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# Environment and Climate Regional Accession Network (ECRAN)

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Training manual for  
the 1<sup>st</sup> Training of  
Trainers on SEA/EIA

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September 2014

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**ECRAN Working Group: Environmental Assessment**  
**Activity 2.4**

**1<sup>st</sup> TRAINING OF TRAINERS ON SEA/EIA**  
**Training Manual, September 2014**



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This material has been prepared as a working document which has not been language edited.

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The principles and approaches to SEA/EIA, as well as specific methods and tools, elaborated by this Training Manual are based on approaches described in following documents:

- A Practical Guide to the Strategic Environmental Assessment Directive. Office of the Deputy Prime Minister, UK, 2005
- Handbook on SEA for EU Cohesion Policy 2007-2013. GRDP, 2006
- Dusik, J., Smutny, M., Harmel, M.: Guidance for undertaking SEA: General methodological recommendations for practitioners. Prepared within EU-funded project 'Strengthening capacities for Strategic environmental assessment at regional and local level' implemented by EPTISA and DVOKUT ECRO d.o.o., 2014
- Sadler, B., McCabe, M.: Environmental Impact Assessment Training Resource Manual. UNEP, 2002
- United Nations' EIA Course Module ([eia.unu.edu](http://eia.unu.edu))
- Environmental Impact Assessment: A guide to good practice and procedures. Department for Communities and Local Government, 2006



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## 1. INTRODUCTION

### BACKGROUND INFORMATION

Since the local authorities/municipalities and other local stakeholders have an important role in SEA/EIA implementation, it is important to create a core group of the trainers in the ECRAN countries to ensure the knowledge transfer to the local level. The overall ToT scheme invites 3 representatives from each beneficiary country and it shall result in the country-specific SEA/EIA training packages and follow-up training strategies. Altogether three ToT events shall be organized during the project, while in between the ToT trainings the trainers should conduct trainings at the local level in their countries.

As agreed at the 1<sup>st</sup> Annual Meeting of the EA WG, the 1<sup>st</sup> ToT session will be organized in September 2014.

### TRAINING GOALS:

The 1<sup>st</sup> ToT session (4-day long) will focus mainly on developing the drafts of the country specific SEA/EIA training material as well as on training techniques and skills and planning of the local SEA/EIA training events. The goals can be therefore formulated as follows:

- The drafts of the country-specific SEA/EIA training materials are prepared in English (i.e. the training manual and the MS PowerPoint presentation to be used for the trainings at the local level)
- The participants are familiar with the topic i.e. with international principles of good SEA/EIA practice as well as are aware of the key issues or challenges related to SEA/EIA application in their countries
- The participants have capacity to organize and conduct the training events at the local level i.e. they have appropriate training and facilitating skills

### GENERAL APPROACH

The ToT will combine sections focusing on the substance (i.e. SEA/EIA-related topics) with parts addressing training, presentation and lecturing skills. The workshop approach will enable close interaction between the participants and lecturers.

Most of the sections will be arranged in the country working groups to develop – based on the training materials provided – the country-specific presentations on SEA/EIA topics. The lecturers will be involved in the group work to assist the participants in developing the presentations. Usually morning section will be dedicated to this work.

The participants will then be asked (during the afternoon session) to deliver presentation(s) and/or to facilitate the training sections and thus they will have an opportunity to enhance their lecturing and facilitating skills under the supervision of the training expert and other lecturers. Prior to delivering the presentation, a short introduction to lecturing and facilitating skills, respectively, will be provided.



## TRAINING MATERIALS

The training manual has been prepared by the ECRAN experts. It provides an introduction to SEA/EIA as well as key principles and main SEA/EIA analytical steps following international principles of good practice. The training manual has following sections:

- **Introduction to SEA and EIA** providing a brief description of SEA/EIA tools and their evolution, international legal framework and linkages between SEA and EIA
- **SEA and EIA process** section introduces main principles of SEA/EIA good practice, describes the main stages of SEA/EIA process and its main actors
- **Main SEA/EIA analytical steps** chapter provides description of rationale, aim, overview of possible approaches and methods, topics for discussion and/or exercise and/or case studies as well as suggests for the structure of the presentation to be prepared
- **Stakeholders' consultations** part provide key principles for efficient consultations, overview of possible approaches and methods, topics for discussion and/or exercise and/or case studies as well as suggests the structure of the presentation to be prepared
- **SEA/EIA and decision-making** section describes how SEA/EIA outputs should be taken into account when adopting plan or programme, or approving the project

Besides the training manual, the participants will be encouraged to use their own SEA/EIA cases, which illustrate the practice in their countries. The best examples will be included in the training manual within its further revisions and updates.

Additional presentations, SEA/EIA case examples as well as materials regarding the training skills will be provided by lecturers within the training.



## 2. INTRODUCTION TO SEA/EIA

### WHAT IS SEA AND EIA

**Strategic Environmental Assessment (SEA)** is one of the key instrument for integrating environmental concerns and sustainable development principles into strategic planning and decision-making. It is an internationally recognized tool for participatory planning used to analyze and incorporate environmental and health concerns into proposed policies, plans and programmes.

The Strategic Environmental Assessment (SEA) can be understood as *“a systematic and anticipatory process, undertaken to analyze the environmental effects of proposed plans, programmes and other strategic actions and to integrate the findings into decision-making”*.

The purpose of SEA can be defined as ensuring that environmental considerations inform and are integrated into strategic decision-making in support of environmentally sound and sustainable development. In particular, the SEA process assists authorities responsible for plans and programmes, as well as decision-makers, to take into account<sup>1</sup>:

- Key environmental trends, potentials and constraints that may affect or may be affected by the plan or programme
- Environmental objectives and indicators that are relevant to the plan or programme
- Likely significant environmental effects of proposed options and the implementation of the plan or programme
- Measures to avoid, reduce or mitigate adverse effects and to enhance positive effects
- Views and information from relevant authorities, the public and – as and when relevant – potentially affected States

Generally, SEA should be applied for plans, programmes, policies and other documents of a strategic nature (including possibly also legal documents). However, not all above documents automatically require SEA. In principle, SEA should be carried out for the documents prepared and adopted by public authority based on the legal provisions in various sectors. The list of documents to be a subject of SEA might include<sup>2</sup>:

- Sector-specific policy, plans and programmes
- Spatial and land-use plans
- Regional development programmes
- Natural resources management strategies
- Legislative and regulatory bills
- Investment and lending activities

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<sup>1</sup> Resource Manual to Support Application of the UNECE Protocol on SEA (UN and REC CEE, 2007)

<sup>2</sup> From Partidario, M., 2001: Strategic Environmental Assessment (SEA) Training Manual, and adapted by Sadler, B., McCabe, M., 2002: Environmental Impacts Assessment Training Resource Manual (UNEP)



- International aid and development assistance
- Structural adjustment fund and operations
- Macro-economic policy
- Budget and fiscal plans
- International trade agreements

**Environmental Impact Assessment (EIA)** can be defined as “a systematic process to identify, predict and evaluate the environmental effects of proposed actions and projects”<sup>3</sup>. It has been developed as a tool for preventing, reducing or offsetting the significant adverse environmental effects of development proposals, and enhancing positive ones<sup>4</sup>. In a broader sense, EIA should contribute to environmentally sound and sustainable development.

EIA aims at providing information on environmental consequences to decision-makers and thus EIA is supposed to be applied prior to a decision or commitment on implementation of certain projects or activities being made.

Two general aims of EIA, which are mentioned above i.e. (i) to provide information on environmental consequences to decision-makers, and (ii) to support sustainable development, can be translated into following objectives<sup>5</sup>:

- To ensure that environmental considerations are explicitly addressed and incorporated into the decision making process related to development projects and activities;
- To anticipate and avoid, minimize or offset the adverse significant biophysical, social and other relevant effects of development proposals, and enhance the positive ones;
- To protect the productivity and capacity of natural systems and the ecological processes which maintain their functions; and
- To promote development that is sustainable and optimizes natural resource use and management opportunities.

EIA is applied for development proposals – e.g. infrastructure (highways), industrial facilities (oil refineries, chemical plants), energy production (hydropower plants) etc. Originally, EIA was supposed to be conducted only for major projects and activities (nuclear power plants, airports) having likely significant impacts, however a tendency for its application for smaller projects (e.g. residential areas) can be seen e.g. in the European Union countries.

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<sup>3</sup> Environmental Impact Assessment Training Resource Manual (UNEP, 2002)

<sup>4</sup> Environmental Impact Assessment: A guide to good practice and procedures (Department for Communities and Local Government, 2006)

<sup>5</sup> Based on “Principles of Environmental Impact Assessment Good Practice” (IAIA, 1999)





## HISTORY AND EVOLUTION

The origins of the EIA can be found in the 1960s, when – as part of increasing environmental awareness, EIAs involved a technical evaluation intended to contribute to more objective decision making. In the United States, environmental impact assessments obtained formal status in 1969, with the enactment of the National Environmental Policy Act. During 1970 – 1975, EIA schemes were established in several other countries – e.g. Australia, Canada, New Zealand. Since mid-1970, EIA started to be increasingly used in the other regions of the world, including several developing countries (e.g. China, Thailand and the Philippines). In Europe, preparation of the EIA Directive and its adoption in 1985 can be considered as a milestone in EIA development. Similarly, international financial agencies (e.g. the World Bank) integrated requirements for EIA in their operational policies and instructions in order to minimize environmental and health problems of supported projects. Since the early 1990s, EIA has been applied in all OECD countries, and it has been introduced and applied in the countries of Central and Eastern Europe. In many countries in areas of the former Soviet Union, EIA follows or has been built on procedures of so called “State Ecological Expertise”.

The fact that the EIA is applied only to specific projects – and thus it can address only localized impacts at the local level, while many decisions with adverse environmental consequences had already been made at the policy or strategic level – started to be seen as an important deficiency of EIA in the late 1970s and early 1980s. Therefore the concept of the SEA was developed, which followed approaches used in the regional and spatial planning. In 1981 the U.S. Housing and Urban Development Department published the Area-wide Impact Assessment Guidebook.

In late 1980s and early 1990 respectively, the provisions on SEA were introduced in the national legal frameworks separately from EIA (e.g. Canada or Denmark) or through revisions of EIA legislation (e.g. Czech Republic, Slovakia). United Kingdom stipulated obligations for SEA within the framework of “sustainability appraisal”. Similar to EIA, the World Bank applied sectoral or regional “environmental assessment” to its lending and development programmes.

In Europe the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention) laid the foundations for the introduction of SEA in 1991. In 2003, the Espoo Convention was supplemented by the UNECE Protocol on Strategic Environmental Assessment, and the EU SEA Directive was adopted in 2001 requiring that that all member states of the European Union should have ratified the Directive into their own country's law by 21 July 2004.

## MAIN INTERNATIONAL LEGAL DOCUMENTS

### SEA

The major international legal documents for SEA are the European Commission’s Directive 2001/42/EC on the assessment of the effects of certain plans and programmes on the environment (SEA Directive), and SEA Protocol to the UNECE Espoo Convention (SEA Protocol). The SEA Directive greatly influenced the negotiation of the SEA Protocol. However, there are several differences between these two legal instruments, including the geographical scope (UN countries and EU member states respectively) and the consideration and integration of environmental concerns in the preparation of policies and legislation (the SEA Directive stipulates SEA only on plans and programmes, while the SEA Protocol promotes its application also on policies and legislation).



The SEA Directive is in force since 2001 and should have been transposed by July 2004 by all EU member states. Its requirements have had to be integrated in the national legal frameworks. For more information on the SEA Directive see <http://ec.europa.eu/environment/eia/home.htm>

The SEA Protocol was adopted in Kyiv (Ukraine) in 2003 at an extraordinary meeting of the Parties to the Espoo Convention during the 'Environment for Europe' Ministerial Conference and signed by 36 states and the European Community. More information on the SEA Protocol can be found at [http://www.unece.org/env/eia/sea\\_protocol.htm](http://www.unece.org/env/eia/sea_protocol.htm)

## EIA

The newly amended EIA Directive (2014/52/EU) entered into force on 15 May 2014 to simplify the rules for assessing the potential effects of projects on the environment. The main amendments are as follows:

- Member States now have a mandate to simplify their different environmental assessment procedures.
- Timeframes are introduced for the different stages of environmental assessments: screening decisions should be taken within 90 days (although extensions are possible) and public consultations should last at least 30 days. Member States also need to ensure that final decisions are taken within a "reasonable period of time".
- The screening procedure, determining whether an EIA is required, is simplified. Decisions must be duly motivated in the light of the updated screening criteria.
- EIA reports are to be made more understandable for the public, especially as regards assessments of the current state of the environment and alternatives to the proposal in question.
- The quality and the content of the reports will be improved. Competent authorities will also need to prove their objectivity to avoid conflicts of interest.
- The grounds for development consent decisions must be clear and more transparent for the public. Member States may also set timeframes for the validity of any reasoned conclusions or opinions issued as part of the EIA procedure.
- If projects do entail significant adverse effects on the environment, developers will be obliged to do the necessary to avoid, prevent or reduce such effects. These projects will need to be monitored using procedures determined by the Member States. Existing monitoring arrangements may be used to avoid duplication of monitoring and unnecessary costs.

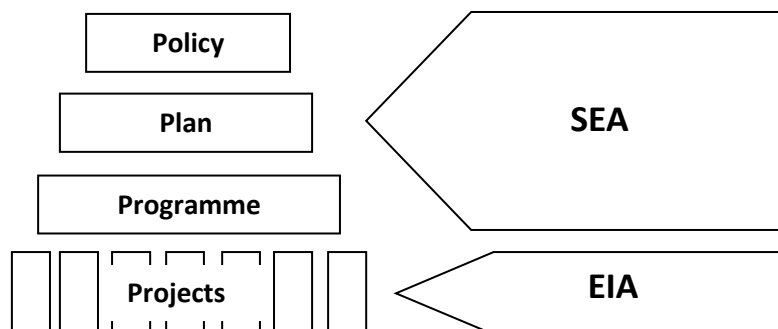
More information about new EIA Directive can be found at <http://ec.europa.eu/environment/eia/review.htm>

## LINKAGES BETWEEN SEA AND EIA

Generally, there are many common roots of the SEA and EIA, since the SEA originally had been built on EIA principles, process and procedure. Both tools should provide a basis for decision-making i.e. results and conclusions provided by SEA/EIA should be considered when adopting plans and programmes, and approving the projects or specific development activities, respectively. It means SEA/EIA should be conducted prior to decision being made.



However, there are several significant differences between EIA and SEA. EIA should be applied for a specific project – e.g. construction of transport infrastructure, power plants, or water dams, mining, oil drilling, large scale deforestation etc., while SEA is supposed to be carried out to for strategic documents (policies, strategies, plans, programmes). The position of SEA and EIA in the decision-making cycle is illustrated in the scheme below<sup>6</sup>:



Spatial plans, especially at the local level, can be considered as a “bridging” area between SEA and EIA. Although still strategic document by definition, local spatial plan often includes locations for specific projects proposals, where information about planned projects are already available, and thus a level of analysis may be relatively close to EIA. On the other hand, in practice, conducting EIA-level assessment at the platform of the spatial plan is impossible; therefore SEA still needs to be focused rather on cumulative impacts and providing guidelines for subsequent EIAs. Thus application of SEA can address certain problems already at the planning level and streamline further EIA work.

