As mentioned, Checklist 3 contains a number of key items to be included in an EIA of the external environment.

2.3 Environmental Impact Assessment

The term “Environmental Impact Assessment” (EIA) covers an assessment of the present state of external environment and working environment measured against national rules and regulations. An EIA points out existing and potential environmental problems with possible technical solutions and financial estimates of related costs to solve the problems/comply with regulations.

The information acquired from an EIA is to be used in the preparation of an environmental action plan, see paragraph 3.2.

The information acquired from the impact assessment of the external environment and the working environment is to be used in the preparation of an environmental action plan. This includes activities, training, investments, cost/benefit analyses, a time schedule and budget as well as an environmental management plan. An environmental management plan outlines the guidelines for the different fields of responsibility within the working environment and the external environment.

As mentioned above, Checklist 3 contains a number of key items to be included in the EIA.

3 Principles for Application

3.1 Danida Requirements

In order to obtain support from the PSD Programme, the companies should as a minimum meet national rules and requirements with regard to the external environment and the working environment. Where no national requirements exist, the applicants should submit a justified proposal for environmental improvements.

The companies can apply for grants for environmental improvements that will ensure that the PSD project, as a minimum, complies with national standards. Grants may also be sought for improvements that go beyond national standards, as Danida encourages companies to implement environmental improvements that exceed national rules and norms. It might even be appropriate or necessary to apply Danish/international standards as a starting point for the environmental initiatives to be carried out, e.g. if there are no local regulations or if they are not adequate for the situation at hand.

In terms of production, the PSD Programme recommends that the companies select a process technology guaranteed to result in the least possible amount of pollution and to provide the best possible working conditions. With regard to the working environment, solutions requiring a minimum of safety equipment are recommended.

ILO conventions have to be implemented as part of company policy in relation to the working environment, the employment of pregnant women, shift work, free association, minimum wage, prohibition of discrimination, child labour etc.

If the applicants intend to implement a project in an area polluted by prior industrial activity, the companies must, as an absolute minimum, document that such pollution will not harm natural resources or the health of employees. If the soil is heavily polluted, it must be decontaminated before the PSD Programme can grant support. Subsidies for decontamination activities are granted individually on the merits of each project.

The purchase of equipment subsidised by Danida must meet Danish/international environmental rules and regulations.

Expenditure on environmental measures will only be reimbursed when a local environmental permit has been obtained.

This list of conditions and requirements is by no means exhaustive, and Danida reserves the right to determine specific conditions for individual projects.

3.2 Preparation of an Environmental Impact Assessment and Action Plan

Danida recommends that environmental issues are taken into consideration at the earliest possible stage in the planning of the project. Provisions to improve environmental conditions and the working environment can therefore be based on a feasibility study in which these aspects are outlined and environmental conditions examined. It is recommended that local employee representatives are involved in such a study.

As a minimum companies have to meet national rules and requirements with regard to the external and working environment, but they are encouraged to implement environmental improvements that exceed these rules.

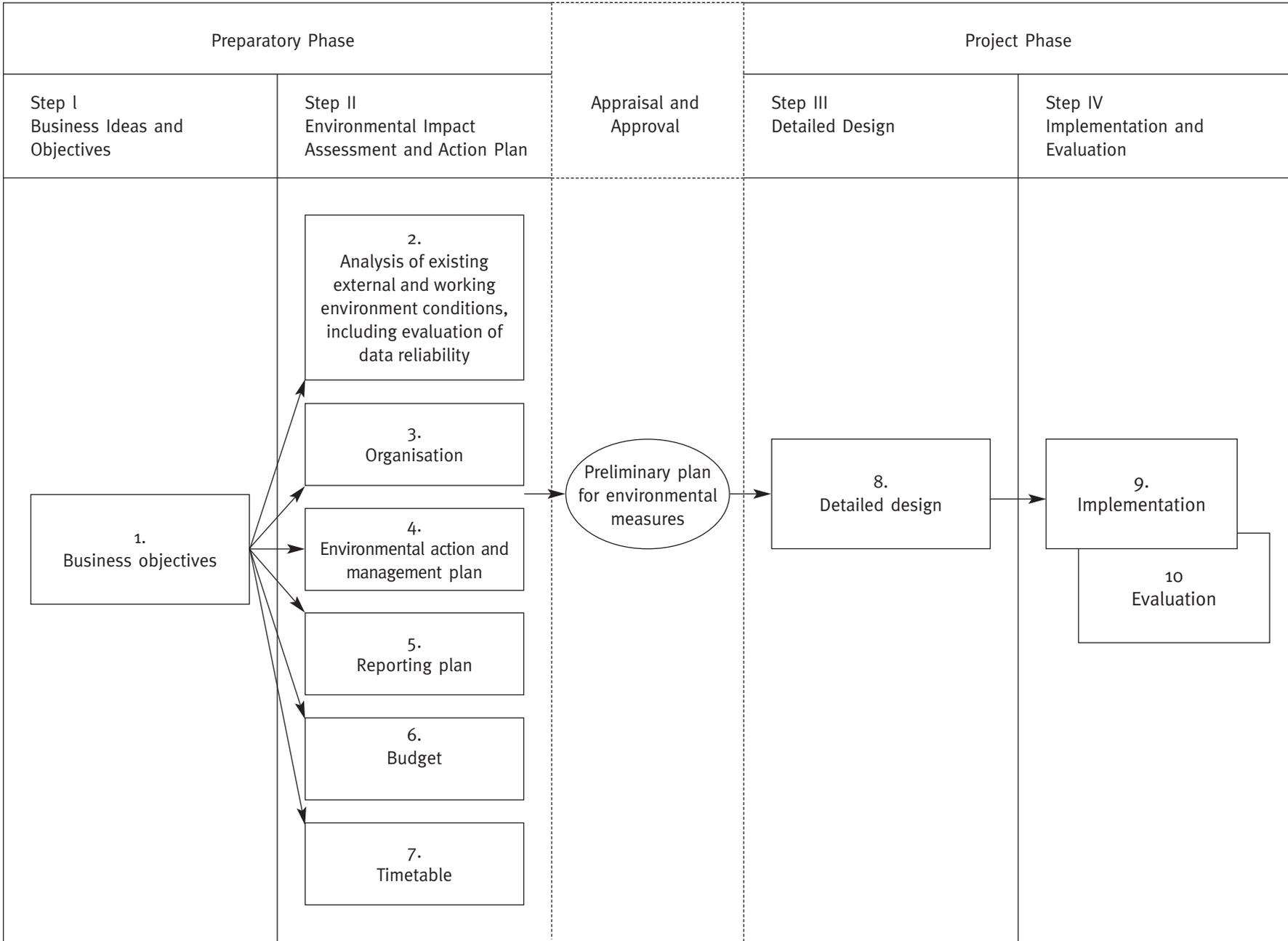
Danida reserves the right to stipulate specific environmental requirements for each PSD project when pledging support.

