

PART II

**GUIDELINES FOR FINLAND
ON INTEGRATING
NATURAL HAZARD CONSIDERATIONS
INTO DEVELOPMENT ASSISTANCE**

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1. STRATEGIC CHOICES FOR FINLAND

1.1. Options for the Strategy of Development Cooperation

People are to be recognized as a resource, not only as victims

As proposed in Chapter 1. of part I of this study, a disaster can only be defined and identified in terms of its social consequences. A natural or physical phenomenon may or may not result in a disaster depending on its impact on population, number of people involved and depth of the negative consequences. Moreover, there are two observations that stress the importance of the human and social dimension in the actual disaster management.

Firstly, preparedness of the population affected by a hazard to respond largely determines the magnitude of the human suffering. Summary outcome of the studies on disaster situations is that, irrespective of the specific nature of the disaster agent, basically the same kinds of human and organizational problems are involved. This applies especially in the actual emergency phase.

Secondly, increasing the involvement and the participation by the people offers the most cost-effective strategy for disaster prevention and response. In a resource-poor environment this is not only important but probably the only available means to increase the degree of preparedness and to mitigate the effects of the hazards.

Finland's strategy for development cooperation favours conscious attention to disaster prevention and preparedness

The existing strategy for Finland's development cooperation in the 1990s proposes three leading principles: alleviation of poverty, fight against environmental degradation, and support to the enhancement of human rights and democratic reforms.

The second principle - fight against environmental degradation - has direct bearing on long-term disaster prevention. Also the other two - against the background of the importance of human development in the context - do not only allow but favour the integration of disaster preparedness aspects in the assistance scheme. Much depends, however, on the interpretation of the principles into practical decisions. In this respect, sectoral priorities of bilateral cooperation are important.

Natural resources' management and land use - options for Finland in the long-term disaster prevention

Taking into account Finland's resources in the environment-related fields, natural resources management and rural development should be given special attention. The existing technical and planning experience in tropical forestry should be combined with an institutional approach advocating the use of forests/trees in the process of diversifying rural employment and income generation. 'Farm forestry' offers a combination of environmental and development objectives, but is still surprisingly little consciously supported and put into practice.

Rural development deserves a special place in the disaster prevention considerations, since the impact of natural hazards, such as drought (and desertification), is slow. Prevention and preparedness can only be based on long-term capacity building prior to the onset of the disaster agent. Even in the case of rapidly affecting hazards, such as floods and locust infestations, the degree of negative consequences is largely determined by the overall status of development. Key elements at the organizational and more technical level are the diversification and the resilience of the production (farming) systems.

In addition to rural development there are other sectors of development assistance that combine environmental objectives and increased disaster prevention capacity. Among them, with relatively successful involvement by Finland, are the meteorology development programmes in the SADC and in the Central America.

Poverty alleviation and genuine participation by the people are prerequisites for improved risk management

Alleviation of poverty is an essential prerequisite for any such human development that enables improved risk management. As it has been well demonstrated, and documented in authoritative fora (lastly in UNCED), poverty also leads to accentuated environmental problems, increased risk and hence also further increased poverty. A strategic choice, taking into account disaster prevention aspect, would be to direct poverty oriented projects/programmes further to benefit such target groups that are agents in natural resource degradation and that increase vulnerability through their own action. This would be cost-effective development assistance in terms of avoiding future costs.

Involvement and active participation by the people have been observed to be essential for disaster prevention and preparedness. In this regard democratic reforms, defined as increasing access by the people to decision making on issues concerning them, are conducive to better risk management.

Participation by the people should be seen as a social and political process. It does not, for example, follow automatically from improved project design and better defined objectives only. There has to be a real and genuinely perceived perspective to overall

improvement in the quality of life, and the aspect empowerment of the people must be included.

It is thus largely dependent on the decisions as well as political and administrative tradition of the recipient country, whether or not the benefits of external assistance can get impetus through an active and mobilized participation by the people. Where the basic preconditions are met, an aid agency can encourage participation through better project design, participatory planning, etc.

Orientation to human capital development is of fundamental importance as a long term strategic choice. It can be established that investments in people give greater returns than investments in material resources. In projects aiming at improved disaster preparedness, and in projects including this component, human development is likely to offer a valuable and cost-efficient alternative (as important sub-component or as major content of these projects).