Since SEA should be conducted earlier in the decision-making cycle, when key development priorities and directions are supposed to be discussed, it might consider broader range of possible alternatives<sup>7</sup> and thus provide an opportunity to consider environmental and sustainable development issues in the strategic decisions and influence further stages of the development (including setting framework for projects subject to EIA). Compare to SEA, EIA is applied at the end of decision-making cycle, when specific projects or development activities are to be approved, and thus EIA is usually focused on analysis of specific impacts in well defined area and identification of measures to mitigate likely adverse effects.

<sup>6</sup> Applying Strategic Environmental Assessment: Good Practice Guidance for Development Cooperation. OECD, 2006.

<sup>7</sup> For example, in case of the transport policy the railway can be considered as an alternative to the car transport and both options can be addressed by SEA. While EIA conducted for a specific highway corridor will be usually focused on assessing the impacts for the corridor and possibly can suggest alternative routing, but not replacing the highway by railway.

### 3. SEA/EIA PROCESS

#### KEY PRINCIPLES OF SEA/EIA GOOD PRACTICE

A good SEA/EIA should be:<sup>8</sup>

- **Purpose-oriented:** The main purpose of SEA/EIA is not to produce the report, but to achieve integration of inputs in the plan or programme (SEA) and project design (EIA) and its further implementation.
- **Focused** i.e. addressing the key environmental and health problems and likely significant impacts and risks.
- **Transparent:** SEA/EIA should be clear, easily understandable and open process allowing key stakeholders to participate during main stages, with open access to the main report and documents, and public records of the decisions taken and related justification.
- **Credible:** SEA/EIA should be conducted with professionalism, its conclusions and results have to be objective and unbiased and supported by appropriate evidence as relevant to the nature of the plan/program or project
- **Efficient** and thus presenting no- or minimal burden to the planning process or project preparation, however still delivering expected outcomes.

Specifically for SEA it is essential to ensure that the SEA process interacts with preparation of the plan or programme. Besides practical reasons including minimizing time delays or saving financial means by sharing data and information by both SEA and planning experts etc. it also should lead to the situation that proposals and recommendations given by SEA are already integrated in the plan or programme during its preparation. Thus, the chance that the SEA inputs will be properly considered in the plan / program approval are much higher compare to the situation when SEA is conducted only for already drafted document. It is also important to ensure proper communication between SEA team and planning team (i.e. experts drafting the plan or programme) enabling to the SEA team providing inputs in a form and time, and thus SEA can support the planning process.

#### ROLES AND RESPONSIBILITIES

Given differences between SEA and EIA regarding the subject of the assessment and thus different positions within the planning and decision-making cycle, also the key actors usually involved in SEA/EIA differ.

Following key actors are typically involved in the SEA process:

- **Planning authorities** are authorities responsible for preparation of the plans or programmes, submitting them for adoption and/or for their implementation. Planning authorities should

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<sup>8</sup> Adapted from IAIA and IEMA: Principles of EIA Best Practice. IAIA, 1996, and Sadler, B: Environmental Assessment in a Changing World: Evaluating Practice to Improve Performance. Canadian Environmental Assessment Agency and IAIA, 1996.



ensure that SEA is carried for plans and programmes and are responsible for its quality and meeting legal provisions. This group usually includes ministries, regional and municipal governments.

- **Environmental and health authorities** are those governmental and/or public authorities in charge of relevant environmental and health issues. They might include environmental or environmental health inspectorates (national, regional or local level), environmental or health research institutions performing a public task or units in government (national, regional or local) likely to be concerned by, or have expertise in, the effects of implementing the plan or programme in question. Environmental and health authorities should be involved in SEA process and have an opportunity to provide comments on the plan or programme as well as on the SEA report. In some SEA systems, there is also a **SEA competent authority**, which is in charge of coordination of SEA process and issuing the final SEA statement.
- **Decision-makers** are governmental and/or public bodies in charge of approving or adopting the plan or programme in accordance with relevant legal provisions and administrative structure. It can be Government or Parliament at the national level, regional and municipal councils etc. In terms of SEA decision-makers should consider findings and conclusions provided by SEA in the decision.
- **Public** can be defined as one or more physical or legal persons and their associations, organizations or groups. Public should have an early, timely and effective opportunities to participate in SEA process when all options are open and comments provided should be considered in the plan or programme and in the SEA.
- **Foreign countries** should be involved in SEA process in case that the plan or programme is likely to have transboundary effects i.e. potential environmental and health impacts going beyond the administrative borders of the country, where the plan or programme is prepared. Basically, in such case, the foreign countries likely to be affected, should be informed on likely environmental and health effects and have an opportunity to provide comments on the draft plan or programme and SEA report.

EIA process usually involved following key actors:

- **Project developer** is the private or public authority submitting the project for approval and having the key responsibility to ensure that EIA is conducted for a given project in accordance with all legal requirements and in a sufficient quality.
- **EIA competent authority** administrates the EIA process, in cooperation with the project developer coordinate consultations with stakeholders, reviews the quality of EIA report etc., and issues the final statement to be considered in the project development consent.
- **Environmental and health authorities** are those governmental and/or public authorities in charge of relevant environmental and health issues. They might include environmental or environmental health inspectorates (national, regional or local level), environmental or health research institutions performing a public task or units in government (national, regional or local). Environmental and health authorities should be involved in EIA process and have an opportunity to express their view on the scope of EIA as well as on the EIA report.



- **Decision-makers** are public bodies in charge of approving or adopting the project (subject of EIA) in accordance with relevant legal provisions and administrative structure. When making the decision on a particular project, they have to take into account result provided by EIA.
- **Public** can be defined as one or more physical or legal persons and their associations, organizations or groups. Public should be provided with relevant information related to likely environmental and health impacts of assessed projects and should have an early, timely and effective opportunities to participate in EIA process when all options are open and comments provided should be considered in the EIA and/or relevant decision-making.
- **Foreign countries** should be involved in EIA in case that the project is likely to have transboundary effects i.e. potential environmental and health impacts going beyond the administrative borders of the country, where the plan or programme is prepared. Basically, in such case, the foreign countries likely to be affected, should be informed on likely environmental and health effects and have an opportunity to provide comments on the EIA report.

## BENEFITS AND COSTS

Application of both SEA and EIA can – if carried out efficiently – should bring a number of benefits. From those of rather general and long-term nature to specific positive effects in terms of energy or natural resources savings which can lead to economic incentives.

Generally, carrying out the SEA/EIA should contribute to better planning and decision-making and the project design.

Proper **application of SEA** should therefore<sup>9</sup>:

- Provide for a high level of environmental protection: SEA should ensure avoidance of irreversible and severe effects, safeguard protected areas and sites, and maintain critical habitats and other areas important for the conservation of biodiversity.
- Improve the quality of plan and programme making: SEA has the potential to improve or reinforce the quality of the plan or programme, leading to better outcomes. It does so in a number of ways but particularly by helping to ensure that the process is focused, rigorous, open to alternatives and considers the full range of potential effects and opportunities for achieving more sustainable forms of development.
- Increase the efficiency of decision-making: SEA helps to streamline decision-making by enabling environmental issues to be taken into account consistently at the different stages or tiers of decision-making. Time efficiency (and as a consequence cost effectiveness) is expected to be improved by better and more consistent decision-making at the plan or programme level, leading to fewer appeals and less discussion at the operational or EIA level.
- Facilitate the identification of new opportunities for development: SEA facilitates the improved consideration of environmental limits in the formulation of plans and programmes. It helps in considering alternatives and encourages the search for win-win options that open

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<sup>9</sup> Based on Benefits of a Strategic Environmental Assessment, Briefing paper (REC and UNDP, 2003)



opportunities for new developments within the carrying capacity of ecosystems. SEA thus supports a shift of decision-making towards genuine sustainable development.

- Help to prevent costly mistakes: SEA provides early-warning signals about environmentally unsustainable development options. A sound application of SEA may therefore limit the risk of costly remediation of avoidable harm or corrective actions, such as relocating or redesigning facilities. SEA also helps in saving human and financial resources in the development of plans and programmes as unsustainable options can be disregarded early on.
- Strengthen governance: SEA increases the overall transparency of strategic decision-making and allows the early consideration of the opinions of key stakeholders in the plan- or programme-making process. Properly undertaken and accountable SEA enhances the credibility of plans and programmes. It may mobilize public support for implementation – a plan or programme may be more effective when the values, views, opinions and knowledge of the public have become part of the decision-making process.
- Facilitate transboundary cooperation: SEA can provide an important arena for regional cooperation to address difficult issues concerning, for example, shared protected areas, waterways, transport connections and transboundary pollution.

Proper **application of EIA** should lead to<sup>10</sup>:

- Better environmental planning and design of a proposal. Carrying out an EIA entails an analysis of alternatives in the design and location of projects. This can result in the selection of an improved technology, which lowers waste outputs or an environmentally optimum location for a project. A well-designed project can minimise risks and impacts on the environment and people, and thereby avoid associated costs of remedial treatment or compensation for damage.
- Ensuring compliance with environmental standards. Compliance with environmental standards reduces damage to the environment and disruption to communities. It also avoids the likelihood of penalties, fines and loss of trust and credibility.
- Savings in capital and operating costs. EIA can avoid the undue costs of unanticipated impacts. These can escalate if environmental problems have not been considered from the start of proposal design and require rectification later. An “anticipate and avoid” approach is much cheaper than “react and cure”. Generally, changes which must be made late in the project cycle are the most expensive.
- Reduced time and costs of approvals of development applications. If all environmental concerns have been taken into account properly before submission for project approval, then it is unlikely that delays will occur as a result of decision-makers asking for additional information or alterations to mitigation measures.
- Increased public acceptance of development projects. The EIA process formalises public participation, allowing the public to contribute to the design of the project, which generally increases the acceptability of large-scale projects

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<sup>10</sup> United Nations EIA Course Module (1996)



Regarding the financial aspects related to SEA is important to mention, that the costs for carrying out the SEA for specific plan or programme are supposed to be covered by the authority responsible for preparation of this plan or programme (and thus responsible for ensuring the SEA application as well).

The costs of SEA may significantly vary depending on a character and detail of the plan or programme assessed, a number of alternatives evaluated, scope of public involvement and consultation process etc. The EC study<sup>11</sup> concluded that SEA may increase planning costs by 5-10%, however this study also found examples of good SEAs that increased planning costs by less than 5%. The UK study<sup>12</sup> provides that most SEAs required approximately 70-80 person days to complete (roughly half for scoping and half for the environmental report). The survey from the Czech Republic<sup>13</sup> on efficiency of the SEA application summarizes that about 50% of SEAs required about 2 – 10 person days time allocation from the planning authority side – however conducting the assessment (i.e. carry out the analyses, prepare the SEA report etc.) was usually assigned to external experts / consultants, and thus the overall time needed for the whole SEA is difficult to estimate.

In terms of costs associated with EIA estimates made by the World Bank shows that the costs of EIA for the projects supported by the World Bank usually range from 0.06% to 0.1% of total project costs and only rarely exceed 1%. The EC study<sup>14</sup> provides that the typical range of costs of EIA as a share of development cost identified varies from 0.01% to up to 2.37% of development costs. It also shows that that the costs of the EIA procedure are proportionately more expensive as a share of development costs for smaller projects compare to large projects (over 20 mil EUR).

It is obvious that costs needed for carrying out EIA highly depend on the type of the project and its size, environmental conditions in the field and significance of the likely impacts, data availability etc. Also time needed for conducting EIA process also belongs to significant factors determining financial demands. Generally, if EIA is carried out during project development, its timeframe doesn't usually cause delay in the project preparation and administration. Therefore, proper planning and coordination of EIA process can significantly reduce time demands and thus finances needed.

## USUAL STEPS AND ANALYSES

Although each SEA/EIA should be tailor-made considering the main features of the plan or programme, type of project, key environmental and health problems to be addressed within the

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<sup>11</sup> A study on costs and benefits in EIA/SEA (European Commission, 1996)

<sup>12</sup> The Strategic Environmental Assessment Directive in the UK: One Year On (Therivel, R. and F. Walsh, 2005, Environmental Impact Assessment Review)

<sup>13</sup> Experience with application of SEA in the Czech Republic and UK: A Public Authorities' Point of View (Musil, M. at el, EIA-IPPC-SEA Bulletin, 2010, in Czech language)

<sup>14</sup> Collection of information and data to support the Impact Assessment study of the review of the EIA Directive (DG Environment, 2010)





assessment etc., there are several common steps and analyses which are typically performed within SEA/EIA process. These include:

- Screening
- Scoping
- Baseline analysis
- Impacts analysis and formulation of mitigation measures (including monitoring)
- Compiling SEA/EIA report
- Quality control

Along these analytical steps the activities regarding **consultations with stakeholders** should be conducted in certain stages. At the end, the conclusions and recommendations provided by SEA/EIA need to be considered in the **decision-making** i.e. approval of the plan / programme and project development consent respectively.

Sections 4, 5 and 6 provide details regarding the analyses and steps described above.



## 4. MAIN SEA/EIA ANALYTICAL STEPS

### STEP 1: SCREENING

#### RATIONALE

Many human activities may cause environmental and health impacts. However, SEA and EIA are supposed to address mainly significant impacts. Thus, the screening identifies whether or not SEA or EIA needs to be applied for a specific plan, programme, or project. The screening is very important from efficiency of the entire SEA/EIA system point of view – a well defined screening policy focuses resources upon those plans, programme and projects which might potentially lead to significant environmental and health effects and exclude from SEA/EIA systems those with only minor (or without) environmental and health consequences.

#### AIM

The aim of screening is to identify if SEA/EIA needs to be applied for a specific plan, programme or project.

#### APPROACHES AND METHODS

There are various approaches to be used for screening. Often screening is based on the list of criteria, which would help to identify if certain plan, programme or projects should be a subject of SEA/EIA, or list of project types (for EIA) with or without thresholds for the project capacity or size.

In many SEA/EIA systems, screening involves also consultations with relevant environmental and health authorities. Often, the screening is conducted directly by SEA/EIA competent authority based on the information (e.g. notification) submitted by the planning agency or the project developer.

