CHALMERS

Environmental Impact Assessment

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Contents

Introduction

The need for a systematic method of evaluating the environmental effects of a project or a plan has been recognised for several decades. Environmental impact assessment, EIA, was introduced as a means to accomplish this in the USA in the early 1970s. Since then the use of EIA has spread throughout the world and the methodology has been developed and adapted to various purposes connected to decision making at different levels in enterprises and society. EIA has been applied to projects and plans of various scales. It is used in local projects and development, but also for regional and even global issues. In the 1990s environmental management has become an important issue in enterprises. In connection with this the need for relevant systems analytic tools to identify the causes of environmental problems in the technical system has increased and the use of EIA has increased.

The early EIAs were often focused on inventory of a possible environmental load and the impact due to this. The development of EIA has been into a more complex method, where the document, the environmental impact statement (EIS) is one part, but where the process to make the document including the public participation also has become an increasingly important part. Thus also social effects are becoming included in the EIA and the method has developed into a systematic way of finding a solution with low environmental impact that is accepted by all (or as many as possible) involved stakeholders.

An important concern is to ensure that the information in the EIA is of sufficiently high quality for the decision-makers, the public and the developers to have confidence in the findings and to feel able to act upon the basis of the findings.

EIA may be described in a very simple way: consider the environmental load of a proposed action and identify the effects and find an agreement between the stakeholders of the best solution.
The following text discusses the principles and applicatoin of EIA. For further reading on the issue there ar numerous text-books and scientific publications. Two main sources of information that may be recommended are: "Environmental Impact Assessment" by R K Morgan and "Boken om MKB" edited by P Lerman.. These, along with many others, have been used when writing this text.

Aims and objectives of EIA

There are different aims of EIA that will influence the choice of method and the scope of the study. The aim is dependent on who is the user as well as on the use of the result. Some of the aims may be regarded as more or less formal like:

- **Project development**. The use of EIA in project development may be regarded as a way of avoiding environmental impacts by using EIA at as early stage as possible in the development. This is also a way of avoiding costs due to these impacts. This may be used for different projects e g construction or reconstruction of industrial plants, construction of roads, construction of municipal waste or water purification plants. The users are to be found in the decision makers in the company and the performer is usually the project team or consultants.
- **Development control** (licenses, permits etc). Here the EIA is a tool for authorities to prevent adverse environmental impact from the kind of projects mentioned above. This kind of EIA has been introduced in national legislation. The performer may be the authority but also it may be the task of the performing company. Also here consultants may be used for the work.

- **Plan development.** This EIA is a tool for authorities in planning of resource or land use, infrastructure like roads, railways etc. This EIA often is called Strategic Environmental Assessment (SEA). The authority may be performer if the competence is available, else consultants are used.
- **Policy development.** Another use of SEA is in policy development were the consequences of a policy can be evaluated by a government. As an example a government may evaluate the consequences of promoting a specific type of industry (forest industry or IT..) as a major primary industry. Also here the work may be performed internally or by consultants.

All the mentioned aims are predictive and treat proposed actions. The EIA may also be used in an "iterative" way, i e to monitor the impact of a project on a regular basis throughout the life-time. However this use is not widely spread.

The aims of EIA have been described by Morgan in the following way: (Morgan 1998):

- Its basic purpose is to anticipate important possible effects of proposed activities on the natural system (water, soil, air, biological system, human health), antropogenic systems (settlements and infrastructure), social and economic systems (work, education, recreation, health services) and cultural systems (beliefs, art, literature)
- The process is formally sanctioned by a legislative or bureaucratic framework set within a national and local policy context. These policies influence the character and direction of the EIA process in a given country and a given setting
- There are many participants in the EIA process, often with very different roles:

- To predict impacts or effects
- To organise overall EIA
- To scrutinise the products
- To ensure the legislation is used correctly
- To make decisions
- To advise decision-makers
- To observe the workings of various parts of the process
- To scrutinise follow-up processes
- To protect community values
- To protect fauna and flora