1.2. Options for Sectoral and Country Strategies

In the hierarchy of the strategy levels of the Finnish Development Agency the sectoral and the country strategies, subordinated to the general strategy, are envisaged to discuss more detailed strategic options for Finland's development assistance. From the point of view of incorporating disaster prevention aspects in the general approach these levels of strategy formulation are important.

Country strategies should be based on the existing baseline environmental information in the recipient countries such environmental profiles, environmental action plans, and national conservation strategies, which are available in most developing countries. Specific environmental baseline data could also exist in a form of studies and research programmes (the World Bank, IUCN).

Thus, data on e.g. the occurrence and the magnitude variation of natural hazards (e.g. erosion, drought and desertification) can be found from these sources. Country strategies should also include an assessment of the preparedness level of the recipient countries, and further, prospects for socio-economic (e.g. demographic), cultural (e.g. ethnic groups), legislative (e.g. revision of legislation pertaining to land use, forestry, soil and water, resettlement and urban development), institutional (e.g. special coordinative bodies responsible for disaster prevention and preparedness) and policy level developments (e.g. revision of key sectoral policies), i.e. future trends in respect to hazard and risk assessments. In this way disaster prevention can be incorporated as a conscious element in the strategies.

On the basis of this analysis, the country strategies should define, whether disaster prevention and/or preparedness should be considered as priority issues in the country

programmes. In such a case, the project sectors and types to be developed should be defined in the country programmes. Also other important policy- and strategy-level issues should clearly be stated, including for example, definition of country-specific detailed assessment needs (e.g. environmental assessments or specific hazard/risk assessments), special mitigation measures (to be included e.g. into an environment management plan) and necessary monitoring.

Likewise, the sectoral strategies should be developed with respective attention to risk management. In some cases the emphasis would be on disaster prevention, in others it would be on preparedness considerations, or both. To give examples, a sectoral strategy for forestry would mainly discuss prevention, that of health mainly preparedness, and that of agriculture both prevention and preparedness.

2. OPERATIONAL RECOMMENDATIONS FOR FINLAND

2.1. Integrating Disaster Issues into the Project Planning Process

Disaster prevention and preparedness should be integrated into the overall project planning process in each step of the planning cycle. The following recommendations on integrating disaster issues into the project planning process are based on the planning process and project cycle presented in the "FINNIDA Guidelines for Project Preparation and Design, June 1991".

2.1.1 Country and Sector Analyses

The level where the selection and prioritization of projects should be done is the preparation of country strategies. In principle, the Finnish Development Agency has decided to prepare country strategies for each target country of bilateral development cooperation. Disaster-vulnerability should be analyzed in these strategies. At present, there are not any approved country strategy. Therefore, country and sectoral analyses should form part of the project identification process, focused on the preliminarily selected project scope and region. Regarding the disaster issues, the country and sectoral analyses should include the following assessments:

- * assessment of natural disaster risks at national and regional level
 - * classification of potential risks
 - * prioritization of risks
 - * geographic high-risk areas
 - * probability of risks
- * assessment of the macro-economic consequences of the natural disasters typical in the country / region
- * assessment of the socio-economic consequences of the natural disasters, and particularly different groups of people at risk, their risk behaviour and preparedness
- * analysis of local capacities including people at risk, organizations, specific plans, and an evaluation of the "lessons learnt", i.e. the work that has already been done
- * analysis of the country's own policies and strategies for disaster prevention and preparedness, generally and in terms of development cooperation
- * assessment of the risk vulnerability of Finland's earlier cooperation in the country.

Disaster issues could be discussed in country analyses and strategies under a chapter titled "Disaster Vulnerability".

2.1.2 Project Identification, Preparation and Appraisal

There exist two alternative contexts in which the disaster prevention aspect can be determined during the project cycle. These are: 1) how risk-sensitive the project will be/is; and 2) how the project can support longer-term disaster prevention targets. The first question is to be solved during the initial project design phase, and the second one during the definition of (hazard-specific) development objectives of the respective project. The second question will be/is also defined in country analysis and in the formulation of country-specific development objectives and programmes.