Taking into account the requirements of the EU SEA Directive, the major criteria to be considered when conducting screening for plans and programmes can be formulated as follows:

| Question  | Rationale  |
|---|--|
| Is the plan or programme subject to preparation and/or adoption by an authority at national, regional or local level or is it prepared by an authority for adoption, through a legislative procedure by Parliament or Government, and is it required by legislative, regulatory or administrative provisions? | Only those plans and programmes should be considered as a subject of SEA. SEA should not be applied for ad-hoc documents, which are not formalized through any form of the legal decision or approval by the governmental authority. |
| Is the plan or programme prepared for agriculture, forestry, fisheries, energy, industry,   | The EU SEA Directive lists these sectors as the most important for strategic planning with   |



|  |   |
|--|---|
| transport, waste management, water management, telecommunications, tourism, town and country planning or land use? | potential significant environmental and health impacts.   |
| Does the plan or programme set the framework for future development consent of projects which may require EIA?     | If the plan or programme implementation may include implementation of the projects requiring the EIA, then the significant impacts can be expected and SEA should be carried out. |
| Can impacts on Natura 2000 <sup>15</sup> sites be expected?  | If Appropriate Assessment in accordance with the Articles 6 or 7 of the Directive 92/43/EEC is required, the “full” SEA should be applied.  |

For the plans and programmes, which determine the use of small areas at local level and minor modifications to plans and programmes, the SEA should be required only if they are likely to have significant environmental or health effects. To determine the significance of the likely impacts, criteria listed in Annex II of the EU SEA Directive can be used.

For EIA, the list of projects (or types of projects) can include inclusive or exclusive thresholds and lists – see Box 1 below. Annex 1 of the EU Directive is an inclusive list because all projects listed in this annex always require EIA, regardless of where they are proposed. Annex II of the EU EIA Directive can be used as an example of a inclusive and exclusive criteria, which has served as a basis for developing similar list in many European countries. Especially for EIA (and far less in SEA), deciding about necessity of EIA application may involve already preliminary identification of likely impacts and evaluation of their potential significance. Annex III of the EU EIA Directive provides criteria to be considered when discussing the significance of likely impacts.

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<sup>15</sup> Natura 2000 is an EU-wide network of nature protection areas established under the 1992 Habitats Directive. The aim of the network is to assure the long-term survival of Europe's most valuable and threatened species and habitats. It is comprised of Special Areas of Conservation (SAC) designated by Member States under the Habitats Directive, and also incorporates Special Protection Areas (SPAs) which they designate under the 1979 Birds Directive.



**Box 1 Inclusive and exclusive thresholds and lists**

Inclusive thresholds specify limits over which EIA needs to be applied (e.g. if the length of highways is more than 10 km, if the production is more than 100,000 tons / year etc.), while exclusive threshold define limits below which EIA is not required (e.g. if the volume of the water dam is lower than 5 mil m<sup>3</sup>, if the area of deforestation is less than 10 ha etc.).

An inclusive list specifies projects which always require EIA. These are typically large and controversial developments which are known to produce significant environmental impacts (e.g. nuclear power stations, large chemical plants, major infrastructure developments, etc.). Annex I of the EU EIA Directive lists developments which always require EIA in the EU.

An alternative approach is to develop an exclusive list of projects which never require EIA. This approach has been used e.g. by most federal authorities in the USA.

**EXERCISE**

Determine if SEA/EIA is needed for following plans, programmes and projects and justify your decision – use criteria stipulated by your national legislation or by the EU SEA/EIA Directive. Answer also following questions:

- Is the information available sufficient for screening?
- If not, what additional information would you need?
- What screening criteria / questions did you use?

**SEA CASE 1: AMENDMENTS OF MUNICIPAL SPATIAL PLAN OF RED HILL MUNICIPALITY**

The process of the amendments of Red Hill Municipality spatial plan has been initiated by the group of the land owners, who submitted the requested to the municipal council. The proposed amendment would change the functional use of altogether 15,000 m<sup>2</sup> of the land – from permanent grassland to the housing area. The land owners aim at building 10 family houses in the area for their own living.

The site borders with the urban area of the municipality from the south, with the agriculture land from east and west, and there is forest on the north side. The road connecting the houses with the main road and connecting the houses to the electricity network, sewage and water supply systems will be a part of the project.

**SEA CASE 2: THE NATIONAL ENERGY STRATEGY**

The Ministry of Energy is initiating preparation of the national energy strategy. The strategy will define the energy priorities in the country i.e. primarily the energy mix and the domestic energy demand by 2030. The strategy will address all energy sources, which can be realistically utilized in the country.



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### SEA CASE 3: AMENDMENTS OF THE COUNTY SPATIAL PLAN

The County Council has decided on amendments of the county spatial plan, which was adopted already in 2001 and amended two times previously. The suggested amendments include the following proposals:

- New tourist zone (on the coast), including aquapark and golf playground
- New sites for mariculture
- Two new economic zones (50 and 80 ha)

In order to meet the target on increasing the accommodation capacities for tourist, several municipalities are to be identified by the spatial plan where new hotels and pensions should be primarily developed.

### EIA CASE 1: THEATRE IN AN OLD CHARCOAL WAREHOUSE

A Theater Association (NGO) wants to develop one of the old warehouses into a theatre. The warehouse is situated in an industrial area, earlier used for large industries, but today many facilities in the area are empty and there are only “light” industries in operations. The warehouse has been used for charcoal storage, and it is likely that the building and the surroundings are contaminated. A few samples from the “floor” (gravel and dust) have been analysed, showing high contents of e.g. PAH (poly aromatic hydrocarbons).

### EIA CASE 2: NEW LINE (CHROMIUM) IN EXISTING PLATING INDUSTRY (ZINC, ALUMINIUM, TIN)

The operation is situated in an industrial area and all neighbouring facilities are used for industrial operations or storage of goods. The operation has an environmental operation permit from 1998, providing for the existing lines (Zn, Al, Sn). The waste waters from the proposed chromium line will be treated in an existing, internal waste water treatment plant, designed according to the BAT of 1998 and thereafter updated in accordance with the findings of the environmental audits carried out by external experts every third year. The treated waste water is led to a small stream joining with a larger river, both showing clear signs of negative environmental impact, probably due to existing effluents from the company, other industries in the area and the traffic (polluted storm water). The plant will also increase working hours, going from 2 shifts per day to 3 shifts per day, i.e. it will be operating 24 hrs/d.

### EIA CASE 3: NEW TYPE OF SOLID WASTE TO DISPOSAL SITE

A company operating an old lime quarry holds an environmental permit (1992) to develop a solid waste disposal site in one part of the quarry. The area allocated for the disposal site is found in one corner of the quarry, about 1 km from the areas where the quarry is active today. Most part of the lime wonned from the quarry is used for treatment of industrial air fumes (filter lime). The existing permit allows for disposal of the used filter lime. The existing permit has never come into use and no



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waste material is disposed of in the quarry. The operator now would like to include into the permit the possibility to dispose of lime sludge from the pulp- and paper industry, classified as inert according to the EU directive appendix. Three families have private water wells within 3 km from the proposed disposal site.

#### TIPS FOR PRACTICE

- The majority of SEA screenings can be conducted using only “administrative” criteria i.e. considering only characteristics of the plan or programme with no need to discuss the likely impacts and their significance
- In SEA, the name of the document is not sufficient guidance – many so-called ‘plans and programmes’ will not require SEA, while some so-called ‘policies’, ‘strategies’, ‘projects’, ‘concepts’, ‘laws’, ‘regulations’ and so on, will.
- In EIA, in case of uncertainties over the likely impacts, additional data and information should be submitted by the project developer, in order to make sure that projects with significant impacts are not excluded from the assessment
- Environmental and health authorities should be involved in the screening procedure and their opinion considering when deciding about application of SEA/EIA

#### TOPICS FOR DISCUSSION

- Is there a clear procedure for SEA/EIA screening in your country?
- What are the criteria to be used for screening?
- What information and data need to be provided to conduct screening? Are these usually available?
- Are environmental and health authorities involved in screening? If so, are their opinions properly considered?
- What are the main challenges regarding the screening in your country and how these can be addressed?

#### CASE EXAMPLE

EIA screening in the Czech Republic and SEA screening in Slovenia (ppt presentations will be introduced at the workshop)

#### PROPOSED STRUCTURE OF THE PRESENTATION

- **Aim and rationale (1 – 2 slides)** – describe why screening is important and why the screening scheme needs to be properly designed and applied
- **Legal framework (2 – 3 slides)** – describe legal requirements stipulated by the national legislation regarding the screening separately for SEA and EIA. If there are no relevant provisions in the national legal framework, make a reference to EU SEA or EIA Directives.



- **Approaches and tools (3 – 5 slides)** – describe approach to screening in your country, again separately for SEA and EIA. Start with the procedure (i.e. who shall initiate the screening, which agency decides about the necessity of SEA/EIA, if there are any consultations required etc.) and then provide criteria for determining a need for SEA and EIA.
- **Tips for practice (1 – 2 slides)** – elaborate tips for practice provided above and/or develop additional ones reflecting the context in your country.
- **Exercise (1 – 2 slides)** – prepare the assignment for the exercise. You may use examples provided above or (optimally) prepare a short description of real cases from your country.
- **Topics for discussion (1 – 2 slides)** – elaborate topics for discussion provided above and/or develop additional ones to reflect SEA/EIA practice in your country.
- **Case study (2 – 3 slides)** – describe one SEA and one EIA screening case from your country, providing information on the plan, programme and project which was a subject of the screening, criteria applied and the final decision.



## STEP 2: SCOPING

### RATIONALE

Clear focus of SEA/EIA is an important starting point that will influence the rest of the SEA/EIA process. The issues identified in the scoping will guide the evaluation of the environmental baseline, actual assessment of the likely impacts and consideration of possible alternatives or options. Therefore the scoping is a key step for efficient SEA/EIA – well-defined scope of the assessment enables keeping SEA/EIA focused on the key problems and thus minimizes personal and time demands.

Not all environmental aspects have to be addressed in each and every assessment – on the other hand, especially SEA can consider including wider environmental or social topics e.g. adaptations to climate change, employment opportunities etc.

### AIM

The aim of the scoping is to determine the key issues to be addressed in specific SEA/EIA as well to justify which environmental issues are not relevant and thus do not need to be included in further analysis.

Scoping should also preliminary outline:

- Possible alternatives or options which should be addressed within the SEA/EIA
- Territorial dimension of likely impacts
- Analyses and surveys to be conducted as well as methods and tools to be used
- Stakeholders to be involved (including environmental and health authorities as well as public) and the level and nature of their involvement in the SEA/EIA procedure

### APPROACHES AND METHODS

Determining relevant issues can involve various methods and approaches. However, it might start from the list of general environmental and health themes – this list can be guided by relevant legislation (e.g. legal framework for environmental protection can define environmental component or relevant annexes of EU SEA and EIA Directives can be used as well). For each theme the specific issues should be identified, which are relevant to the plan, programme or project assessed together with describing the territorial scope.

For SEA, especially in case of development strategies, it is also beneficial to identify existing objectives relevant to the key issues, which are stipulated by strategic or legal documents (it may include e.g. National Environmental Policy, international treaties etc.). It will help (i) to identify linkages between plan or programme assessed and other strategic documents, (ii) substantiate selection of the key issues (if there are objectives stipulated by approved formal document, it means that it is generally significant and thus reasonable to be addressed in SEA). This analysis can start with the identification of a comprehensive long list of all existing objectives – the most relevant ones can be selected later in the process.

The results can be summarized in the following table:





| General themes to be considered in SEA | Key specific issues related to plan or programme   | Relevant objectives  |
|--|--|--|
| Air                                    | <ul style="list-style-type: none"> <li>• PM10, NOx</li> <li>• Air pollution from transport / energy production</li> <li>• Air pollution from local sources</li> </ul>          | <ul style="list-style-type: none"> <li>• Improve air quality in the Region, especially in towns and cities.</li> <li>• Reduce adverse health impacts from transport (especially caused by noise and air emissions)</li> </ul>  |
| Water                                  | <ul style="list-style-type: none"> <li>• Water pollution from agriculture</li> <li>• Drinking water supply</li> <li>• Water demand for irrigation</li> <li>• Floods</li> </ul> | <ul style="list-style-type: none"> <li>• Provide sufficient protection against floods.</li> <li>• Improve management of irrigation water demands based on agricultural practice</li> <li>• Protect water resources from pollution caused by agriculture and industry</li> </ul>          |
| Waste management                       | <ul style="list-style-type: none"> <li>• Household wastes</li> <li>• Industrial and other wastes</li> </ul>  | <ul style="list-style-type: none"> <li>• Increase ratio of household wastes separation</li> <li>• Increase utilization and reuse of industrial wastes</li> <li>• Introduce the best available techniques for hazardous waste management</li> </ul>                                       |
| Soil                                   | <ul style="list-style-type: none"> <li>• Soil pollution from agriculture</li> <li>• Water erosion</li> </ul>   | <ul style="list-style-type: none"> <li>• Reduce currently excessive use of agriculture land and greenfields for urban development and economic activities (industrial sites, shopping centres)</li> <li>• Reduce soil erosion and soil pollution from agricultural activities</li> </ul> |
| Stakeholders' cooperation              | <ul style="list-style-type: none"> <li>• Public – private partnership</li> </ul>   | <ul style="list-style-type: none"> <li>• Establish legal and institutional conditions for the public private partnership</li> </ul>  |
| ....                                   |  |  |



| General themes to be considered in SEA | Key specific issues related to plan or programme | Relevant objectives |
|--|--|---------------------|
| ....                                   |  |                     |

In EIA, for identification of all likely impacts resulting from the project various types of matrices – both qualitative and quantitative – are used. EIA scoping may to certain extent already initial evaluation of the key issues against selected criteria (e.g. stipulated by the legislation) to differentiate likely significant risks and impacts from effects that can be mitigated or minor ones.

EIA scoping often results in certain form of the Terms of Reference for further steps including:

- The list of key issues and impacts to be studied in detail in further steps
- Requirements for development of the project alternatives and their assessment (in case the project design as described by the project developer inevitably will lead to significant adverse effects on environmental and/or human health)
- Requirements given by relevant legislation regarding procedural steps
- Analyses and surveys to be conducted as well as methods and tools to be used
- Requirements for consultations with relevant stakeholders – especially environmental and health authorities and public

**Box 2 Alternatives in EIA**

The following alternatives can be considered in EIA:

- Demand alternatives (e.g. more efficient use of energy or water rather than increasing production)
- Input or supply alternatives (e.g. different energy sources)
- Activity alternatives (e.g. transport demand can be ensured by the public transport or by increased road capacity)
- Location alternatives (e.g. different location of the dam, alternative routing of highway)
- Process alternatives (e.g. technologies with different amount of waste production)
- Scheduling alternatives (e.g. limitations for landing / take offs during night time)

As mentioned above, the scoping results will guide the focus on the entire SEA/EIA, therefore it is highly recommended to conduct consultations with relevant stakeholders at this stage. The inputs consultations provide will help to achieve consensus in the early stage of SEA/EIA on the key focus of the assessment.

**EXERCISES**

**SEA CASE 1: THE NATIONAL ENERGY STRATEGY**



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The Ministry of Energy already initiated preparation of the National Energy Strategy (NES). The Strategy will define the energy priorities in the country i.e. primarily the energy mix and the domestic energy demand by 2030. The strategy will address all energy sources, which can be realistically utilized in the country.