Environmental consideration should be included in the preparation of a PSD project as early as possible.

If the intended environmental improvements require detailed design and planning, Danida will permit the applicants to base the application on a draft design with an estimate of costs for initial approval from the PSD Programme (Checklist 1). After initial approval, the applicants must provide a detailed design in the project phase (Checklist 2).

An assessment of physical and chemical environmental data may be postponed until the initial part of the project phase, because such an assessment may be rather costly.

The process of carrying out the EIA (Checklist 3), preparing an environmental action plan (Checklist 1) and submitting an application to Danida is illustrated in Figure 1 on the next page.



From Preparation to Implementation of Environmental Measures **Figure 1**

Figure 1 (continued)

Explanation of Activities in Figure 1

Activity 1

Business objectives should be described and provide the framework for environmental objectives.

Activity 2

Existing external and working environment conditions should be described in order to determine the need for environmental improvements. An evaluation of data reliability should also be conducted (if this is too costly, verification of environmental data may be carried out during the project phase).

Activity 3

An organisational analysis covers a description of the responsibilities of all persons involved in safety and emergency plans.

Activity 4

With the information acquired from activities 2 and 3, an environmental action plan must be drawn up, covering the minimum of provisions necessary to bring the current external and working environment up to national standards, including a cost/benefit analysis. An environmental management plan should be made in accordance with the action plan. Detailed planning can be carried out at a later point in the process (see activity 8).

Activity 5

A report on project progress, including progress on the environmental areas, must be submitted quarterly. A final report must be presented when the project has been fully implemented. The process of reporting will, if necessary, also help the companies adjust the action plan.

Activity 6

The budget should be drawn up in accordance with Company Guidelines 2a.

Activity 7

The timetable should be divided into phases and activities that are clearly linked to the budget.

Activity 8

Environmental improvements require a detailed action plan. The detailed design of the action plan should be based on the action plan drawn up in the preparatory phase.

Activity 9

Implementation of environmental improvements must be conducted in line with other project activities, e.g. training, in order to ensure optimum results.

Activity 10

Indicators should be devised to facilitate the measurement of ongoing improvements. Continuous evaluation will enable companies to measure the impact and results of the different activities.

4 The Project Application

The application for support for external and working environment measures should form part of the overall project application, and a separate application need not be made. However, the overall application must include a separate budget for environmental and working environment measures. Checklists 1 and 2 give an indication of the environmental information to be included in the application to the PSD Programme.

Instructions for the preparation of the overall project application are given in Company Guidelines 2a.

Environmental measures are covered with 90% within the overall guiding framework amount of a maximum of DKK 5 mio. Checklist 4 presents examples of and principles for support for environmental measures.

4.1 The Budget

To ensure that the environmental action plan is properly organised, it is recommended to divide the plan into phases and activities complying with other project activities, for example, training, transfer of technology and plant construction. The budget should also reflect these phases and activities. As described in Company Guidelines 2a the budget should be divided into:

- Salaries
- Fees
- Travel expenses
- Other expenses

Salaries, fees and travel expenses are all described in Company Guidelines 2a. With regard to other expenses, the PSD programme may finance the extra cost of investment in environment-friendly equipment (machines etc.) rather than conventional equipment. Checklist 4 presents the principles for and examples of support. These other costs for equipment are to be agreed upon with Danida.

4.2 The Timetable

A detailed time schedule should be prepared for the implementation of the environmental action plan (see Checklist 2).

Application for support for environmental measures is to be made as part of the overall application to the PSD Programme.

Checklist 4 presents examples of environmental measures that can be supported under the PSD Programme.