Based on the potential risks identified in the country analyses and country strategies, the Terms of References for planning assignments should clearly state the need for detailed studies on disaster vulnerability. In case there clearly is a need for detailed assessment on disaster issues it should be integrated with the detailed environmental studies. In cases where there are not available adequate country studies and strategies, or if disaster vulnerability has not been considered as a priority risk, the planning studies should nevertheless include at least a rough screening of disaster vulnerability. The Draft Project Document should, thus, include a "Rapid Vulnerability/Risk Analysis" (see further). This may be carried out as part of the various planning studies in the following way:

Problem Analysis

In the problem analysis, disaster vulnerability may be taken as a separate problem dimension, or studied integrately within the various other problem dimensions (impact of natural disasters on social problems, technical problems caused by disasters, etc.). Sector- and region-specific historical data should be used as a background for problem analysis.

Participation and Institutional Analysis (Interest Group Analysis)

If the project seems to have any linkage with disaster issues, the various organizations and institutions related to disaster prevention or preparedness should be listed and analysed. These may include, for example, sector ministries, UN offices, NGOs, research institutes, and other projects. Their possible role with the project (source of information, regulating body, etc.) should be analysed and reported.

Also the legislative and administrative orders and guidelines should be registered. These usually include at least regulations on construction activities. It is most useful to register the existing regulations already at this planning stage, as otherwise the issues will easily be forgotten while the planning proceeds into more detailed phases.

Resource Assessment

Consequently, in resource assessment the various institutional, technical, environmental, financial as well as cultural resources for disaster prevention and/or preparedness should be analysed, if the project is anyhow disaster-vulnerable, or if the scope of the project is disaster-specific.

The resources may include national organizations, NGO's, other projects, locally developed techniques to cope with disasters, as well as traditional cultural patterns for disaster prevention.

Opportunity Analysis

At least in theory, any project may support disaster prevention and preparedness measures. Therefore, it is relevant to include the assessment of the potential of the project to act as a support for disaster prevention/preparedness activities in the region or country, into the planning of any development project.

Definition of Objectives, Indicators and Outputs

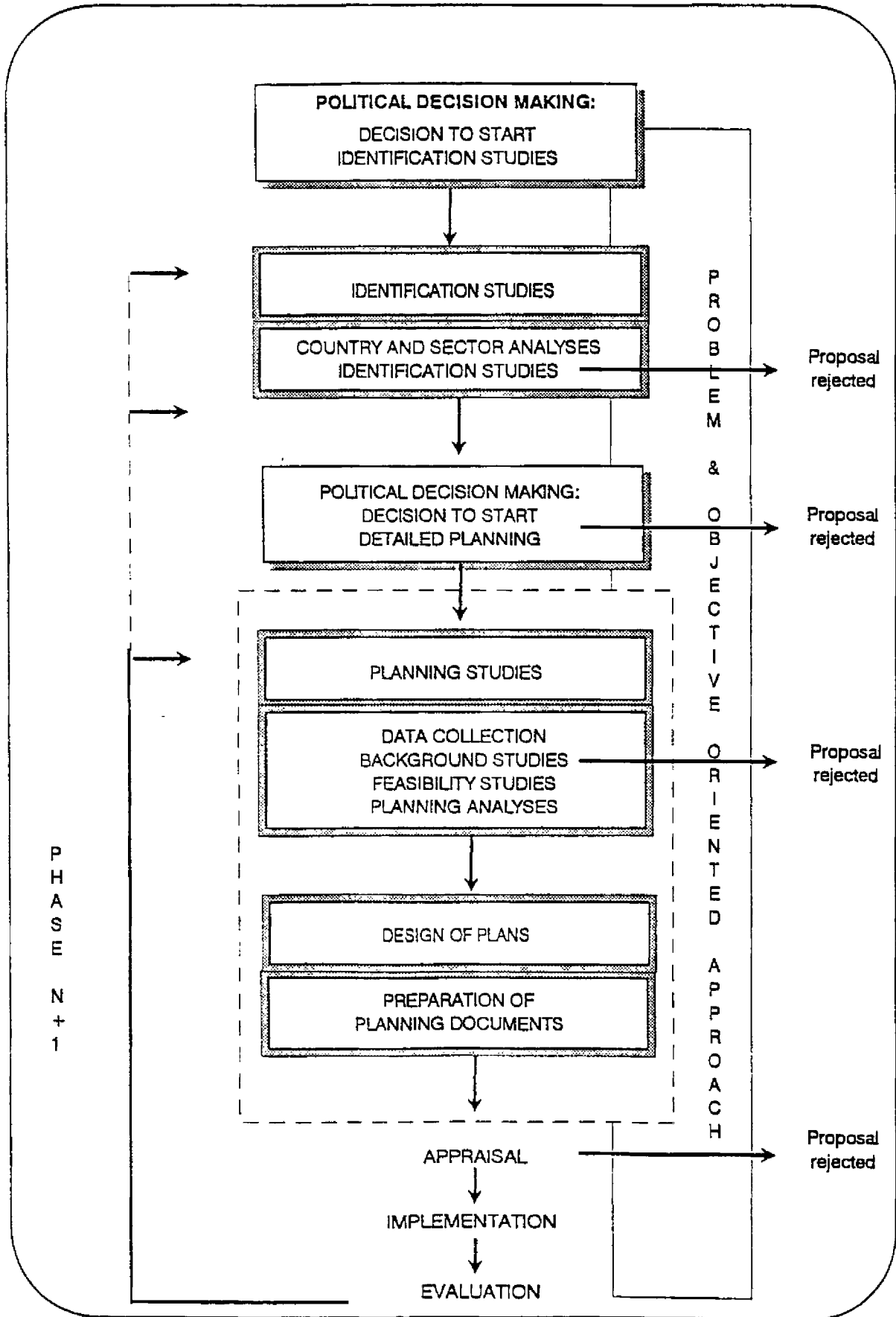
The objectives as well as the indicators should include disaster-specific definitions always, when the various planning analyses have revealed the need to consider the project as a disaster-specific or -vulnerable. The same applies to the specifications of outputs. Especially, in construction activities it may be necessary to define detailed specifications for adapting e.g. local design standards.