Also, the SEA for the National Energy Strategy (NES) has been launched. However, because the SEA is being conducted concurrently with the planning process, you do not have at this stage any information about the proposed actions in the NES. You have only been informed that the NES will address the following issues:

- Energy efficiency
- Alternative energy sources
- Energy market reform
- Energy security
- Energy transmission infrastructure
- Emissions reduction

You need to identify the key environmental and health issues relevant to the NEP as well as suggest which environmental and health concerns can be excluded from further assessment (if any). If time permits, you may also:

- Determine whom to consult during scoping and how; and
- Define the temporal boundaries of each particular issue – i.e. how far into the future would you look when examining positive and negative impacts of NES on these issues: short-term (e.g. term of the current government), mid-term (10 years) or long-term (over 10 years).

#### EIA CASE 1: UNITED CHEMICAL PLANT<sup>16</sup>

Please define the scope of EIA for bellow described project i.e. (i) key issues to be addressed within the EIA, (ii) territorial dimensions of likely impacts, and (iii) stakeholders to be involved.

When working on the task, you shall also discuss the following questions:

- Does the project description provides sufficient basis for scoping (list information lacking, assess if information is needed or only useful)?
- Shall the scoping stage include also consultation with authorities and public? Why yes / why no?
- Would you suggest any alternatives to be addressed in EIA? If so, please outline these.

#### Location description

The City of Ostrov is an administrative, industrial and trading centre of the South-East Region. Part of the administrative borders is demarcated by the state frontier, plus the region borders with other regions in the country (see the map). Approx. 90 000 citizens live in Ostrov, in its near vicinity is the town of Ostrůvek with 15 000 citizens and the village of Lhota with 800 citizens. Roughly 35 km in the north direction, in the territory of the neighbouring region, the town of Letava is situated (40 000 citizens, the Orlovské závody enterprise) and approx. 50 km to the east, the town of Spálov is situated (20 000 citizens, an incinerating

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<sup>16</sup> Adapted from the Training Manual on Integrated Environmental Decision Making and Support to Public Participation Activities, EU PHARE, Czech Republic, 1999



plant). It is Janov under Smrk which is the centre of tourist area, which is a small town under the mountains, situated 35 km to the west.

An axis of the hydrogeological system which drains off a considerable part of the region is formed by the Loučná river with its inflows – Smrčina (taking its rise in the protected landscape area (herein referred to as CHKO Smrkov), Loučnice and Spálovka, flowing through Spálov. A zone of hygienic protection of a water resource is demarcated near the left bank of the river Loučnice.

There are the prevailingly the east, south-east, south and south-west winds.

A speed road R21 connecting the centres of the West Central Region with the associated EU country passes through the territory, including Ostrov town itself. The north-south axis is formed by the class I road Letava – Ostrov – the state border. The railway connecting the West Central Region with the EU country passes through the City of Ostrov with the siding to the United Chemical Plants (SCHZ).

There is an important part of the region, i.e. Smrkov, which is the protected landscape area (CHKO) with the water dam (reservoir) of Smrčina which supplies drinking water to the City of Ostrov. The western part of the CHKO provides the recreation opportunities in winter and in summer and it is the background for weekend tourism in the region with developing cross-border weekend tourism. It is Janov under Smrk which is the winter centre here and strives for being authorised to organise the European Championship in traditional ski disciplines and it is expanding its capacities also in the field of downhill skiing. The eastern part of the CHKO is used only for cross-country skiing, cycling and walking, due to the protection of the drinking water source and two national heritage nature parks with valuable mountain flora species.

The significant investment plan in the field of tourism is the ongoing construction of the complex tourist centre (a golf course, aqua-park, horse riding area) in the north-east direction from Ostrůvek.

#### The United Chemical Plants

The company United Chemical Plants (hereinafter referred to as SCHZ) is situated in the land register area of the City of Ostrov which is closely associated with the city development during the thirties and sixties and it is the most important company in the region from the economic viewpoint. Formerly, the SCHZ operation core rested in the heavy chemistry which has changed, due to the strong economic pressure in the nineties and the company focused on products which sell better in the EU markets.

The SCHZ, after partial restructuring, employs 1500 persons from the region.

In general, the company has no problems with meeting the requirements set forth by the Air Act and by the Water Act. According to the analysis elaborated as a part of the prepared sale of the company, neither will require high expenditures in relation to the expected adoption of the EU legislation in the above fields. The company shall meet the requirements according to the law in respect of accident prevention. The company started to implement an EMS according to ISO 14 001 and it takes into consideration a potential expansion according to the EU Directive for EMAS.

However, the company has to cope with the problem of the waste disposal from existing production. These wastes contain primarily chlorine substances and many hazardous wastes of other categories. The total quantity of hazardous wastes accounts for approx. 10,000 tons/year.

Based on alternatives being assessed in connection with the future development of the company there was identified one of the most significant problems concerning the hazardous waste disposal which is very



demanding for the company both from the economic and organisational viewpoint and it is also a limiting factor for the production restructuring.

According to the calculations made by the company itself, the waste disposal in its own incineration facility would be the most appropriate solution. However, the standard feasibility study revealed only one acceptable alternative and this is the construction of a plant with capacity above 20,000 tons of waste with commercial utilisation of excess capacity for waste disposal from other producers.

The feasibility study was followed by the project documentation preparation which is oriented towards the single alternative of constructing an incineration plant within the area of SCHZ (a part of the incineration plant on the borders of the land register areas of Ostrůvek and Lhota) with the capacity of 25,000 tons/year and specified technology of a producer which is the part of the EU Chemicals Concern (EUC). The construction is scheduled for 18 months.

#### Entities generating hazardous wastes

| Company                   | Location | Qty ( 1000 tons/year) |
|---------------------------|----------|-----------------------|
| SCHZ, Ltd.                | Ostrov   | 10                    |
| Other companies in Ostrov | Ostrov   | 5                     |
| OZ, Ltd.                  | Letava   | 5                     |
| EUC concern plant         | City R   | 10                    |

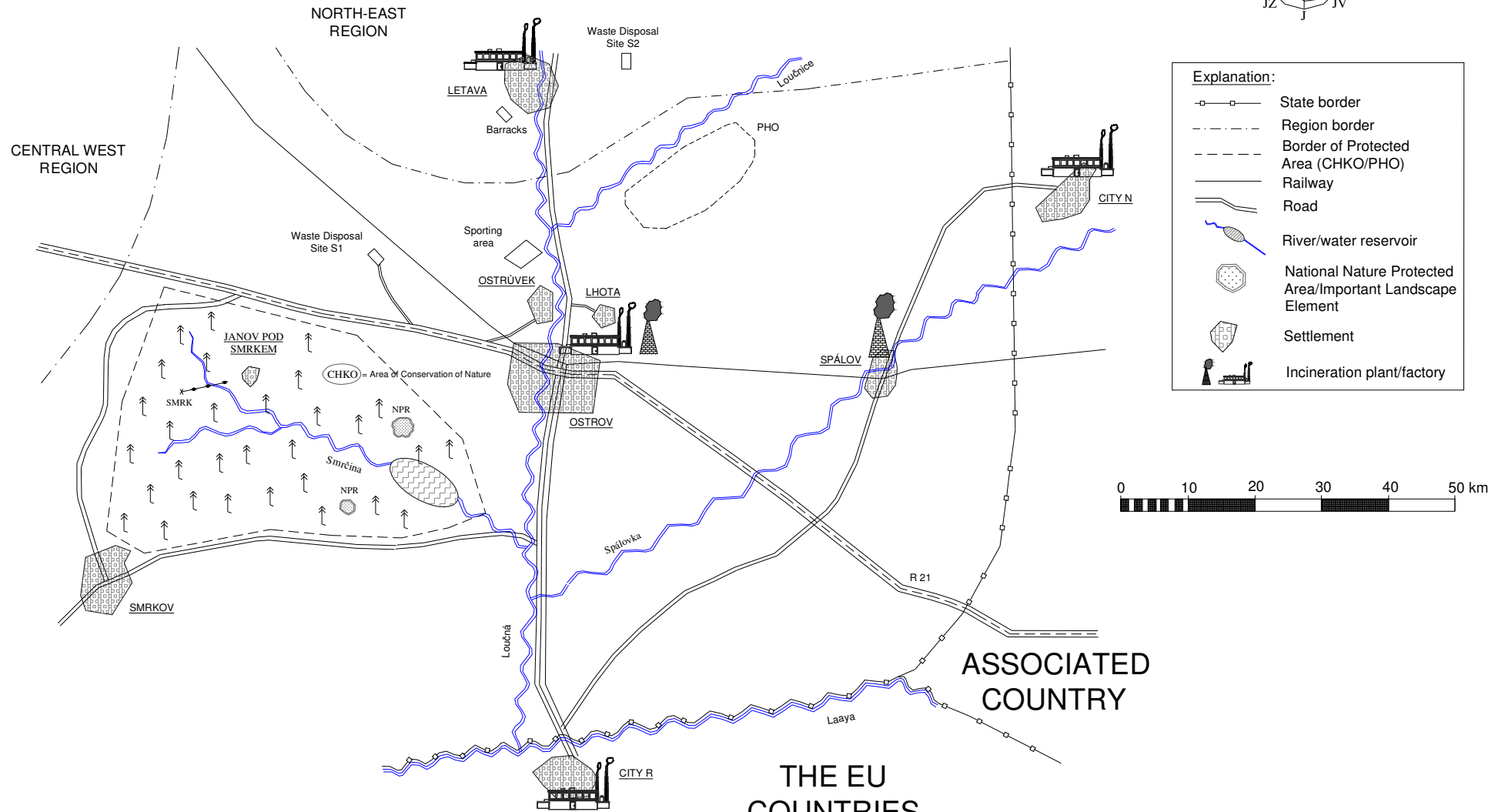
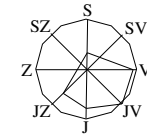
Roughly 5,000 tons of hazardous wastes are generated by other companies in the City of Ostrov. Minimum amount of hazardous waste is generated in the near vicinity (Ostrůvek and Lhota). In the distance of 35 km within the territory of the North-East region there is another significant producer of hazardous wastes – e.g. the OZ, Ltd. in the City of Letava (approx. 5,000 t). Both companies dispose of their wastes in the incineration plant which is located at a distance of approx. 50 km or 60 km from the both above-mentioned companies. The mentioned incineration plant has passed its best service life and its operation and observance of regulations are very demanding.

Other entities that generate hazardous wastes include one chemical factory owned by the EU Chemicals Concern (EUC) which is situated in the border area of the neighbouring EU country. This factory produces approx 10,000 tons of hazardous waste per year.



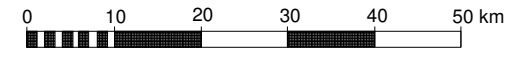


# Area map



**Explanation:**

- State border
- Region border
- Border of Protected Area (CHKO/PHO)
- Railway
- Road
- River/water reservoir
- National Nature Protected Area/Important Landscape Element
- Settlement
- Incineration plant/factory



**ASSOCIATED COUNTRY**

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The Scoping Checklist

| No.  | Questions to be considered in Scoping  | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|--|--|----------|---|--|
| 1. Will construction, operation or decommissioning of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in waterbodies, etc)? |  |          |   |  |
| 1.1  | Permanent or temporary change in land use, landcover or topography including increases in intensity of land use? |          |   |  |
| 1.2  | Clearance of existing land, vegetation and buildings?  |          |   |  |
| 1.3  | Creation of new land uses?   |          |   |  |
| 1.4  | Pre-construction investigations eg boreholes, soil testing?  |          |   |  |
| 1.5  | Construction works?  |          |   |  |
| 1.6  | Demolition works?  |          |   |  |
| 1.7  | Temporary sites used for construction works or housing of construction workers?                                  |          |   |  |





| No.  | Questions to be considered in Scoping  | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|------|--|----------|---|--|
| 1.8  | Above ground buildings, structures or earthworks including linear structures, cut and fill or excavations? |          |   |  |
| 1.9  | Underground works including mining or tunnelling?  |          |   |  |
| 1.10 | Reclamation works?   |          |   |  |
| 1.11 | Dredging?  |          |   |  |
| 1.12 | Coastal structures eg seawalls, piers?   |          |   |  |
| 1.13 | Offshore structures?   |          |   |  |
| 1.14 | Production and manufacturing processes?  |          |   |  |
| 1.15 | Facilities for storage of goods or materials?  |          |   |  |



| No.  | Questions to be considered in Scoping  | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|------|--|----------|---|--|
| 1.16 | Facilities for treatment or disposal of solid wastes or liquid effluents?  |          |   |  |
| 1.17 | Facilities for long term housing of operational workers?   |          |   |  |
| 1.18 | New road, rail or sea traffic during construction or operation?  |          |   |  |
| 1.19 | New road, rail, air, waterborne or other transport infrastructure including new or altered routes and stations, ports, airports etc? |          |   |  |
| 1.20 | Closure or diversion of existing transport routes or infrastructure leading to changes in traffic movements?                         |          |   |  |
| 1.21 | New or diverted transmission lines or pipelines?   |          |   |  |
| 1.22 | Impoundment, damming, culverting, realignment or other changes to the hydrology of watercourses or aquifers?                         |          |   |  |
| 1.23 | Stream crossings?  |          |   |  |



| No.  | Questions to be considered in Scoping  | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|------|--|----------|---|--|
| 1.24 | Abstraction or transfers of water from ground or surface waters?                       |          |   |  |
| 1.25 | Changes in waterbodies or the land surface affecting drainage or run-off?              |          |   |  |
| 1.26 | Transport of personnel or materials for construction, operation or decommissioning?    |          |   |  |
| 1.27 | Long term dismantling or decommissioning or restoration works?                         |          |   |  |
| 1.28 | Ongoing activity during decommissioning which could have an impact on the environment? |          |   |  |
| 1.29 | Influx of people to an area in either temporarily or permanently?                      |          |   |  |
| 1.30 | Introduction of alien species?   |          |   |  |



| No.  | Questions to be considered in Scoping        | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|------|--|----------|---|--|
| 1.31 | Loss of native species or genetic diversity? |          |   |  |
| 1.32 | Any other actions?                           |          |   |  |

2. Will construction or operation of the Project use natural resources such as land, water, materials or energy, especially any resources which are non-renewable or in short supply?

|     |   |  |  |  |
|-----|---|--|--|--|
| 2.1 | Land especially undeveloped or agricultural land? |  |  |  |
| 2.2 | Water?  |  |  |  |
| 2.3 | Minerals?   |  |  |  |
| 2.4 | Aggregates?                                       |  |  |  |
| 2.5 | Forests and timber?                               |  |  |  |



| No. | Questions to be considered in Scoping   | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|-----|---|----------|---|--|
| 2.6 | Energy including electricity and fuels? |          |   |  |
| 2.7 | Any other resources?                    |          |   |  |

3. Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?