Checklist 1

Environmental Action Plan

<p>1. Basic Environmental Information</p>
<p>1.1 The factory is located in:</p> <ul style="list-style-type: none"> • An industrialised area • An urban area • Farm land • A coastal area • An uncultivated area
<p>1.2 Mark the overall current environmental problems for both the working and external environment (rank the scope of the problems from 1-5). If possible, enclose photographic documentation of the environmental problems.</p> <p>Working environment:</p> <ul style="list-style-type: none"> • Hazardous substances • Air quality/dust • Risk of fire/explosion • Risk of physical damage from unprotected machinery and installations • Untrained workers • Other issues <p>External environment:</p> <ul style="list-style-type: none"> • Air emission • Waste water • Soil/ground water • Solid waste • Hazardous waste • Noise • Other issues
<p>1.3 Which of the environmental issues listed do not comply with local/international rules and requirements? Enclose photographic documentation, if possible.</p>
<p>1.4 Planned actions to ensure a permanent or an improved environmental quality.</p>
<p>1.5 Which environmental parameters are regularly monitored, and at what intervals?</p> <p>Working environment:</p> <ul style="list-style-type: none"> • Air quality at work station • Temperature/humidity • Noise • Health check-ups <p>External environment:</p> <ul style="list-style-type: none"> • Air emission • Waste water • Water consumption • Energy consumption • Chemical spillage

<p>1.6 Indicate the number of employees in the current environmental organisation.</p> <p>Who is currently responsible for:</p> <ul style="list-style-type: none"> • Working environment • External environment
<p>1.7 Is the present site polluted in any way?</p>
<p>1.8 If the site is polluted, does it represent a risk to workers or the surrounding environment, e.g. water resources?</p>
<p>1.9 Has the company received any environment fines, e.g. for exceeding the criteria detailed in permits (e.g. noise, dust, accidents, content of pollutants in waste water, waste amounts etc.)?</p>
<p>1.10 Has the company received any complaints from neighbours or others during the last three years? If so, describe these.</p>
<p>2. Environmental Objectives</p>
<p>2.1 Detailed objectives for the environment action plan.</p>
<p>2.2 List planned improvements.</p>
<p>2.3 Does the project meet national/international rules and regulations on the environmental area?</p>
<p>3. Project Organisation for the Environmental Action Plan</p>
<p>3.1 Draw up an organisation diagram of the project organisation.</p>
<p>3.2 To what extent are local workers or stakeholders involved in the environment action plan?</p>
<p>3.3 Will the environment organisation at the company be changed? If yes, how?</p>
<p>3.4 Please add any other relevant issues for the organisation of the project.</p>

Checklist 1 (continued)

4. Design of Environmental Improvements
4.1 Describe the action plan in detail.
4.2 Indicate the design of the environmental measures.
4.3 Does the environmental measures require a detailed design in the project phase (i.e. step III)?
4.4 Is training required?
4.5 Document that new equipment financially supported by the PSD Programme meets international/Danish rules and requirements.
4.6 List actions taken to protect the external environment and the working environment during implementation.
4.7 Which tests/monitoring programmes are planned for documenting improvements of the environment after implementation?
5. Environmental Quality
5.1 How is the necessary level of environmental quality ensured?
5.2 How is the environmental impact monitored?
5.3 Please add any other relevant issues for maintaining the level of environmental quality.
6. Timetable
6.1 Describe in detail the schedule for the implementation of planned actions.
6.2 Indicate critical milestones for the implementation.
7. Budget
7.1 List key budget figures. A detailed budget is to be prepared using the forms in Company Guidelines 2a.

Checklist 2

Detailed Design of the Environmental Action Plan

1. Detailed Design
1.1 Describe the environmental action plan in detail.
1.2 List equipment required and provide documentation that proves that the equipment meets Danish/international environmental requirements.
1.3 Describe the environmental impact during as well as after implementation of the environmental action plan.
1.4 Does the environmental measures require special training of staff?
1.5 Describe the measures taken to ensure a good working environment during implementation and the actions to be taken in the event of accidents etc.
2. Detailed Timetable
2.1 Describe in detail the schedule for implementation.
2.2 Indicate critical milestones for implementation.
3. Detailed budget
3.1 List key budget figures. A detailed budget is to be prepared using the forms in Company Guidelines 2a.

Checklist 3

Environmental Impact Assessment

1. Provisions Regarding the External Environment and Occupational Health and Safety

In order to be able to comply with national provisions regarding the external environment and the occupational health and safety, it is necessary for the partners to be aware of specific requirements in these areas in relation to the planned project. Provisions may have been issued by national authorities, the factory inspectorate, the national working environment services, the Ministry of Health, the water supply administration, fire-fighting authorities, the pollution control board or similar authorities.

The provisions may have been given as standards applicable to all industries or they might apply according to location or type and size of production. Provisions may also come from local authorities. In big cities especially, specific demands can be presented in addition to national provisions.

Authorities often require that an application should be submitted prior to an approval/permit for the start of new production. The approval of the authorities in relation to the environment will often include a time limit and the permit or certificate frequently has to be approved annually. Often a fee will be charged as part of the application.

If the authorities require a permit/certificate, the PSD Programme will only support approved projects.

The following questions will help Danida and the partners to assess specific national provisions. The embassy may contact the authorities for further information on the provisions in action.

- 1.1 Has the company obtained or applied for environment permits?
- 1.2 If so, please enclose the relevant documents and fine limits for permits.
- 1.3 Indicate if any working environment or external environmental investigations, e.g. environmental impact assessments, have been carried out prior to applying for a permit, or if an environmental management plan has been prepared.
- 1.4 List emission and ambient quality standards and occupational health and safety standards with which companies have to comply. Specify if these are national or local standards or have been set up by the authorities specifically for the company. The standards listed should comprise air pollutants, waste water, solid waste treatment, noise and occupational health and safety.
- 1.5 List frequency and percentage of size of emissions above the criteria for acceptance, and estimate the annual environment fees and fines.