Risk Assessment

Assessment of disaster vulnerability and risk may usually be integrated within the environmental impact assessment process (EIA). Possible formats for the screening of disaster vulnerability are given in the attached annexes. As with any other risk category (financial, technical, institutional, social, environmental), a project may be rejected if the risk related to natural disasters is high, and if it is not possible to mitigate the impacts of highly potential natural disasters in an appropriate and cost-effective manner. The Draft Project Document should include a "Rapid Vulnerability/Risk Analysis". This can be incorporated into the main report or attached as an annex, depending on the severity of risk/vulnerability. The responsibility of the vulnerability/risk screening would, thus, fall onto the project planning team/project planner.

The issues related to risk assessment are discussed in more detail in the following chapter (2.2.).

Figure 3. Project Planning Process



2.2. Integrating Natural Hazard Assessment into Environmental Impact Assessment Process

Environmental impact assessment (EIA) process typically combines the tools for analysing environmental impacts with administrative procedures for bringing this analysis to bear on decisions. EIA can guide project site selection and can actually improve planning and decision-making when implemented at the beginning of a project. It can aid efficient use of natural resources and prevent from or ameliorate adverse environmental impacts. As it is multidisciplinary it can also improve the coordination and cooperation between government departments and agencies at best. As such EIA process provides the most appropriate and economic means of combining also (natural) hazard assessments.