|     |   |  |  |  |
|-----|---|--|--|--|
| 3.1 | Will the project involve use of substances or materials which are hazardous or toxic to human health or the environment (flora, fauna, water supplies)? |  |  |  |
| 3.2 | Will the project result in changes in occurrence of disease or affect disease vectors (eg insect or water borne diseases)?                              |  |  |  |
| 3.3 | Will the project affect the welfare of people eg by changing living conditions?   |  |  |  |
| 3.4 | Are there especially vulnerable groups of people who could be affected by the project eg hospital patients, the elderly?                                |  |  |  |
| 3.5 | Any other causes?   |  |  |  |



| No.  | Questions to be considered in Scoping                     | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|--|---|----------|---|--|
| <b>4. Will the Project produce solid wastes during construction or operation or decommissioning?</b> |   |          |   |  |
| 4.1  | Spoil, overburden or mine wastes?                         |          |   |  |
| 4.2  | Municipal waste (household and or commercial wastes)?     |          |   |  |
| 4.3  | Hazardous or toxic wastes (including radioactive wastes)? |          |   |  |
| 4.4  | Other industrial process wastes?                          |          |   |  |
| 4.5  | Surplus product?  |          |   |  |
| 4.6  | Sewage sludge or other sludges from effluent treatment?   |          |   |  |
| 4.7  | Construction or demolition wastes?                        |          |   |  |



| No.  | Questions to be considered in Scoping | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|------|---------------------------------------|----------|---|--|
| 4.8  | Redundant machinery or equipment?     |          |   |  |
| 4.9  | Contaminated soils or other material? |          |   |  |
| 4.10 | Agricultural wastes?                  |          |   |  |
| 4.11 | Any other solid wastes?               |          |   |  |

5. Will the Project release pollutants or any hazardous, toxic or noxious substances to air?

|     |  |  |  |  |
|-----|--|--|--|--|
| 5.1 | Emissions from combustion of fossil fuels from stationary or mobile sources? |  |  |  |
| 5.2 | Emissions from production processes?   |  |  |  |
| 5.3 | Emissions from materials handling including storage or transport?            |  |  |  |



| No. | Questions to be considered in Scoping   | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|-----|---|----------|---|--|
| 5.4 | Emissions from construction activities including plant and equipment?                         |          |   |  |
| 5.5 | Dust or odours from handling of materials including construction materials, sewage and waste? |          |   |  |
| 5.6 | Emissions from incineration of waste?   |          |   |  |
| 5.7 | Emissions from burning of waste in open air ( <i>eg</i> slash material, construction debris)? |          |   |  |
| 5.8 | Emissions from any other sources?   |          |   |  |

6. Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?

|     |   |  |  |  |
|-----|---|--|--|--|
| 6.1 | From operation of equipment <i>eg</i> engines, ventilation plant, crushers? |  |  |  |
| 6.2 | From industrial or similar processes?                                       |  |  |  |





| No.   | Questions to be considered in Scoping   | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|---|---|----------|---|--|
| 6.3   | From construction or demolition?  |          |   |  |
| 6.4   | From blasting or piling?  |          |   |  |
| 6.5   | From construction or operational traffic?   |          |   |  |
| 6.6   | From lighting or cooling systems?   |          |   |  |
| 6.7   | From sources of electromagnetic radiation (consider effects on nearby sensitive equipment as well as people)? |          |   |  |
| 6.8   | From any other sources?   |          |   |  |
| 7. Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into sewers, surface waters, groundwater, coastal waters or the sea? |   |          |   |  |
| 7.1   | From handling, storage, use or spillage of hazardous or toxic materials?                                      |          |   |  |



| No. | Questions to be considered in Scoping  | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|-----|--|----------|---|--|
| 7.2 | From discharge of sewage or other effluents (whether treated or untreated) to water or the land? |          |   |  |
| 7.3 | By deposition of pollutants emitted to air, onto the land or into water?                         |          |   |  |
| 7.4 | From any other sources?  |          |   |  |
| 7.5 | Is there a risk of long term build up of pollutants in the environment from these sources?       |          |   |  |

8. Will there be any risk of accidents during construction or operation of the Project which could affect human health or the environment?

|     |   |  |  |  |
|-----|---|--|--|--|
| 8.1 | From explosions, spillages, fires etc from storage, handling, use or production of hazardous or toxic substances? |  |  |  |
| 8.2 | From events beyond the limits of normal environmental protection eg failure of pollution control systems?         |  |  |  |
| 8.3 | From any other causes?  |  |  |  |



| No. | Questions to be considered in Scoping  | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|-----|--|----------|---|--|
| 8.4 | Could the project be affected by natural disasters causing environmental damage (eg floods, earthquakes, landslip, etc)? |          |   |  |

9. Will the Project result in social changes, for example, in demography, traditional lifestyles, employment?

|     |   |  |  |  |
|-----|---|--|--|--|
| 9.1 | Changes in population size, age, structure, social groups etc?  |  |  |  |
| 9.2 | By resettlement of people or demolition of homes or communities or community facilities eg schools, hospitals, social facilities? |  |  |  |
| 9.3 | Through in-migration of new residents or creation of new communities?   |  |  |  |
| 9.4 | By placing increased demands on local facilities or services eg housing, education, health?                                       |  |  |  |
| 9.5 | By creating jobs during construction or operation or causing the loss of jobs with effects on unemployment and the economy?       |  |  |  |
| 9.6 | Any other causes?   |  |  |  |



| No.  | Questions to be considered in Scoping  | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|--|--|----------|---|--|
| Question - Are there any other factors which should be considered such as consequential development which could lead to environmental effects or the potential for cumulative impacts with other existing or planned activities in the locality? |  |          |   |  |
| 9.1  | Will the project lead to pressure for consequential development which could have significant impact on the environment eg more housing, new roads, new supporting industries or utilities, etc?  |          |   |  |
| 9.2  | Will the project lead to development of supporting facilities, ancillary development or development stimulated by the project which could have impact on the environment eg:<br><input type="checkbox"/> supporting infrastructure (roads, power supply, waste or waste water treatment, etc)<br><input type="checkbox"/> housing development<br><input type="checkbox"/> extractive industries<br><input type="checkbox"/> supply industries<br><input type="checkbox"/> other? |          |   |  |
| 9.3  | Will the project lead to after-use of the site which could have an impact on the environment?  |          |   |  |
| 9.4  | Will the project set a precedent for later developments?   |          |   |  |



| No. | Questions to be considered in Scoping   | Yes/No/? | Which Characteristics of the Project Environment could be affected and how? | Is the effect likely to be significant? Why? |
|-----|---|----------|---|--|
| 9.5 | Will the project have cumulative effects due to proximity to other existing or planned projects with similar effects? |          |   |  |

#### TIPS FOR PRACTICE

- When identifying relevant objectives in SEA scoping, it is important to consider both plans and programmes at the same level as the plan or programme assessed (e.g. regional sectoral development programmes, if SEA deals with regional spatial plan) as well as at levels above (e.g. national policies and programmes, if SEA deals with regional spatial plan) in order to address both horizontal and vertical linkages.
- The list of the key issues needs to be kept flexible and open – new data and information might appear later in the SEA/EIA indicating that some other issues should be included in consideration. On the other hand, some problems might turn out not to be as serious as previously judged and thus can be excluded from the list.
- Don't be afraid of suggesting alternatives – it is better to address alternative solution from the beginning of SEA/EIA process rather than to face additional requests at the final stages of the assessment.
- Don't forget about social and public health related issues – even though it is called “environmental” assessment, public health is an inseparable component which has to be addressed in SEA/EIA as well as likely social effects (e.g. resettlement, loss of jobs).
- Optimally, the scope of SEA/EIA should be consensually accepted by planning team (and project developer, respectively), SEA/EIA Competent Authority and all relevant stakeholders. However, no issue should be excluded from the SEA only because of disagreement of one of the stakeholders – there is still possibility to modify or reduce the list of key issues later in the SEA process.
- The consultations in scoping can be organized in a form of informal workshop and/or a series of small meetings with selected authorities and other stakeholders.

#### TOPICS FOR DISCUSSION

- Is there a clear procedure for SEA/EIA scoping in your country? If so, please describe the administrative steps.
- Is there any guidance for identification of the key issues to be addressed in SEA/EIA?
- Are environmental and health authorities involved in scoping? If so, are their opinions properly considered?
- What are the main challenges regarding the scoping in your country and how these can be addressed?



## CASE EXAMPLE

SEA scoping for the National Transport Strategy of the Czech Republic and EIA scoping for regional water pumping station and pipeline in Slovenia (ppt presentations will be introduced at the workshop)

## PROPOSED STRUCTURE OF THE PRESENTATION

- **Aim and rationale (1 – 2 slides)** – describe why scoping is important
- **Legal framework (2 – 3 slides)** – describe legal requirements stipulated by the national legislation regarding the scoping separately for SEA and EIA. If there are no relevant provisions in the national legal framework, make a reference to EU SEA or EIA Directives.
- **Approaches and tools (3 – 5 slides)** – describe usual approach for scoping in your country, again separately for SEA and EIA, and provide an overview of tools to be used.
- **Tips for practice (1 – 2 slides)** – elaborate tips for practice provided above and/or develop additional ones reflecting the context in your country.
- **Exercise (1 – 2 slides)** – prepare the assignment for the exercise. You may use examples provided above or (optimally) prepare a short description of real cases from your country.
- **Topics for discussion (1 – 2 slides)** – elaborate topics for discussion provided above and/or develop additional ones to reflect SEA/EIA practice in your country.
- **Case study (2 – 3 slides)** – describe scope of one SEA and one EIA from your country, providing information on the plan, programme and project which was a subject of the assessment, the key issues identified and territorial scope of likely impacts.



## STEP 3: BASELINE ANALYSIS

### RATIONALE

Evaluation of likely impacts cannot be conducted without proper understanding of the existing situation for the key issues identified in scoping. Especially for SEA it is also important to outline possible future trends – and therefore analysis of past trends should be carried out in order to estimate likely future developments.

### AIM

Baseline analysis provides a basis for impact evaluation, formulation of mitigation measures and monitoring scheme. It builds on the results of scoping and can lead to better specification of the key issues, identification of the key problems relevant to the plan, program or project, and determination of the territory likely to be affected.

### APPROACHES AND METHODS

Baseline analysis in EIA is usually more focused on the current situation; while SEA should address long-term trends. Also, an SEA quite often can rely on already existing data and available information – field survey and raw data collection is more typical for EIA.

Baseline analysis in SEA should be undertaken for each key issue identified in scoping:

- Describe past trend and current status,
- Identify main drivers influencing trend so far, and based on this it should
- Outline likely evolution of the trend in future (without implementing the plan or programme assessed).

Baseline analysis in SEA analysis should – to the extent possible – address following questions:

- What are the legal and policy targets?
- What are the key characteristics of the study area? What has been the trend so far? How far is the current situation from any established objective or targets? Is it reaching any critical turning point of bottom-line? What are the key areas and problems that need special protection or increased attention?
- What is driving these trends? Which of these drivers can be significantly influenced by the proposed plan or programme?
- How will the future trend evolve without the proposed plan or programme? Will it be influenced by major developments that have been already approved but not implemented yet; climate change, changes in the regulatory or policy framework, economic incentives, etc. What are the key emerging risks?
- What are the major implications (if any) for the SEA and the planning process?

The driving forces influencing past trends and current situation and thus very probably influencing also future evolution can include various factors e.g. overall economic development, legal and



regulatory framework, implementation of sectoral programmes and/or large infrastructure projects etc. All these drivers have to be considered when describing likely future evolution.

Although the description of the likely future trends can be very often constrained by numerous uncertainties, SEA should outline the future trends as best as experts in SEA team can – in a verbal form, describing e.g. best and worst scenario approach. However, all uncertainties have to be clearly indicated.

Baseline analysis may include both quantitative and qualitative information, and it is often useful to combine both types of information. As already mentioned above, EIA typically works with more precise data enabling quantification of existing quality of environment, situation regarding health status of population etc. Depending on the nature of the project assessment methods and tools to be used for describing baseline situation range from simple approaches (e.g. checklists, matrixes, Geographic Information System (GIS) maps and overlays, as well as professional judgement) to sophisticated mathematical modelling (e.g. preparation of noise maps, dispersion of pollutants in the air etc.).

#### EXERCISE

Exercise on the baseline analysis is usually very demanding and requires extensive background materials, and thus it very often exceeds time allocation within typical SEA/EIA training. Therefore it is suggested – instead of the group work – to present real SEA/EIA cases with well prepared baseline analysis and facilitate the discussion regarding practical approaches and methods to be used.

#### TIPS FOR PRACTICE

- Focus baseline analysis on key issues identified in scoping and on those drivers, which might be influenced by the plan, programme or project assessed – avoid the preparation of a generalised “State of the Environment”.
- Baseline analysis should indicate uncertainties in estimation of likely future development and possible lack of data, which are needed for proper evaluation of environmental and health effects of the plan, programme or project.
- Involve relevant stakeholders when preparing baseline analysis – especially environmental and health authorities, universities, research institutions etc. – can provide very useful inputs (data, information, reports etc.).
- In SEA, baseline analysis might also provide inputs to the analysis conducted by the planning team for plan or programme and thus support integration of relevant environmental and health considerations in the plan or programme in an early stage of planning process.

#### TOPICS FOR DISCUSSION

- What is the usual approach to SEA baseline analysis in your country? Does it cover aspects mentioned above?
- Would you suggest other approaches to estimate likely future development for the key environmental issues?





- What are the major sources of data and information for EIA baseline analysis? Are these sufficient for this purpose?
- If not, what can be done in order to increase the quality of EIA baseline analysis?

#### CASE EXAMPLE

Baseline analysis in SEA for Operational Program Enterprise and Innovations Czech Republic 2007 – 2013, SEA for Ljubljana Spatial Plan (Slovenia), and EIA for sanitation of sandstone pits in Moravče (Slovenia)

#### PROPOSED STRUCTURE OF THE PRESENTATION

- **Aim and rationale (1 – 2 slides)** – describe why baseline analysis is important and what are the main differences between baseline analysis in SEA and EIA
- **Legal framework (1 – 2 slides)** – describe legal requirements stipulated by the national legislation regarding the baseline analysis separately for SEA and EIA. If there are no relevant provisions in the national legal framework, make a reference to EU SEA or EIA Directives.
- **Approaches and tools (2 – 3)** – describe typical approach to baseline analysis in your country, again separately for SEA and EIA, and highlight main challenges and/or typical inadequacies in practice.
- **Tips for practice (1 – 2 slides)** – elaborate tips for practice provided above and/or develop additional ones reflecting the context in your country.
- **Exercise (1 – 2 slides)** – prepare the assignment for the exercise. You may use examples provided above or (optimally) prepare a short description of real cases from your country.
- **Topics for discussion (1 – 2 slides)** – elaborate topics for discussion provided above and/or develop additional ones to reflect SEA/EIA practice in your country.
- **Case study (2 – 3 slides)** – present baseline analysis in one SEA and one EIA case from your country.



## STEP 4: IMPACTS ANALYSIS AND MITIGATION MEASURES (INCLUDING MONITORING)

### RATIONALE

Both SEA and EIA should analyse the significant adverse as well as positive effects of the proposed plan, programme or project.