2. Plant Location

The existing or planned plant location is to be in accordance with any existing land use plans or land use capability. In areas previously not used for industrial purposes, the project should not have any significant impact on infrastructure and natural resources. The planned levels of environmental impact, e.g. air pollutants, waste water and noise emissions, should be adjusted to natural resources, such as drinking water resources, agricultural and residential areas, and furthermore to the sensitivity of the environment.

Adequate infrastructure and facilities for the planned production should be present or possible to establish, in order to ensure the quality and development of the environment. Examples of the necessary facilities are: access to water, a sewer system, waste treatment facilities, acceptable roads that do not generate unacceptable dust or noise levels and power or fuel that does not generate high levels of pollution or create deforestation.

If a plant already exists, photographic documentation of the conditions is required.

The location also influences the availability of trained personnel and/or workers' daily commuting distance.

The partners are therefore required to:

- 2.1 Provide a detailed location map indicating present land use in the area, e.g. nearby residential areas and other environmentally sensitive areas. Photographs from neighbouring areas should also be included.
- 2.2 Describe the present and expected future access to relevant infrastructure and facilities.
- 2.3 Assess whether the necessary workforce with appropriate qualifications is available within a reasonable distance from the plant, and if not, the amount of training needed for local workers.

3. Soil and Ground Water Contamination

If the site where the existing or planned plant is to be located is polluted due to its current or previous use, it should, as a minimum, be ensured that soil pollution will not affect water resources or create other problems, e.g. health problems for neighbours or workers. If the site is heavily polluted, it should be cleaned up or sealed (if this is adequate) before the plant can be approved. In all events, depending on the pollution level, it is recommended to clean up or seal the pollution at the site.

No waste from the planned production may be disposed of on-site, unless this takes place under controlled conditions, ensuring that the soil and ground/surface water is not polluted. Emergency procedures and the necessary equipment and organisation for cleaning up in case of spillage must be available.

The following issues relate to soil and ground water pollution.

- 3.1 Describe, in brief, previous process operations that may have caused significant potential contamination of the soil or ground water.
- 3.2 List components with a potential risk of on-site soil and ground water contamination from planned production, e.g. oil, organic solvents, heavy metals etc.
- 3.3 Describe the existing and planned measures to reduce risk of contamination.

4. Raw Materials and Products

The type of raw materials used or planned to be used must not cause serious deterioration of the natural surroundings in the region, e.g. through open mining spoiling the area or through deforestation or desertification etc.

It has to be demonstrated that potentially hazardous substances in raw materials do not cause unacceptable adverse effects in the working environment and external environment. It is important that machinery and products containing hazardous substances include instructions for safe use.

The following issues must be addressed in order to provide Danida and the partners involved with a basis for assessing whether raw materials and products may cause risks from an external/working environmental point of view. In paragraph 6, specific issues concerning hazardous substances are listed.

Checklist 3 (continued)

- 4.1 List and quantify the existing or planned annual use of chemicals and other raw materials, and the most likely suppliers of raw materials.
- 4.2 List and quantify the use and source of any recycled or re-used materials.
- 4.3 List and quantify by-products or waste products used outside the company.
- 4.4 List all major products and the target groups for the products.
- 4.5 Describe the instructions and manuals prepared by the company and distributed to customers/carriers etc.

5. Process Equipment

Process equipment, machinery, tools and other items and activities for the manufacture of products must have little or no effect on the external environment and the working environment. The use of “Best Available Technology” (BAT) and “Cleaner Technology” (CT) is strongly recommended, i.e. technology resulting in a minimum emission of pollutants to the environment, such as waste water and solid waste, minimum energy consumption, low generation of noise and vibration and adequate working conditions. Special requirements will be mentioned in the following.

The following issues will help Danida and the partners to assess whether the chosen technology is adequate from a working/external environment point of view, and whether it is relevant for the PSD Programme to finance any additional costs in connection with the introduction of BAT/CT, compared to the cost of traditional technology, which only complies with national provisions.

- 5.1 Provide a simplified flow chart of the plant, including major operations.
- 5.2 List the main process equipment, machinery etc. installed or planned to be installed, including auxiliary functions such as boilers, and describe the possible impact on the external/working environment. The assessment is to include the authorities’ requirements for the equipment etc.
- 5.3 If the equipment chosen exceeds national provisions in relation to health, safety and the environment, and if the equipment is more expensive than equipment which only complies with national provisions, the extra cost must be clarified on the assumption that the partners intend to apply to the PSD Programme for funding of this extra cost.

6. Hazardous and Inflammable Substances

Use of hazardous and inflammable substances may cause a potential risk of major accidents like fire and explosion, hazardous exposures in the working environment and a potential risk of soil and ground water contamination.

Hazardous substances are any substances that might have a significantly adverse environmental or public health impact through improper handling. Inflammable materials are gases, which, when mixed with air at normal pressure, are inflammable, or liquids with a flame point below 55 degrees centigrade. Often, the national authorities have specific legal provisions regarding storage, labelling, packaging, handling and transportation of such substances.

The following issues should be addressed in order to assess whether national and other appropriate provisions are met.