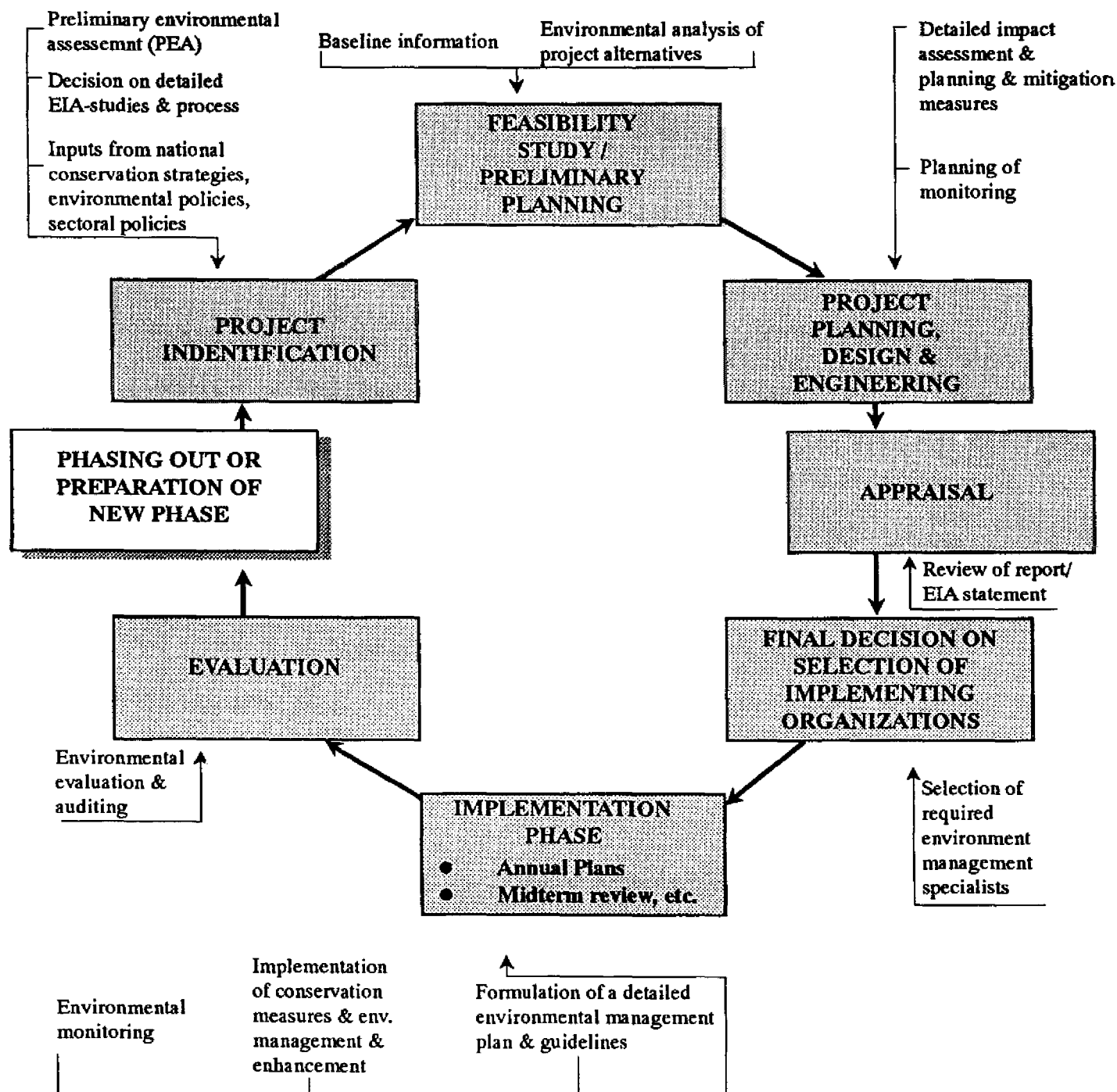
The existing Guidelines for EIA (FINNIDA, 1989) consist of two parts: General Guidelines and Sectoral Guidelines. The General Guidelines describe the EIA procedure to be followed in FINNIDA's project cycle, and guidance on issues which are common to most sectors and project types. The Sectoral Guidelines aim at supporting the identification and anticipation of typical environmental impacts and problems associated with different types of development projects. The Guidelines try to focus on the types of projects currently most in need of environmental assessment and most important in Finland's development assistance. Initially, the Guidelines were designed for the use of programme officers and advisers of the Finnish Development Agency when preparing Terms of Reference for consultants and for the use of programme officers, advisers, senior officials, recipient countries' authorities and independent teams evaluating documents and reports on EIA prepared by consultants. For the implementing agencies the existing Guidelines give instructions on the recommended procedures and quality criterias for their work. The Guidelines also indicate types of specialist expertise required for particular environmental tasks. FINNIDA's Guidelines for project planning and preparation (1991) are currently being revised. Proper integration of the EIA process and (natural) hazard aspects into the project cycle should be guaranteed.