One of the main benefits of SEA is that it enables the identification of environmental effects for a number of proposals included in the strategic document and thus it can address likely cumulative effects, which can result from individually minor but collectively significant actions taking place over a period of time.

On the other hand, the advantage of EIA lies in detailed analysis of impacts providing quantified description of likely impacts, its significance, magnitude and scope.

Following the risks and impacts identified, SEA/EIA has to suggest measures to address the likely adverse effects as well as to enhance positive impacts likely resulting from the plan, programme or project. Appropriate monitoring scheme can be understood as one type of mitigation measures.

### AIM

This stage aims to assess the significant adverse and positive effects of the plan, program or project, and – following the conclusions from impacts analysis – to considering alternatives and options, and formulating measures to prevent, reduce and as fully as possible offset any significant adverse effects of implementing the plan, program or project.

### APPROACHES AND METHODS

Similar to baseline analysis, evaluation of impacts in EIA should focus on identification and detailed description of specific impacts related to a single project, while SEA is supposed to address especially cumulative effects considering long-term trends usually at more general level of detail.

SEA can also – especially when dealing with policies and strategies and if conducted in ex-ante approach (i.e. in parallel with preparation of the plan or programme) – evaluate priorities and objectives of the strategic document assessed.<sup>17</sup> Evaluation of development priorities and objectives should address synergies and conflicts between the environmental and health objectives (as identified in the scoping stage) and development objectives and priorities proposed in the plan or programme. It might lead to suggestion of modification of the proposed development objectives and priorities in order to increase consistency of the plan or programme strategy with environmental and health objectives and to support integration of environmental and health consideration in the plan or programme.

<sup>17</sup> The SEA Directive requires the identification of relevant environmental protection objectives and an analysis of the way those objectives and any environmental considerations have been taken into account during the preparation of the plan or programme.



This assessment step can initiate the discussion on alternatives of the plan or programme through asking the following questions<sup>18</sup>:

- Is the proposed development necessary?
- Can the need or demand be met without new development or infrastructure etc at all?
- Are there any realistic opportunities for managing development demand (e.g. through regulatory, economic or administrative tools or other measures that promote behavioural changes)?
- How should it be done?
- Are there methods, technologies or processes that can meet the development demands with less environmental damage than 'obvious' or traditional methods i.e. could the sequence of the developments be changed or could the proposed development be planned differently, e.g. spread over a longer period of time?

Evaluation of likely impacts related to specific measures or development proposal in the plan or programme in SEA is similar to impacts analysis in EIA. However, the SEA should primarily focus on baseline trends and provide how likely future trends can be affected by the implementation of the plan or programme and all its alternatives. The predicted effects of alternatives should be compared with likely future evolution as described in baseline analysis and also with each other to provide their ranking from environmental and health effects point of view. Following steps can be proposed to be carried out for each of the key issues identified in scoping:

1. Identify those components of the proposed plan or program (e.g. individual projects or clusters of projects) which may have significant effects on the particular environmental issue.
2. Describe impacts of each of these components of the given issue. Predictions do not have to be expressed in quantitative terms, however impacts should be described in terms of:
  - Character of risk/impact (what exactly causes this risk/impact or assumptions for this prediction)
  - Probability and key uncertainties
  - Geographic scale - directly and indirectly affected geographic areas that will become of specific concern
  - Duration of impact (short-term, long-term, permanent)
  - Key concerns associated with this impact
3. Identify possible mitigation and enhancement options.
4. Summarize the cumulative effects of all components of the plan/program that may have significant adverse or beneficial impacts on the relevant environmental issue.

Considering a nature of EIA, likely impacts should be quantified to the extent possible. Quantification of wastes or waste waters production usually does not require complicated tools, while e.g.

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<sup>18</sup> Adapted from Technical guidance for SEA in Vietnam, Ministry of Natural Resources and Environment and SEMLA, 2007



calculation of health impacts can be demanding both from data inputs as well as appropriateness of the method point of view. Depending on the nature of the project assessed methods and tools to be used for impacts prediction range from simple approaches (matrixes, list of impacts etc.) to sophisticated mathematical modelling (e.g. preparation of noise maps, dispersion of pollutants in the air etc.). If quantification is not possible (e.g. lack of data), impacts have to be described through qualitative analysis. However, qualitative does not mean 'guessed'. Predictions need to be supported by evidence, such as references to any research, discussions or consultation which helped EIA team to reach their conclusions. Rating techniques are often used for qualitative estimates of impacts and their systematic comparison.

A short overview of methods and tools, which can be used for impacts evaluation, is provided in Annex I of this training manual.

Following the impacts analysis, SEA/EIA has to formulate measures to avoid, mitigate or compensate the significant adverse impacts. However, mitigation measures at the strategic level differ from those usually prescribed in EIA. SEA can suggest recommendations for consideration of wider strategic alternatives (e.g. replacing road connection by railway) or changes in the overall design of a given development proposal, while EIA will generally address location options (e.g. different routing of certain sections of highway, reducing size of proposed industrial production) and technical measures (e.g. different technology, energy sources, transport of raw materials etc.).

In EIA, following hierarchy of actions should be considered when developing the mitigation scheme<sup>19</sup>:

- Avoiding adverse impacts as far as possible by use of preventive measures
- Minimizing or reducing adverse impacts to "as low as practicable" levels
- Compensating or remedying adverse residual impacts, which are unavoidable and cannot be reduced further.

Impacts mitigation can include (i) technical measures (e.g. technology for waste management, walls along road to reduce noise level), (ii) alternatives of project in terms of site (alternative location or reducing the project area), technology use, size of the project (e.g. volume of production) or operation (airport flight schedule during night time), (iii) compensatory measures – replacement of unique plant population to another location, providing financial compensation to affected population, resettlement plan providing new housing, etc.

Monitoring scheme – both in SEA and EIA – should enable to monitor real environmental and health effects during implementation of the plan or programme and through entire life-cycle of the project (i.e. construction, operation, decommissioning). Where monitoring reveals significant adverse effects, necessary actions need to be taken i.e. to modify the plan or programme, change the way of its implementation, consider adjustments in the project operation or new technology.

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## EXERCISE

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<sup>19</sup> UNEP's Environmental Impact Assessment Training Resource Manual (Sadler, B., McCabe, M., 2002)



Based on the real SEA/EIA cases, the participants are asked

- (i) to identify methods for impacts evaluation used,
- (ii) to comment on relevancy and adequacy of analyses (considering the subject of assessment and the key issues / impacts identified), and
- (iii) (where appropriate) to suggest other approaches.

#### TIPS FOR PRACTICE

- Evaluation and resulting recommendations formulated by SEA towards the plan or programme have to be properly communicated to planners, however it needs to be substantiated by proper justification and explanation to avoid the reluctance against integration of SEA suggestions in the plan or programme from planners' side
- Consider likely impacts resulting from all project stages – construction, operation, as well as decommissioning
- Provide clear ranking of alternatives from the impacts point of view
- Link mitigation measures to impacts identified
- Optimally, mitigation measures should be integrated in the plan, program and project design and therefore consultations with relevant governmental authorities can be recommended in order to achieve an agreement on the mitigation actions proposed
- Monitoring scheme should be focused on the key environmental issues and likely impacts identified
- Don't forget to describe any uncertainties and a lack of data or information

#### TOPICS FOR DISCUSSION

##### SEA

- Would you consider evaluation of objectives and priorities as useful in SEA?
- If so, for what types of plans and programmes?
- If not, what other approach you would apply to address overall development direction of the plan early in the planning process?
- Would you use other approaches to estimate likely cumulative impacts of the plan or programme?
- What difficulties would you foresee when working on these tasks?
- What methods and approaches are usually used in your country?
- Can data and information usually available provide sufficient basis for evaluation of the impacts of the plan or programme?
- Are there any analyses usually carried out within physical plan preparation which could be used also in SEA?
- Is there monitoring scheme for plans and programmes in your country? If so, are the results used in further development of the plans and programmes?

##### EIA

- What methods and approaches for impacts analysis are usually used in your country?



- What are their strengths and weaknesses?
- Are there clear criteria to determine the significance of impacts? If not, what approaches are used?
- Is human health addressed in EIAs in your country? If so, how the impacts are evaluated? If not, why?
- Are environmental management plans (including monitoring scheme) usually developed within EIA? If so, how their implementation is controlled?

#### CASE EXAMPLE

SEA for Krasna Hora Spatial Plan (Czech Republic), EIA for a highway section Draženci-Gruškovje (Slovenia), Combe Down Stone Mines Stabilisation Programme: Proposed EIA Mitigation Measures (United Kingdom)

(ppt presentations will be introduced at the workshop)

#### PROPOSED STRUCTURE OF THE PRESENTATION

- **Aim and rationale (1 – 2 slides)** – describe why impacts analysis is important and what are the main differences between impacts analysis in SEA and EIA
- **Legal framework (1 – 2 slides)** – describe legal requirements stipulated by the national legislation regarding the impacts analysis separately for SEA and EIA. If there are no relevant provisions in the national legal framework, make a reference to EU SEA or EIA Directives.
- **Approaches and tools (2 – 3)** – describe typical approaches and tools used for impacts analysis in your country, again separately for SEA and EIA, and highlight main challenges and/or typical insufficiencies in practice.
- **Tips for practice (1 – 2 slides)** – elaborate tips for practice provided above and/or develop additional ones reflecting the context in your country.
- **Topics for discussion (1 – 2 slides)** – elaborate topics for discussion provided above and/or develop additional ones to reflect SEA/EIA practice in your country.
- **Case study (2 – 3 slides)** – present impact analysis in one SEA and one EIA case from your country.



## STEP 5: COMPILING SEA/EIA REPORT

### RATIONALE

SEA/EIA Report has to summarize all findings and conclusions achieved during the entire SEA/EIA process and serve as a basis for consultations with relevant authorities and other stakeholders.

### AIM

The aim of this stage is to prepare a well-readable and understandable report, which provides all important information and data, conclusions and recommendations in a clear way and thus enables efficient consultations with relevant authorities and other stakeholders. Optimally, the report should also indicate if (and how) any inputs from SEA/EIA have been already accepted and integrated in the draft plan or programme or the project desing respectively.

### APPROACHES AND METHODS

In principle, SEA/EIA Report is a main document consulted with all relevant stakeholders, and thus it needs to be well organized and readers-friendly. Such qualities of the SEA/EIA report help to ensure efficient communication with stakeholders (which thus understand information provided by the SEA/EIA) and also enhance chances that suggestions and conclusions will be agreed by them. On the other hand, SEA/EIA report is not an academic or scientific study – it should be clear and apparent what are the main messages to be considered by relevant stakeholders, more detailed information can be attached in a form of annexes.

Conclusions and recommendations have to be clearly formulated i.e. SEA/EIA report needs to explicitly describe (i) what is suggested (mitigation measures, monitoring schemes, conditions to be adopted by decision-makers etc.), (ii) why it is suggested (e.g. in order to minimize certain adverse effects), and (iii) who / which institutions should perform these actions (planning agency, project developer, environmental agencies, decision-makers etc.).

Both SEA and EIA Directives provides a list of items and information to be provided by the SEA/EIA Report. Also, usually, the structure of the SEA/EIA Report is stipulated by the national legislation. However, it is important to allow SEA/EIA practitioners to take legally prescribed structure of SEA/EIA Report rather as a framework and thus enable them to organize the SEA/EIA Report as appropriate to a specific SEA/EIA and the key information to be presented, while covering all topics listed in Annex I of the SEA Directive / Annex IV of the EIA Directive and/or relevant provision of the national legislation.

### EXERCISE

Using the real SEA/EIA reports, the participants are asked:

- (i) to compare them with Annex I of the SEA Directive and Annex IV of the EIA Directive respectively,
- (ii) to conclude if reports fully cover all topics stipulated by the Directives, and
- (iii) to identify topics or information which are missing (if it is the case).



If time allows, the participants should also provide a feedback on following questions:

- Does the report provide sufficient basis for efficient communication with stakeholders (i.e. does it use simple and clear language, does it contain a non-technical summary, are conclusions and recommendations clear and explicit etc.)
- Does the report explain analytical bases, sources of information etc.?
- Does the SEA report describe technical, procedural and other difficulties?

#### TIPS FOR PRACTICE

- Don't overcomplicate the SEA/EIA Report – its main body should be short and clear. All detailed analyses and information can be provided in annexes to the report.
- Use understandable language (avoid using e.g. technical terms or acronyms without proper explanation), which make the report “user-friendly” to decision-makers, relevant authorities and the public.
- Always include non-technical summary
- Provide also information on SEA/EIA process management outlining how was the process conducted, if there were any consultations with relevant authorities and/or other stakeholders, how the outcomes of these consultations have been considered in the report etc.
- Don't forget to clearly indicate which suggestions have been already integrated in the final draft of the plan or programme, or project design.
- Clearly indicate any uncertainties and a lack of data and information.

#### TOPICS FOR DISCUSSION

- Does the structure of SEA/EIA report as stipulated by the national legislation in your country fully cover all items listed in relevant annexes of SEA/EIA Directives? If not, what is missing?
- Do SEA/EIA practitioners usually fully follow prescribed structure? If not, what are the major differences?
- How would you structure SEA/EIA report?

#### CASE EXAMPLE

Structure of SEA report as stipulated by the Czech SEA/EIA law, SEA report for Operational Programme Enterprise and Innovations 2007 – 2013 of the Czech Republic, relevant criteria for assessing ‘communication’ in the Environmental Statement Review Package (United Kingdom)<sup>20</sup>

(ppt presentations will be introduced at the workshop)

#### PROPOSED STRUCTURE OF THE PRESENTATION

<sup>20</sup> Lee, N., Colley, R., Bonde, J., Simpson, J. (1999): Reviewing the quality of environmental statements and environmental appraisals. Occasional Paper Number 55, EIA Centre, University of Manchester





- **Aim and rationale (1 – 2 slides)** – describe why SEA/EIA report is important and what main qualities it should have
- **Legal framework (1 – 2 slides)** – describe legal requirements stipulated by the national legislation regarding the structure and content of the SEA/EIA report separately for SEA and EIA. If there are no relevant provisions in the national legal framework, make a reference to EU SEA or EIA Directives.
- **Approaches and tools (2 – 3)** – describe typical structure of SEA/EIA report in your country, again separately for SEA and EIA, and highlight main challenges and/or typical insufficiencies in practice.
- **Tips for practice (1 – 2 slides)** – elaborate tips for practice provided above and/or develop additional ones reflecting the context in your country.
- **Topics for discussion (1 – 2 slides)** – elaborate topics for discussion provided above and/or develop additional ones to reflect SEA/EIA practice in your country.
- **Case study (2 – 3 slides)** – present structure and content of one SEA report and one EIA report from your country.



## STEP 6: QUALITY CONTROL

### RATIONALE

Both SEA and EIA provide inputs to decision-making i.e. adopting the plan or programme or project approval. However, only assessment providing reliable and objective information should be considered in the decision-making process, otherwise it may lead to counter-productive results – it means decisions are based on misleading and biased conclusions, and thus likely causing environmental and health damages.