- 6.1 List the type and quantities of hazardous chemicals planned to be used, the approximate annual consumption and the purpose/process phases of such chemicals.
- 6.2 List the storage and internal distribution systems (e.g. pipelines, decantation) and connected facilities to be used.
- 6.3 Which information and type of instructions are planned for the safe handling and transportation of the chemicals?
- 6.4 Will the chemicals be properly labelled, and will safety data sheets be available? If so, in what language?
- 6.5 How are the chemicals disposed of/recycled?
- 6.6 Will local extraction/ventilation facilities be installed to minimise exposure at the work station?
- 6.7 Can the processes/machinery etc. in which the chemicals are used be properly contained and ventilated?
- 6.8 Have procedural emergency plans been issued, and has equipment been provided to ensure adequate action in case of spillage, exposure and fire/explosion?

7. Air Pollutants and Dust

The emission of air pollutants and dust from work processes, process equipment, storage tanks and transportation, including volatile emissions to the working or external environment, must be documented. Reference is made to paragraph 14 in this checklist.

Air pollution and dust may have adverse effects on human health, ecosystems such as forests and surface waters, materials and buildings. If the air pollutants are emitted through high chimneys, the impact is less likely to be local, but could be regional, e.g. impact on forests from “acid gases” like sulphur dioxide from fossil fuels.

The following issues must be addressed in order to ensure that air pollutant emission from the planned production complies with national legislation, and to ensure that air pollutant emission is further reduced.

- 7.1 List and quantify the potential significant air pollutants and dust from all specific sources under normal conditions (after any air pollution control devices have been installed).
- 7.2 Are the figures listed and quantified, calculated or simply estimated?
- 7.3 Who has been responsible for the measurements?
- 7.4 List important sources of volatile emissions and dust, such as storage piles of raw materials, dust/emissions from manufacture/production or odour or biological emissions from waste water treatment facilities.
- 7.5 List any established or planned air pollution control facilities and estimate, if possible, their air pollution control efficiency.
- 7.6 List any potential air pollution scenarios from accidents in storage, production or fire.

Checklist 3 (continued)

8. Water Supply

Access to a stable, high quality and sufficient water supply will be crucial to many productions. However, for surroundings, habitations, agriculture and wetlands, new water consumers may create a negative impact on the environment.

Water conservation efforts are important not only to minimise consumption of resources, but also to minimise the formation of waste water.

- 8.1 List the annual water consumption of the company from different sources (i.e. wells, lakes, streams, rainwater etc.).
- 8.2 Is there any information on present exploitation and the extent of water resources?
- 8.3 What are the present and future water conservation plans, e.g. water metres, renovation of distribution systems, recycling, two-stringed systems with high/low quality water etc.?
- 8.4 What is the size, age and quality of storage and distribution facilities?
- 8.5 Assess water quality and the need/facilities for treatment. List the major chemical/biological qualities of the water supply and any on-site treatment.

9. Waste Water

Water conservation is encouraged, and will often result in a smaller waste water treatment capacity being needed. Better utilisation of hazardous substances will reduce the amount of waste water pollutants. Use of process equipment with a more efficient use of water, e.g. by recycling, will also contribute to minimising waste water creation. Cooling water should be recycled and the cooling system sufficiently tight to ensure unpolluted cooling water.

National authorities often issue specific requirements concerning waste water treatment before discharge into sewerage systems or directly into rivers, lakes or coastal environments.

The following issues focus on waste water formation and whether the planned project complies with national provisions.

- 9.1 Describe how much water (m³/year) is used annually for different purposes, e.g. for cooling, production, sanitation and cleaning.
- 9.2 List the waste water pollutants (chemical and biological) after the installation of possible treatment facilities (m³ waste water/year) and concentration of pollutants in the outlet.
- 9.3 Illustrate the principles behind the waste water collection system.
- 9.4 List the dimensions, age and condition of the waste water collection system.
- 9.5 What are the risks of spreading water-borne diseases in the local area.
- 9.6 Have the amounts of waste water and some of the waste water pollutants been estimated?
- 9.7 Who has been responsible for such calculations?

- 9.8 How often is waste water monitored and the type of components checked, and how often will it be monitored in the future?
- 9.9 How is the process waste water treated/handled and where is it discharged?
- 9.10 Describe possible on-site treatment facilities (type, capacity, chemicals used and power consumption).
- 9.11 Are there any facilities for storage, re-use and/or treatment of rainwater?

10. Solid Waste

Minimising and recycling solid waste should be taken into account in the design phase.

Solid waste can often be sold or collected free of charge by local people. However, residual amounts of solid waste, and often the most hazardous part, will remain. Waste disposal should be dealt with in accordance with legal provisions. If no regulation exists, the authorities should be consulted, and the most appropriate disposal, incineration or other treatment of waste should be chosen from an external/working environmental point of view.

- 10.1 List the type and quantities of solid waste generated (tonnes or m³/year), and specify how the waste is disposed of.
- 10.2 Is it possible to adequately sort waste in order to improve the recycling potential?
- 10.3 If the company's own disposal facilities for solid waste are used or are planned to be used, please specify the construction, capacity and management of the facilities, with emphasis on health and safety aspects, and on the protection of the external environment.

11. Noise

High noise levels in the working environment can cause loss of hearing, annoyance, stress and may become hazardous, e.g. if safety warnings from vehicles etc. cannot be heard. In residential, recreational or tourist areas, noise from industries can be a major inconvenience and of economic importance.

Equipment and machinery should generate low noise levels by proper design, containment and adequate plant lay-out, e.g. by locating noisy equipment and machinery in separate and soundproof rooms. Working rooms can also be made soundproof and be equipped with sound-absorbing materials. Hard surfaces should be avoided wherever possible. Personal protective equipment should always be available.