In brief, the Guidelines instruct on the application of the EIA process at every stage of the project cycle (see Figure 4). The system works in sequence. In the project identification phase, after an pre-screening or preliminary environmental assessment (PEA) a decision on detailed EIA Study and Process will be made. If not the case, the procedure is completed by planning the required mitigation and monitoring measures. If a full and detailed EIA is needed, e.g. environmental and socio-economic baseline studies and environmental analysis of project alternatives should be included in the preliminary planning phase or into the feasibility studies. Detailed EIA-Study should then be included in the project planning, design and engineering, and the EIA Report should be reviewed among other documents during project appraisal phase. Special environmental management experts can then be made responsible for preparation of specific environmental management plans and guidelines during the implementation phase. Environmental monitoring is an essential part of the implementation phase and a basis for environmental evaluation and auditing of the project as it reaches its termination.

The existing instructions for environmental assessment and e.g. the outlines for the EIA Report and the EIA TOR included in the FINNIDA Guidelines for Environmental Impact Assessment (Draft, 1989) are in a very general form, and thus do not give much guidance on how and to what extent specific environmental topics like disaster issues should be analyzed. Therefore the process itself and these formats could be further elaborated for more specific purposes. Considering the needs of potential users probably the best and most appropriate way would be to draft separate sectoral outlines for project level operations.

In the following specific natural (and man-made) hazard considerations are presented. These aspects should be included into all Environmental Assessments (/risk assessments).

Figure 4: FINNIDA's Project Preparation and Environmental Impact Assessment Procedures



2.2.1. Contents of the Environmental Assessments

The specific information needed for natural hazard assessment purposes could be categorized as follows:

A. Description of the project/study area

1. State of the environment:

- geologic factors: topography, soil formation and soils, soil stability, erosivity; location, type and extent of erosion;
- meteorologic factors: type and seasonal variation of precipitation, seasonal variation in temperature, occurrence and reliability of rainfall, infiltration and runoff characteristics of rainwater, wind characteristics;
- biological factors: flora, fauna, domestic animals, ecologically sensitive areas;
- hydrological factors: size of catchment area, water availability, information on actual and potential sources of surface and ground water, etc...

2. Description of socio-economic characteristics of the project/study area:

- locally and regionally (/nationally) critical sectors of the economy that are directly or indirectly related to the use of natural resources;
- land and resource use and land tenure system including customary rights;
- existing and planned development activities;
- ethnically or economically marginal groups;
- employment and unemployment;
- demographic factors: migration, population growth, etc.;
- existing buffering mechanisms and coping strategies.

3. Description of the infrastructure and built environment:

- existing constructions and economic facilities that might be exposed to natural hazard risk (e.g. industrial plants, gas and oil storages, storages for toxic chemicals, sewage plants).

4. Description of institutional factors:

- legislation: regulations, norms, standards, design criteria, working and maintenance practices increasing vulnerability and affecting the project implementation;
- roles and responsibilities of organizations (e.g. short description of any station, project, programme, institution, non-governmental organization or governmental body in the region that have mandate, projects, programmes related to natural hazards prevention and preparedness).

B. Changing perspectives in the project area

1. Potential environmental changes and the degree of change (erosion, salinization, flooding, micro-climate..)
2. Expected socio-economic changes: altering land use, demographic changes, changes in economic activities that will probably have impacts in the project area and/or on the target groups.

C. Potential impacts of the proposed project on the increase of risk

= expected ecological and other environmental consequences of the planned project that could in turn affect to the probability of an hazardous event (e.g. changes in vegetation cover, changes in surface water levels, changes in micro-climate)

1. short-term vs. long-term impacts; irreversible vs. controllable impacts; direct vs. indirect impacts; and positive vs. negative impacts.
2. effects of facility siting and altering land use.
3. effects of construction activities (e.g. irrigation dams on increased seismic activity)
4. particularly: potential environmental effects of structural hazard prevention measures (e.g. flood control dams) on ecology, hydrology and water quality.
5. socio-economic effects of the project (unplanned migration, population growth, nutritional and health impacts, altering economic activities and production practices).

D. Mitigation measures as part of an environmental management plan

1. recommendations for improvement of institutional factors (monitoring and early warning systems, regulations/ordinances, economic incentives/disincentives, zoning, building codes, formal education and training, in-formal training and awareness-building).
2. strengthening participation (NGOs and target groups) in planning of practical early warning systems and in awareness-building.
3. appropriate technology (comparison of non-structural and structural measures and their socio-cultural acceptability and efficiency).
4. cost efficiency (prevention/preparedness vs. reconstruction).
5. for facilities at risk, recommendations for alternate sites and other possibilities of risk reduction.