### AIM

The quality control should ensure that SEA/EIA process provide reliable and objective information to be considered when adopting the plan or programme or approving the project and communicate this information effectively to stakeholders.

### APPROACHES AND METHODS

The role and understanding of the quality control differ between SEA and EIA. Very often, the quality control in SEA is conducted less formally and to the large extent relying on the internal quality control by SEA experts, while many national EIA processes include quality control as a well-defined specific procedural step.

Since there are no quantitative benchmarks for “standard” SEA/EIA and SEA/EIA report, the quality cannot be quantified. Therefore, the quality review in SEA/EIA is mostly qualitative and it lies on the verbal description of how certain aspects of quality (represented by quality criteria) have been met in a specific SEA/EIA case.

Following arrangements are used in SEA/EIA scheme for quality control:

- Internal quality control i.e. done by the SEA team during the process
- SEA/EIA-certified or licensed experts and/or companies (both legally required or voluntarily schemes)
- Quality control by SEA/EIA Competent authorities is usually conducted on the SEA/EIA Report submitted before further public consultations
- Expert(s) appointed to review the quality of SEA/EIA report and prepare the quality review report
- Ad-hoc committees (more usual in EIA) established specifically for each SEA or EIA process and often focusing on the SEA/EIA report only
- Specialized institutions conducting the quality control of the SEA/EIA report
- Provisions for checking agreed mitigation measures are implemented and effective

It needs to be also noted that consultations with public can be considered as another type of quality control – very often, public discussion reveals insufficiencies or incorrectness in SEA/EIA report, or misinterpretation of conclusions etc.



In SEA, a number of factors influence its quality – expertise and professionalism of experts involved, communication with planning team, availability and appropriateness of data and information, the use of effective impacts’ evaluation tools and techniques, means of stakeholders’ consultations and participation, and an extent of integration of the SEA findings into the plan or programme. Thus, the quality control in SEA should not be focused only on the SEA report, but on the entire SEA process (until the quality control) – especially on its interaction with the planning process and integration of SEA recommendations in the draft plan or programme.

The quality review in EIA is typically more focused on the EIA report. The review should address following aspects:

- Does the EIA report meet requirements given by relevant legislation?
- Do the EIA report follows instructions given by the ToR and/or scoping?
- Does the EIA report provide sufficient information to be considered in decision-making?
- Does the EIA report take into account opinions given so far within the EIA process by the environmental and health authorities, public and other relevant stakeholders?

#### EXERCISE

The participants are asked to compare approaches to the quality review as presented in the case examples with approaches used in their country and elaborate a feedback on the questions listed in the section “Topics for discussion”.

#### TIPS FOR PRACTICE

- Do not focus the quality control solely in the SEA/EIA report, but address also larger context and procedural aspects
- Understand quality control as a support to SEA/EIA conclusions recommendations rather than critique focusing on minor details
- Keep you quality control scheme simple and efficient – more attention should be paid to complicated SEA/EIA processes and important plans, programmes or projects of a strategic nature (e.g. power-plants) rather than applying the same approach for all SEAs/EIAs in the country
- Enable public to comment on the quality of SEA/EIA report providing also room in the procedure to integrate these comments in the final SEA/EIA report before decision-making

#### TOPICS FOR DISCUSSION

- What should be the role of the quality control?
- Should it differ in SEA and EIA?
- What are the *pros* and *cons* of the approaches to the quality control introduced? Which one is the most similar to the quality control in your country?
- What approaches are used in your country? Are there any specific criteria for a good SEA/EIA? Do you see any limitations? If so, what changes would you suggest?

#### CASE EXAMPLE



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Approaches to SEA/EIA quality control in the Czech Republic (ppt presentation will be introduced at the workshop), Denmark and the Netherland (see table below).



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|   |                  | Regulation on EIA  |   | Regulation on SEA                    |  |
|---|------------------|--|---|--------------------------------------|--|
|   |                  | The Netherlands  | Denmark   | The Netherlands                      | Denmark                                |
| Division of public/private responsibilities               | Public authority | Competent authority (CA) is responsible for screening, scoping, organising public participation. CA responsible for justifying the ultimate decision in the light of the EIA findings.   | CA is responsible for the entire EIA process.   | Same as comprehensive EIA procedure. | Similar to the Danish EIA regulations. |
|   | Proponent        | Proponent is responsible for conducting the EA report.   | Proponent can be required to deliver information.   |                                      |  |
| Quality control measures embedded in national legislation | Scoping          | CA is responsible for scoping. The NCEA (National Commission for Environmental Assessment) can be asked to provide scoping advice at the start of the EA procedure. For each EIA, the NCEA then forms specific expert panels comprised of the most relevant disciplines. Reviews are mandatory on so-called comprehensive projects. CA also asks 'legal advisors' for a scoping advice. CA decides on the eventual scope. Other relevant authorities must be consulted on scope and report.<br><br>Proponent is responsible in the case of the limited EIA procedure. CA may be asked or | Other relevant authorities must be consulted on scope and report. Input from relevant authorities is, by definition, appropriate. |                                      |  |



|  |                             |   |  |  |   |
|--|-----------------------------|---|--|--|---|
|  |                             | voluntarily provide scoping advice (in which case the CA also asks 'legal advisors' for a scoping advice). Proponent can ask for scoping advice from the NCEA on a voluntary basis (in which case a fee applies). |  |  |   |
|  | <b>Public Involvement</b>   | Public to give input and review in authority's consultations on the final EIA report.   | Public to give input and review in authority's consultations on (a) scope and (b) the final EIA report. The EIA report must to a relevant extent respond to public input.<br><br>Public can appeal to national boards of appeal, which has the power to reverse decisions. |  | Public to give input and review in authority's consultation on the final EA report, but not on the scope.<br><br>Otherwise similar to the Danish EIA regulations. |
|  | <b>Review of EA Report</b>  | NCEA is responsible for undertaking a quality review of the EIS, which was mandatory for all projects until 2010. Since 2010, a review has been required only for so-called comprehensive projects.               | No formal provisions besides consultation of other authorities. Relies on public involvement noted above.  |  | Same as Danish EIA regulations.   |
|  | <b>Public statements on</b> | Until 2010, the public statement must include a specification of whether the most environmental friendly alternative was  | The public statement must include reasons for choices and description of measures to   |  | Same as Danish EIA regulations, plus must detail  |



|  |               |           |                              |  |  |
|--|---------------|-----------|------------------------------|--|--|
|  | the use of EA | selected. | handle the negative impacts. |  | how public input is taken into account |
|--|---------------|-----------|------------------------------|--|--|



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## PROPOSED STRUCTURE OF THE PRESENTATION

- **Aim and rationale (1 – 2 slides)** – describe the role of quality control SEA/EIA and its differences
- **Legal framework (1 – 2 slides)** – describe legal requirements stipulated by the national legislation regarding the quality / quality control in SEA/EIA
- **Approaches and tools (2 – 3)** – describe approaches to the quality control in SEA/EIA in your country, separately for SEA and EIA, and highlight main challenges and/or typical insufficiencies in practice.
- **Tips for practice (1 – 2 slides)** – elaborate tips for practice provided above and/or develop additional ones reflecting the context in your country.
- **Topics for discussion (1 – 2 slides)** – elaborate topics for discussion provided above and/or develop additional ones to reflect SEA/EIA practice in your country.
- **Case study (2 – 3 slides)** – present conclusions of the quality control for one SEA and one EIA in your county





## 5. CONSULTATIONS WITH STAKEHOLDERS

### RATIONALE

Stakeholders' consultations and participation is an integral part of SEA/EIA process. Efficient involvement of relevant stakeholders will contribute to quality of the assessment, might provide inputs into SEA/EIA analysis and report, as well as it can support implementation of the plan or programme after its approval, and contribute to better acceptance of the project.

### AIM

The aim of the stakeholders' consultations is two-fold:

1. To provide early, timely and effective opportunity for all relevant stakeholders to provide inputs in SEA/EIA, when all options are open. It means, there must be a realistic space for considering the comments raised by stakeholders at least in the SEA/EIA report, optimally also in earlier steps.
2. To get information, data and/or verification of the findings and conclusions formulated by SEA/EIA.

### APPROACHES AND METHODS

Efficient stakeholders' consultations and participation should be focused on the key stakeholders that are interested in the plan, programme or project, or may be influenced by its implementation. From SEA/EIA practitioners point of view, the consultations should help to obtain additional information and data, which would reinforce the analyses and / or contribute to development of new alternatives of the plan, programme, or project with better environmental and health performance.

There are following main groups of stakeholders to be consulted and/or involved in SEA/EIA:

- Environmental and health authorities
- Public (including NGOs)<sup>21</sup>
- Other stakeholders i.e. other governmental agencies, universities, unions, etc.
- Foreign countries (in case of likely transboundary impacts)

However, relevant stakeholders will be different for each specific SEA and EIA as well as purpose for their involvement might differ in various stages of the process. It strongly depends on the nature and

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<sup>21</sup> In accordance with the Aarhus Convention and the EU EIA Directive the public means "one or more natural or legal persons, and, in accordance with national legislation or practice, their associations, organizations or groups". For EIA purpose is also important to define "public concerned", which should be understood as "the public affected or likely to be affected by, or having an interest in, the environmental decision-making; for the purposes of this definition, non-governmental organizations promoting environmental protection and meeting any requirements under national law shall be deemed to have an interest".



content of the plan, programme and type and location of the project, likely effects to the environment and public health, and overall arrangement of the SEA/EIA process.

In SEA, detailed plans at the regional and local levels (e.g. land-use plans) with well specified measure and activities attract people more than general national policies, which might be too abstract and “far from daily life”. Similarly, large and “strategic” projects as e.g. nuclear power plant, highway corridor etc. raise more attention and require participation of wide NGOs network in EIA as well as policy-makers, while in EIAs for small and local project (for instance shopping centre) usually only local community and NGOs take part.

For efficient stakeholders’ consultations and participation is important to identify stakeholders, define purpose of their involvement, select means of consultations and participation and properly plan the activities already at the beginning of SEA/EIA process.

In case of SEA, often the planning process itself already includes activities towards the stakeholders’ participation. Thus, stakeholders’ consultations and participation in SEA should be optimally carried out jointly with activities organized within planning process in order to avoid overlaps regarding the stakeholders’ involvement between SEA and planning process. When initiating SEA process, the SEA team should identify those steps and analysis to be conducted which would mostly benefit from stakeholder inputs. Usually, it includes following steps:

- Determination of the scope of assessment (i.e. identification of the key environmental and health issues related to the plan or programme)
- Analysis of baseline trends
- Assessment of environmental and health effects
- Formulating measure to avoid or mitigate likely adverse and to enhance positive environmental and health effects
- Drafting and finalizing the draft SEA report

In EIA, stakeholders should be optimally involved in following stages of the process:

- When deciding about EIA application i.e. in screening
- When defining the scope of assessment i.e. in scoping
- When the draft EIA report is ready

Both in SEA and EIA, all stakeholders also have to be informed about the final SEA/EIA statement as well as the approval of the plan, programme or project together with information how the conclusions from SEA/EIA have been considered in the plan/programme and its adoption, or conditions for the project implementation stipulated by the development consent.

There are many tools and methods for stakeholders’ consultations and participation, and their selection highly depends on the nature of the plan or programme or type of the project. Typically, following tools and methods are used in SEA/EIA:

- Public hearings
- Public workshops and meetings
- Informal small groups meetings (focused groups)



- Local planning visits
- Fields trips and site visits
- Operating field offices
- Public displays and exhibitions
- Formal disclosure of relevant documents at the governmental authority website and/or notice board
- Press releases and invitations asking for comments or feedback
- Questionnaires and response sheets
- Surveys
- Dedicated web sites
- Email dissemination
- e-Groups and e-Discussions

It is important to note that public hearings or questionnaires which are often used for consulting public during EIA processes may not deliver the most effective consultations within the SEA processes. Instead, problem-solving workshops, roundtables, advisory panel or structured interviews may be provide more efficient and user-friendly means for obtaining inputs from the relevant stakeholders during the SEA<sup>22</sup>.

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## EXERCISE

### SEA

List usual steps of SEA process in your country for the municipal local plan and suggest

- Main stakeholders to be consulted
- SEA stages in which consultations should be carried out
- Reasons for consultations and expected outputs

### EIA

List usual steps of EIA process in your country for selected project and suggest

- Main stakeholders to be consulted
- EIA stages in which consultations should be carried out
- Reasons for consultations and expected outputs

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## TIPS FOR PRACTICE

- Prepare the plan for the stakeholders consultations at the beginning of the SEA/EIA process
- In SEA, when planning stakeholders consultations considered consultation activities to be conducted in the planning process itself
- Always provide a feedback on stakeholders' comments received indicating how these have been or will be addressed in the SEA/EIA or explaining why these cannot be accepted

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<sup>22</sup> Technical guidance for SEA in Vietnam, Ministry of Natural Resources and Environment and SEMLA, 2007



- In SEA/EIA report, include an overview of the consultation activities carried out together with a summary of main comments and how these were considered in the assessment

#### TOPICS FOR DISCUSSION

- In which stages of SEA/EIA process would you see consultations with stakeholders as the most efficient and why?
- Which stakeholders' groups are usually involved in SEA/EIA in your country?
- What methods and tools are usually used for consultations with stakeholders in SEA and EIA in your country?
- Do you see any insufficiencies in practical approaches for consultations with stakeholders in SEA/EIA in your country? If so, what improvements would you suggest?

#### CASE EXAMPLE

SEA for Operational Programme Enterprise and Innovations 2007 – 2013 of the Czech Republic, EIA for Shopping Centre in Pilsen, EIA for Shaldon and Ringmore Tidal Defence Scheme (United Kingdom)  
(ppt presentations will be introduced at the workshop)

#### PROPOSED STRUCTURE OF THE PRESENTATION

- **Aim and rationale (1 – 2 slides)** – describe the importance of stakeholders consultations in SEA/EIA
- **Legal framework (1 – 2 slides)** – describe legal requirements stipulated by the national legislation for stakeholders consultations in SEA/EIA
- **Approaches and tools (2 – 3)** – describe usual practice for stakeholders consultations in your country (i.e. procedure, methods and tools), separately for SEA and EIA, and highlight main challenges and/or typical problems.
- **Tips for practice (1 – 2 slides)** – elaborate tips for practice provided above and/or develop additional ones reflecting the context in your country.
- **Topics for discussion (1 – 2 slides)** – elaborate topics for discussion provided above and/or develop additional ones to reflect SEA/EIA practice in your country.
- **Case study (2 – 3 slides)** – present a way of stakeholders consultations and its results in one SEA and one EIA in your county



## 6. SEA/EIA AND DECISION-MAKING

### RATIONALE

As mentioned previously, the main purpose of SEA/EIA is to ensure that environmental considerations inform and are integrated into strategic decision-making.

Following provisions of SEA/EIA Directives, recommendations given by SEA/EIA must not be accepted obligatorily. However, decision-makers have to have information of likely environmental and health consequences related to their decision – i.e. approval of the plan, programme, or project and this information is supposed to be delivered by SEA/EIA.