To promote sustainable development

Roles and perspectives in EIA

Since there are many persons of different categories involved in an EIA in various ways, the perspective on what an EIA is may vary. The following list is hypothetical, but may be used to illustrate what an EIA may mean to different categories (after Morgan 1998):

- Environmental scientist - a process that predicts a likely change in the environment (eg fish population, air quality etc)
- Sociologist - a process of informing local communities about changes in the environment allowing the population to participate in the decision-making
- Member of the local community - a way for the council and developers to justify a development project
- Consultant - a job

- Political scientist - a process that forces bureaucracies to recognise and respond to concerns about environmental change
- Politician - a process that demonstrates that decision-making recognises environmental issues
- Developer - a process which allows the local authorities to employ more people
- "Deep" ecologist - a process that allows the government and developers to maintain long term policy of resource development and growth without concern for the environment
- Planner - a practical process for balancing the needs of development with the need to maintain important environmental and social characteristics of a locality
- Economist - a process for identifying externalities associated with a proposal and assign them monetary values
- The information generated by the EIA process is used by the various groups and individuals, for formal and informal purposes and while formal purposes may dominate in terms of legal requirements, the informal purposes may well have important societal roles.

There may be many more perspectives than the mentioned, but they illustrate one problem that easily arises in the process of an EIA - the different perspectives can make it difficult to find a solution that all parties agree upon.

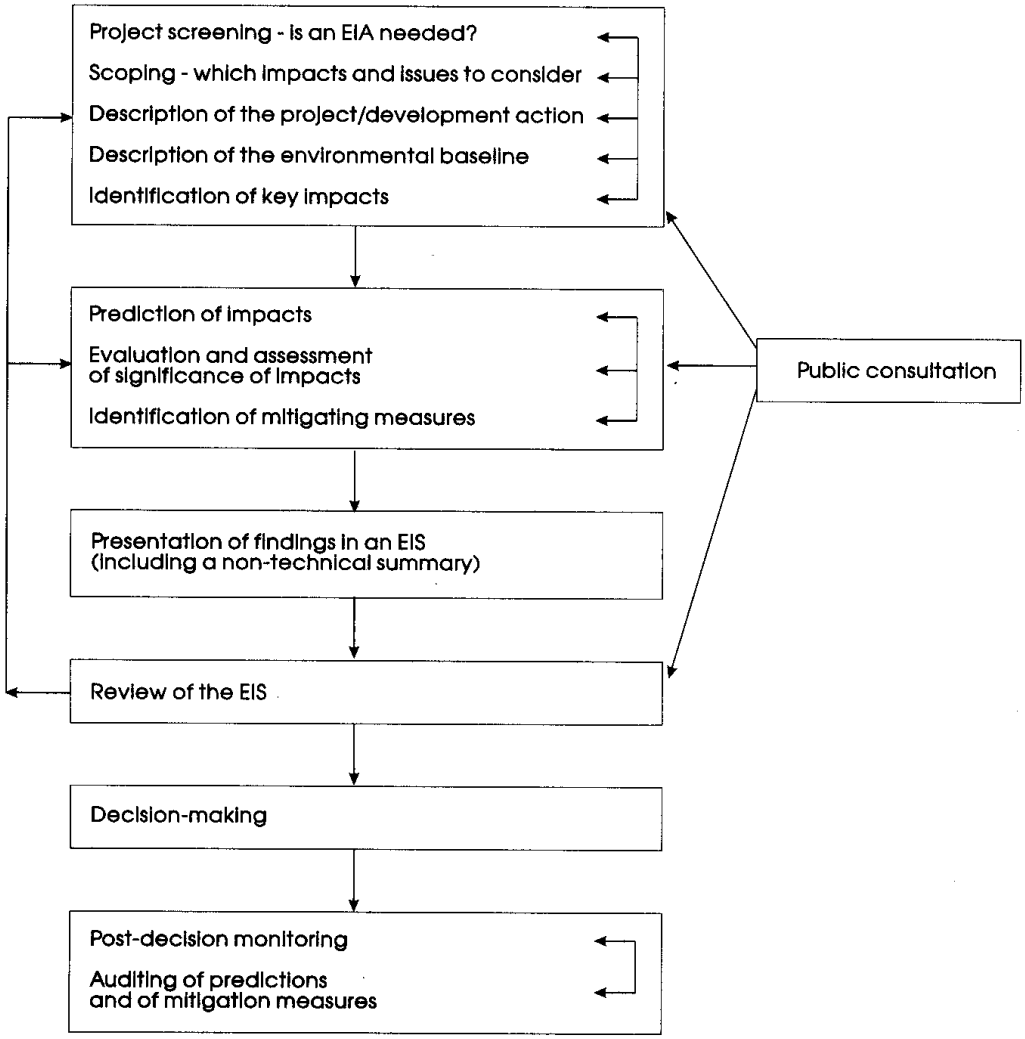
In contrast to many other systems analytic methods, EIA is taking social perspectives into account along with the scientific, a fact that sometimes makes it difficult for scientists and engineers to understand the fact that it is not always the scientifically "best" solution that is the result, but the one that is reasonably good and one that as many as possible can agree upon.