The factory inspectorate and environment authorities will often issue legal provisions for the maximum noise levels permitted. In the working environment, the maximum permissible level is often 90 dB(A).

Addressing the following issues is important for the assessment of compliance with national noise standards, and for assessing whether it is possible to reduce the noise level further.

Checklist 3 (continued)

- 11.1 List significant noise sources with sound levels in dB(A), estimated or measured at the nearest posts and fences to neighbours, and compare the values with the national noise standards.
- 11.2 Describe measures for noise reduction carried out or planned.
- 11.3 Estimate the number of employees and neighbours significantly affected by noise.
- 11.4 Is it necessary to wear hearing protection at certain work stations in order to comply with national noise standards?

12. Use of Energy

The production of energy generates pollution. The type and extent of pollution depends on the type of energy used and on the installation (boilers etc.), including pollution control equipment.

It is preferable to use energy-efficient process equipment, machinery etc., and to use the type of energy that generates a minimum of pollution. Additionally, energy savings are important measures in reducing the quantities of flue gases emitted. Typical examples are the insulation of hot pipelines and equipment or the use of economisers for heat utilisation from hot air streams. Use of wood is undesirable, if it results in deforestation.

The following issues must be addressed, in order to assess whether further efforts should be made in the project planning and design phase as well as in normal operations.

- 12.1 Describe types of generators and boilers installed or to be installed (diesel, gas turbine, steam turbine, waste heat boilers etc.).
- 12.2 What process units/equipment are the major consumers of energy heat?
- 12.3 Describe any energy efficiency programmes.
- 12.4 List planned energy consumption including the type of energy (natural gas, LPG, electricity, coal, oil, coke, wood etc.), main processes and the storage facilities for these fuels. Specify the origin of fossil fuels and the content of components, such as sulphur etc. that may affect the external environment.

13. Potential Areas of Conflict Concerning the Industrial Site

In relation to the industrial use of land, conflicts may arise with neighbouring activities and areas. Mark the type of land use in the area and make general comments.

Coastal area/inland water:

- Fisheries
- Tourism conflicts
- Wildlife protection
- Natural resources
- Flood risk/protection
- Supply/capacity limits
- Pollution risks
- Potential accidents

Agriculture:

- Main crops, size of farms
- Conflicting interests in water resources (acute/long term)
- Pollution risks to crops and animals caused by emissions etc.
- Power supply

Industrial area:

- Type and area coverage
- Potential for use of by-products/recycling
- Infrastructure capacity
- Risks of accidents
- Natural resources
- Supply/capacity limits
- Health risks for workers

Forestry/uncultivated land:

- Type and area coverage
- Erosion/deforestation risks
- Emission effects
- Fire risks
- Wildlife

Urban areas:

- Residential areas
- Risks of accidents
- Emission effects
- Risks of long-term air/dust/water pollution, noise, smell etc.

Other types of area:

- Type of area
- Comment on issues of relevance

14. Occupational Health and Safety (OHS)

In general, workers' exposure to harmful chemicals, biological agents, noise, vibrations, high or low temperatures, draughts and radiation should be prevented. Risks of accidents should be prevented, and the ergonomic working conditions should be acceptable, i.e. physical burdens should not be too heavy and working postures should be adequate. Welfare facilities should reduce staff health risks.

The goal should be zero or at least very few occupational accidents and diseases. The goal can also be expressed as "good working conditions", creating motivated, committed, creative and satisfied workers. Good working conditions will also contribute to higher productivity and higher product quality.

The methods for achieving this goal include:

- Training workers at all levels in OHS aspects of work;
- Taking OHS issues into consideration in the project planning and design phases;
- Using safeguarded process equipment, machinery etc. with low emissions of substances into the air of the work room;
- Using the least hazardous substances, which should be labelled and have safety instructions attached;
- Using adequate technical measures, such as ventilation, insulation, shielding and containment;
- Having a safety organisation with defined responsibilities for each person in the organisation;

Checklist 3 (continued)

- Describing procedures for possible hazardous work and for emergency situations;
- Having adequate first aid equipment and trained first aid personnel and easy access to medical staff;
- Registering each industrial injury and work-related disorder, which occurs, and assessing the cause of injuries and disorders, in order to prevent similar problems in the future, and
- Adequate sanitary and welfare facilities such as toilets, bathrooms, canteen and access to high quality drinking water and possibly food supply.

OHS aspects are also dealt with in other paragraphs, especially paragraphs 2, 5-7 and 12.

The following issues can assist the partners involved in assessing whether the working environment is satisfactory and whether there is compliance with national provisions.

- 14.1 Explain which work processes may cause risk of accidents and have a negative impact on the working environment, e.g. welding, soldering, cleaning, degreasing, cutting, painting, grinding, surface treatment of metal (phosphatising, chromatising, galvanising etc.), rotating or other moving machinery etc.
- 14.2 Explain whether, and if so, how, toxic substances may be generated from production processes, and which measures are taken to ensure that workers are not exposed to these substances, e.g. by containment, ventilation or use of personal protective equipment.
- 14.3 Does a safety and health organisation (e.g. a safety committee with workers' representatives) exist or is it anticipated?
- 14.4 Do the employees in the OHS organisation receive special training in OHS matters?
- 14.5 Is there an OHS department and/or professionals working specifically with OHS (e.g. a safety officer)?
- 14.6 Does the OHS organisation also deal with fire-prevention and fire-fighting, medical checks and treatment?
- 14.7 Are the employees given oral and/or written instructions for different work procedures, i.e. when working with hazardous chemicals? Do different native languages among employees affect the level of OHS and are appropriate measures taken to assist employees who are illiterate?
- 14.8 Do the workers receive in-plant or external OHS training?
- 14.9 Which industrial injuries and work-related disorders have occurred or are most likely to occur. Are they or will they be registered and assessed in order to prevent similar injuries and disorders in the future?
- 14.10 Are workers exposed to or expected to be exposed to airborne chemicals, including dust, fibres and biological agents?
- 14.11 Do the general conditions of the buildings/facilities represent a risk to OHS and are the logistics of work and materials properly planned and operational?