### APPROACH

Decision-makers always should consider conclusions provided by the SEA/EIA report (which includes mitigation measures as well as summarizes comments received during consultations with stakeholders) – in case of SEA, the SEA report should be submitted as an integral part of the plan or programme. In EIA, the EIA report usually serves in subsequent permitting process; it informs decisions on whether or not the approval should be granted and, in some cases, what conditions should be attached to the approval (e.g. in relation to maximum noise levels, etc.).

After adoption of the plan, programme, or project, the public and environmental and health authorities (and optimally all other stakeholders) have to be informed about the decision. As stipulated by the SEA Directive, the approved plan or programme publicly available together with a statement summarizing how the environmental and health considerations as recommended by SEA have been integrated in the plan or programme have to be published as well as explanation, why certain alternative of the plan or programme has been selected and approved, must be provided to public.

### TOPICS FOR DISCUSSION

- What is the procedure on taking the SEA/EIA conclusions into account in decision-making in your country?
- Does it fully reflect requirements of SEA/EIA Directives?
- How the acceptance of SEA/EIA conclusions by decision-makers can be enhanced?

### CASE EXAMPLE

Procedure of considering SEA/EIA in decision-making in the Czech Republic, Denmark, Slovenia, the Netherlands and other countries (ppt presentations will be introduced at the workshop)

### PROPOSED STRUCTURE OF THE PRESENTATION

- **Rationale (1 – 2 slides)** – describe the link between SEA/EIA and decision-making
- **Legal framework (1 – 2 slides)** – describe legal requirements stipulated by the national legislation regarding taking SEA/EIA into account in decision-making



- **Approach (2 slides)** – describe practical steps on how SEA/EIA is considered in the decision-making (what type of the SEA/EIA document is submitted for decision-making, who issues final statement, which authority is responsible for publishing the decision and related information as required by the EU SEA/EIA Directives) and highlight main challenges and/or typical problems (e.g. avoidance of SEA/EIA results by decision-makers etc.)
- **Topics for discussion (1 – 2 slides)** – elaborate topics for discussion provided above and/or develop additional ones to reflect SEA/EIA practice in your country.
- **Case study (2 – 3 slides)** – present a case (SEA and/or EIA), where SEA/EIA conclusions have been integrated in the decision



## 7. ANNEXES

### ANNEX 1: OVERVIEW OF METHODS AND TOOLS

Here is a practical overview of applicable methods or analytical tools that can be applied when undertaking SEA/EIA evaluation. It gives a short overview of applicability of selected methods or analytical tools, as well as pros and cons for its use. Even if it can be treated as a list of tools and techniques that can be used by evaluators when undertaking SEA/EIA it should not be used as “a rule” or “the only source” of such ideas. Each strategy/plan/program or project is unique and it should be uniquely evaluated.

It is also vital to emphasize that SEA/EIA experts may and should vary the approach, methods and tools used in order to ensure the best possible results for each SEA/EIA. It is also advisable to select the best possible method or analytical tool for each of the main steps in the SEA/EIA process in accordance with actual decision-making needs and information availability, thus ensuring tailored approach on case-to-case basis.

The key features of applicable methods or analytical tools can be summarized as described below (adapted from UNECE, 2011 and modified for the purpose of the training material):

| Selected applicable methods or analytical tools         | Their application within the SEA process |                               |   |                       |   | Their application within the EIA process |                               |   |                       |   |
|---|--|-------------------------------|---|-----------------------|---|--|-------------------------------|---|-----------------------|---|
|   | Identification of issues and impacts     | Context and baseline analysis | Contributing to development of alternatives | Assessment of impacts | Comparing key options for decision-making | Identification of issues and impacts     | Context and baseline analysis | Contributing to development of alternatives | Assessment of impacts | Comparing key options for decision-making |
| Spatial analyses/Geographical information systems (GIS) | ✓  | ✓                             | ✓   | ✓                     | ✓   | ✓  | ✓                             | ✓   | ✓                     | ✓   |
| Trends analysis/extrapolation                           | ✓  | ✓                             | ✓   | ✓                     | ✓   | ✓  | ✓                             | ✓   | ✓                     | ✓   |
| Multi-criteria analysis                                 |  |                               | ✓   | ✓                     | ✓   |  |                               | ✓   | ✓                     | ✓   |
| Cost-benefit analysis                                   |  |                               | ✓   |                       | ✓   |  |                               | ✓   | ✓                     | ✓   |
| Comparative risk assessment                             |  |                               | ✓   | ✓                     | ✓   |  |                               | ✓   | ✓                     | ✓   |



|           |  |   |   |   |   |  |   |   |   |   |
|-----------|--|---|---|---|---|--|---|---|---|---|
| Modelling |  | ✓ | ✓ | ✓ | ✓ |  | ✓ | ✓ | ✓ | ✓ |
|-----------|--|---|---|---|---|--|---|---|---|---|

## SPATIAL ANALYSES/GEOGRAPHICAL INFORMATION SYSTEMS (GIS)

Spatial analyses are undertaken through a preparation of layers/maps with different information which is relevant to the SEA/EIA. This method is often useful to map information and to show how it varies across the plan or program area. The results of spatial analyses can offer a variety of practical uses in the SEA/EIA process – in that regard they can:

- Provide a composite picture of the receiving environment, the resulting development opportunities and existing constraints/conflicts.
- When using time data series, show how changes have occurred over time.
- Present impacts of previous developments and show linkages between different issues
- Identify potential impacts of planned future activities/development.
- Outline cumulative impacts of different activities on one issue.
- Indicate spatial concentrations of different environmental impacts.

Advantages and disadvantages for implementation:

- + Spatial analyses allow the use of huge amount of geographically located data that would otherwise prove impractical to use.
- + Spatial analyses allow for better understanding of current state, on-going processes and relationships between different sets of data in real space.
- + Spatial analyses can consider topography and local territorial issues.
- + Spatial analyses are heavily used and relied upon in the planning process of any plan or program, thus making it a convenient tool for communication with planning team, problem focused discussions and solution finding.
- If relevant data are not readily available in adequate form, space range and quality, spatial analyses can be expensive, time consuming and sometimes even counterproductive.
- Equally important/problematic are the quality control of GIS made results (in case of combining different sets of data) and adequate interpretation of results, which demands good knowledge and understanding of datasets by the evaluator.
- The reasons for using GIS have to come from the need for specific answers to specific questions. General use of GIS seems a high tech approach, but sometimes the mass of available data can cloud the mission ahead of us and cause unnecessary complications in the decision making process.

## TRENDS ANALYSIS/EXTRAPOLATION

Accurate trend analysis is one of the most important aspects of any assessment. In the context of SEA/EIA, it can be defined as an interpretation of environmental pressures and changes in the state of the environment through space and over time. It is also often used to predict/model future events or evolvement of the processes. It was designed to simplify vast quantities of information and help us understand “the big picture” or “the way we are heading”.

Trend analysis uses data sets and helps to trace any trends or patterns. Trends can be linear, exponential or cyclical and they should, where possible, be analysed over a correct temporal scale. The presentation of trends can be fairly simple (e.g. a line graph) or quite complex (e.g. using three-dimensional graphics or video simulation). There are numerous computer programs that facilitate





trend analysis (e.g. the simplest ones being computer spreadsheet software, more advanced ones including RATS, GAUSS, JMP, etc.).

Advantages and disadvantages for implementation:

- + It can summarize and simplify vast quantities of information and help us understand “the big picture”.
- + It can greatly assist in the quantification of cumulative impacts in cases where environmental data are available over long periods.
- ± As trends can reveal unexpected deviations from the expected or general trend, it is also very vital to detect such deviations, to determine the reasons behind their appearance and to put them into context of the goal of our trend analysis.
- Since it is based on data sets, it is only as reliable or precise as the data used for its implementation. That is why special attention should be put into selection of adequate and precise data-sets and into understanding of the methods and quality of data gathering, hence their reliability, including the consultations with respective authorities and support with qualitative data (exact information on specific phenomena).

## MULTI-CRITERIA ANALYSIS

Multi-criteria analysis (MCA) helps to manage complexity in decision-making by converting the evaluation to a numerical score. All MCA approaches incorporate judgments that are expressed in weights of criteria and in performance evaluations of each option. It numerically evaluates all alternative options against several criteria, and combines these separate evaluations into one overall evaluation. It can be used to identify a single most preferred option, to rank options, or simply to distinguish acceptable and unacceptable options so that a limited number of options can be short-listed for a detailed appraisal. Its purpose is to serve as an aid to thinking and decision making, but not to take the decision. It is a way of breaking the problem into more manageable pieces to allow data and judgments to be brought to bear on the pieces, and then of reassembling the pieces to present a coherent overall picture to decision makers.

Advantages and disadvantages for implementation:

- + It takes into account different criteria at the same time, thus avoiding decision-making process based on single criteria.
- + It is transparent and explicit.
- + It can be used to bring together the view of the different stakeholders in the evaluation.
- + It can facilitate communication with decision maker and sometimes with the wider community.
- It reduces rational debate about various pros and cons of proposed alternative options into discussion about abstract numbers.
- It cannot facilitate consensus on very controversial decisions.
- By presenting quantitative information it can create a false impression of accuracy. This sometimes hides the fact that all MCAs heavily depend on a value judgment.
- It can be easily manipulated by those who perform it.
- SEA/EIA usually takes into account the environmental and a part of social aspect (health, accessibility, etc.), leaving out a second part of social aspect (jobs, social standard, etc.) and economic aspect that should also be included in a real MCA. In this way use of Multi criteria analysis is partially limited or has to be modified.



## COST-BENEFIT ANALYSIS/COST-UTILITY ANALYSIS

In Cost-Benefit analysis of benefits and costs are expressed in monetary terms, so that all flows of benefits and flows of project costs over time are expressed on a common basis in terms of their "net present value." As a method Cost-Benefit analysis has two main purposes:

- To determine if the investment/decision is sound by providing justification/feasibility.
- To provide a basis for comparing different investments/decisions.

As Cost-Benefit analysis demands monetization of all criteria its "classical" use is much more present in EIA than in SEA. It is sometimes very hard to objectively value certain aspects, such as human life or environment. However, this can sometimes be avoided by using the related technique of Cost-Utility analysis, in which benefits are expressed in non-monetary units such as quality-adjusted life years (e.g. road safety can be measured in terms of cost per life saved). A benefit/cost is defined as anything that increases/decreases human well-being. In turn, human well-being is determined by what people prefer (revealed through choices, market behaviour, questionnaire, etc.). Measurement of a preference is obtained by finding out the individual's willingness to pay for a benefit or for the avoidance of a cost, or their willingness to accept compensation for tolerating a cost or foregoing a benefit. However, such non-monetary metrics have limited usefulness for evaluating policies with substantially different outcomes.

Advantages and disadvantages for implementation:

- + It provides easy-to-understand information (in monetary terms) to the decision maker.
- + It allows comparison of effects which might otherwise be difficult to compare (e.g. time savings for motorists versus loss of landscape value).
- ± While Cost-Benefit analysis can offer a well-educated estimate of the best alternative, perfection in terms of economic efficiency and social welfare are not guaranteed.
- ± It is sometimes very hard to objectively value certain aspects, such as human life or environment. This can sometimes be avoided by using of Cost-Utility analysis.
- There are many issues of contention in CBA, including appropriate discount rates and the reduction of future costs and benefits to net present values, and the valuation of health, life and environmental goods and services.
- There are many technical difficulties and much dispute regarding the methods used within CBA, such as contingent valuation.

## COMPARATIVE RISK ASSESSMENT

Comparative risk assessment is an environmental decision-making tool used to systematically measure, compare, and rank environmental problems or issue areas. It is the determination of quantitative, qualitative or comparative value of risk related to a concrete situation and a recognized threat. It requires calculations of two components of risk – the magnitude of the potential loss and the probability that the loss will occur – or in other words how much can we expect to lose from an asset based on the risks, threats, and vulnerabilities. It then becomes possible, from economical perspective, to justify expenditures to implement countermeasures to protect the asset. The method typically focuses on the risks a problem poses to human health, the natural environment and quality of life, and results in a list (or lists) of issue areas ranked in terms of relative risks.

Advantages and disadvantages for implementation:



- + It allows for objective ranking of risks that are otherwise hard to compare.
- Use of Comparative risk assessment is in practice limited to special cases. It is a specific tool designed to answer specific questions. As such its use in relatively open and wide range SEA process is relatively limited and is much more appropriate for EIA level.
- Analysis is multi-disciplinary and highly complex.
- Setting priorities is ultimately based on values of the community and results may vary substantially if ranking criteria have changed.

## MODELLING

Modelling is a general name of all methodologies used for modelling any type of processes or events in space and time. Any kind of modelling is closely connected with the use of GIS as a tool for implementation of spatial or other data models. More standardized models that can be reused in other similar cases were, developed into computer programs specifically designed to answer certain set of questions (ex. HMS, Mike, IMMI, etc.). On the other hand GIS itself offers wide range of spatial standardized models (ex. Slope, Watershed, etc.) or even allows programming oriented users to develop unique models to satisfy their needs.

While modelling generally tends to be used in SEA only when other analytical tools would provide insufficient predictions in EIA it is commonly used. The most common models include:

- Air Quality Models can simulate individual or cumulative impacts of a number of projects on the local air quality.
- Soil Quality Models can calculate soil degradation (e.g. erosion, degradation of the organic matter, etc.) or leaching and accumulation of chemicals (fertilizers, pesticides, and heavy metals) applied to soil.
- Water Quality Models can simulate dispersion of various pollutants under different flow or tidal conditions. Other water quality models can simulate the behaviour of pollutants in a lake environment. There are also models that simulate dispersion of various pollutants in ground water and the time needed for the body of ground water to clean itself.
- Flood models can simulate individual or cumulative impacts of a project or a number of projects on both - the local floods and floods downstream.
- Noise Models can consider the cumulative noise levels from more than one source.
- Visualization models can simulate individual or cumulative impacts of a number of projects on the landscape. They are most commonly used in SEA/EIA when dealing with new building/infrastructure projects located in or in vicinity of protected landscapes or cultural heritage areas/buildings.

Advantages and disadvantages for implementation:

- + Modelling, when used correctly, allows for long term prediction of processes and events.
- + Model can simulate effects of proposed plans/projects over time and in space, and carry out numerous simulations based on different assumptions/scenarios and input data.
- + Modelling results can be effectively combined with GIS.
- Construction or calibration and running of a model are usually very demanding in terms of cost, expertise and time.
- No model can realistically address every intricacy of the natural system.
- The accuracy of a model totally relies on the quality of the baseline data.
- Modelling is based on the set of analytical procedures and rules designed to simulate real-world conditions. Any change in the model itself or the used data-sets can provide very



different results. In the process of objective and critical interpretation of the results a lot of attention should be put on quality of the data-sets, quality of simulation of real-world conditions and reliability of the model itself.

- Modelling cannot predict the occurrence of external factors which quite often greatly influence the phenomenon which is being observed.

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