15. Risk of Major Accidents

In the production planning process, an assessment should be made of whether there are any risks of major accidents, such as spillages, fires, explosions, emissions of toxic gases or heavily polluted fire-fighting water. If such risks are likely, special attention should be given to risk minimisation and emergency planning, including organisation and equipment considerations. Prevention of major accidents is described in the EU Seveso II directive concerning control with the risk of major accidents with hazardous substances (95/82/EC, amended by 2003/105/EC).

- 15.1 List the potential significant causes of risk of major accidents, e.g. fires, explosions, spillages of hazardous chemicals, emissions of toxic gases or heavily polluted fire-fighting water. Previously registered accidents should be included.
- 15.2 Describe the existing and planned measures to reduce the risk of major accidents.
- 15.3 Describe the emergency plans and necessary equipment to be used in the event of major accidents, e.g. fire-fighting emergency measures and equipment, medical services, transportation of injured people, warning of neighbours etc.

16. Complaints

If the planned co-operation project is at an existing production plant, possible complaints in the past from neighbours, customers etc. should be considered, in order to be able to assess the necessary measures to be taken to ensure sustainable working and external environment development. Therefore, the following issues should be addressed.

- 16.1 Describe any complaints about the environment from the neighbouring residential areas or other industries nearby.
- 16.2 Describe any complaints from workers regarding occupational health and safety conditions.
- 16.3 Describe any complaints from customers regarding the health, safety and environmental aspects of the products manufactured.

17. Responsibilities for the Working Environment and the External Environment

Generally, a systematic management approach to the working environment and the external environment is important, e.g. through the use of environmental management systems such as the ISO 14000 series, EMAS (“Eco Management and Audit Scheme”) or the BS7750 environmental management certificate with well-defined environmental organisations, monitoring and control procedures, audits etc.

A policy statement from the management, outlining the objectives of the company in this field, is an important signal to employees and parties outside the organisation. A clear description of the responsibilities of all persons involved is important. Such a description includes the general manager, who should have overall responsibility, the production manager, who should have operative responsibility, as well as responsibilities of heads of workshops, supervisors and workers. These responsibilities should be included in job descriptions at every level.

The following issues can assist the partners involved in assessing whether responsibilities for the working environment and the external environment are clearly described at all levels in the organisation.

Checklist 3 (continued)

- 17.1 Describe the policy of the company with respect to the working environment and the external environment, outlining its objectives in this field.
- 17.2 If a department, dealing specifically with working environment and external environment issues, exists in the company, describe its functions and how it co-operates with the rest of the organisation.
- 17.3 Describe the responsibility for the working environment and the external environment of employees involved at every level in the organisation.
- 17.4 Describe how these responsibilities are outlined in the job descriptions.

18. Data Validation

The sources of environmental data may be of varying quality. Therefore, it is essential to register who made the measurements, how they were carried out, data quality, e.g. detection limits from laboratories, in order to evaluate the need for supplementing measurements or other types of control/validation.

- 18.1 List all data measured together with methods used and the person/organisation responsible.
- 18.2 List the detection levels of the data measured and possible permits/approvals.
- 18.3 Evaluate the need for supplementing measurements to ensure that criteria stipulated in rules and regulations are fulfilled and that all data for subsequent design of environmental measures are of an acceptable quality, including suggestions as to how and by whom the measurements should be carried out.

19. Cost Estimates

To be able to prioritise efforts to improve environmental conditions, it is important to devise a survey of areas to be looked into (areas that do not meet local/national provisions and rules, defective or ineffective facilities, activities for improving OHS or minimising risks for the external environment etc.). A rough cost estimate for measures to improve the situation and a description of the benefits expected is also to be prepared.

Such a survey should reveal costs related to establishment and the need for investment during production. It should also highlight areas where savings are evident. Moreover, the impact on running costs must also to be evaluated.

- 19.1 List all potential areas for improvement found.
- 19.2 Carry out a rough cost/benefit evaluation.
- 19.3 Evaluate the impact on running costs.
- 19.4 List areas where savings are expected.

Checklist 4

Examples of and Principles for Support

1. Plant Location
<p>It is unlikely that the PSD Programme will finance extra costs of an alternative location or of improved infrastructure or facilities. It is expected that the partners themselves fund these costs.</p>
2. Soil and Ground Water Contamination
<p>The PSD Programme will normally fund the additional costs of measures such as collection tanks, process equipment, machinery etc., which to a larger extent prevent spillage or leakage from production, thus supporting measures taken to meet national/Danish requirements.</p> <p>Examples may include:</p> <ul style="list-style-type: none">• Establishment of paved areas without drainage for storage of hazardous chemicals;• Establishment of smaller facilities (e.g. steel collection wells) for storage of liquid chemicals and waste in particular;• Establishment of pipelines above ground level for transportation of chemicals, oils and perhaps waste water;• Renovation of existing underground waste water drainage systems. <p>The PSD Programme will not fund the cleaning up of a polluted site, or the transport, treatment or disposal of polluted soil and water. The PSD Programme will not fund transport, treatment and disposal of waste from production. However, the PSD Programme will finance equipment for the reduction of waste and safer technology for treatment of waste.</p>
3. Raw Materials and Products
<p>The partners involved are expected to be able to ensure that requirements regarding raw materials and products are met, as the PSD Programme will not finance the purchase of materials for production.</p> <p>If it is necessary to purchase more expensive process equipment, machinery etc. than normal in order to be able to minimise the impact on the working environment and the external environment, the PSD Programme may fund the extra costs.</p> <p>Use of non-CFC and HCFC propellants, cooling media etc. can be used as an example of instances where the PSD Programme may fund the extra costs of equipment, but not the extra running costs of raw materials. The PSD Programme may also cover the extra costs of purchasing the equipment necessary for asbestos-free products. This also goes for e.g. equipment for eliminating dust/noise problems.</p>
4. Process Equipment
<p>The PSD Programme may fund additional costs of equipment that ensures a lower impact on the working and external environment, on the condition that national provisions are met.</p> <p>The technology supported by the PSD Programme must also aim at sustainable development. The experience gained by the company should be disseminated to relevant authorities (e.g. factory inspectorates and environment authorities), partners in the labour market and to other companies in the country.</p>

Checklist 4 (continued)

Additional funding from the PSD Programme may be given to e.g. fully contained arrangements with adequate ventilation instead of open systems (i.e. spray-painting boxes); treatment facilities for metal (chrome plating, phosphatising etc.); improved ventilation systems; adequate light; noise-reducing equipment and equipment eliminating heavy lifting and inconvenient working positions. In general measures are supported that reduce pollution or substitute existing materials with less hazardous materials/ cleaner technologies, just as measures to reduce the risks of accidents, radiation etc. is supported.

5. Hazardous and Inflammable Substances

The PSD Programme may fund the additional cost of necessary equipment etc. in order to avoid the use of specially hazardous and inflammable substances or the additional cost of technical measures to minimise the risk of fire, explosion or emission/spillage of hazardous substances into the working and external environment. For example automatic alarm, monitoring, fire-fighting and ventilation systems. Additional costs of process equipment or machinery using less hazardous/inflammable substances (e.g. degreasing systems where water/detergents can be used instead of organic solvents) and systems to avoid the use of e.g. asbestos, PCB, benzene etc., are supported.

The costs of establishing a labelling system and preparation of a system for safety data sheets/ instructions for chemicals may be funded.

The running costs or extra running costs of the purchase of less hazardous or inflammable substances cannot be funded through the PSD Programme.

6. Air Pollution

The PSD Programme may fund additional costs of process equipment, machinery etc. complying with national legislation. The PSD Programme may also fund air pollution control equipment such as installation of filters or replacement of ineffective filter systems (e.g. cyclones with highly efficient filter systems such as bagfilters). This also goes for installation of contained process equipment, even if this is not legally required.

The PSD Programme will not fund running costs and maintenance of operation, electricity or chemicals for air pollution control facilities.

7. Waste Water

The PSD Programme may fund additional costs of process equipment generating less waste water than traditional equipment, but not running operation costs.

On-site waste water treatment plants or e.g. establishment of oil separators, sedimentation systems etc., may also be funded or partly funded, if it is assessed that the treatment plant minimises the environmental impact considerably. The costs of the operation of the treatment plant, e.g. electricity and chemicals, cannot be funded through the PSD Programme.

Checklist 4 (continued)

8. Solid Waste
<p>The PSD Programme may fund additional costs of process equipment that generates less waste than traditional equipment and complies with national provisions. The PSD Programme may also fund analyses of waste and other studies to determine the potential internal or external recycling possibilities.</p> <p>The PSD Programme may fund special storage containers, transport systems or incineration plants, if special conditions exist that support the procurement of such equipment.</p>
9. Noise
<p>The PSD Programme may finance costs for achieving reasonable noise levels in accordance with national provisions, if available.</p> <p>The PSD Programme may fund measurements and calculations of external noise emission and initiatives with the purpose of identifying noise reduction possibilities (e.g. according to the Nordic model for industrial noise). The PSD Programme will normally not fund hearing protection devices, but containment and improvement of machinery may be supported.</p>
10. Occupational Safety and Health
<p>The PSD Programme may fund the additional costs of equipment ensuring a better working environment. This includes for instance special safeguarded machines, process equipment with low impact on the working environment and technical measures minimising the exposure (insulation, ventilation, containment etc.).</p> <p>The PSD Programme will normally not fund personal protective equipment.</p>
11. Risk of Major Accidents
<p>It will be prioritised that risks are minimised and that an emergency plan is in place before the production is established with support from the PSD Programme. If no national legislation or provisions exist similar to the Seveso II directive, the PSD Programme may fund the cost of necessary equipment for minimising the risk of major accidents and drawing up an emergency plan.</p>
12. Responsibilities for the Working Environment and the External Environment
<p>The PSD Programme may fund measures necessary to improve environmental control and management. The support will depend on the type of environmental impact in question and the measures described for minimising the impact.</p> <p>The PSD Programme may fund the establishment and implementation of environmental management systems, e.g. ISO 14000 or similar, including training that will ensure better integration of responsibilities related to the working environment and the external environment at all levels of the organisation.</p>

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