Principles and methodology of EIA

The EIA process involves a number of steps. The process is, like all learning processes, cycli. A suggested sequence of EIA steps is illustrated in Figure 1, where the arrows indicate possible iterations.

There is no standardised methodology of EIA as there is for instance for LCA. However, a framework of principles to guide strategies, methods and techniques has been more or less recognised by the scientific community and included in legislation and directives in various countries and in the EU. Thus, this is not a prescriptive, step-by step guide to perform EIA, but it reflects the recommendations that are common in many countries for EIA studies and reflects the scientific demands on EIA.

The EIA process may be described as a number of steps, the contents of which are dependent on the purpose and nature of the study. There is a large component of iteration in the process as is shown in Figure 1. The importance of an early start of the IEA in a development project has been emphasised by many authours, eg by Anhava et al, (Anahva 1994) who points out tha economic advantages in starting the EIA process at at stage before the deatiled design in a technical project. The first iterative block consists of a screening to decide if an EIA is needed, a scoping to identify impacts and issues to consider, project and site/environment description and an identification of key impacts. Then follows impact prediction, evaluation and reviewing. All through the process public partivipation and communication between different parties involved occurs.



The EIA process (redrawn from Glasson *et al.*, 1994).

Figure 1 The EIA process. (From Morgan 1998)

Screening

The decision to perform an EIA may be based on various grounds, depending on the aim - policy or project development vs legal requirements etc. The process to decide whether an EIA is required or not is generally called screening.

Screening is performed in order to ensure that proposals that will have a significant impact on the environment will undergo an EIA. The decisions taken during the early stage of the EIA are of fundamental importance to the process.

In many cases the screening process is governed by national legislation. In some countries in the EU there is a list of projects where EIA is required. In Sweden there is a requirement for projects with a "considerable impact on the environment". If this is the case is decided in close co-operation with the authorities. This is discussed further below in the text.

Screening is also important in cases when there are no legal requirements. Donor agencies may have internal screening procedures in order to avoid development projects with adverse

environmental impact. Major industrial organisations have procedures for triggering EIA as a part of planning and design processes.

A screening in the planning process give the proponent knowledge on possible locations at an early stage, which may lead to design changes to improve the environmental performance. Screening also is an important opportunity to make contact links to local people at an early stage.

The screening may be based on policy decisions or on a preliminary study. In the policy based screening there may be criteria e g for projects taking a certain amount of land or sited in areas with high requirements on water quality. Or, as mentioned above, there may also be lists of types of projects where EIA is required. The preliminary study aims at identifying the possible environmental effects of the proposed activity. Here tools like checklists or matrices (these are discussed in detail later in the text) or an initial environmental evaluation (IEE) may be used. The IEE is recommended as a part of an EIA eg by the Asian Development bank. In Swedish legislation a pre-study including a first public participation is also required. The IEE may be regarded as a preliminary EIA, although with much less detailed investigations than the main study.

Scoping

The EIA process is preliminary concerned with identifying environmental changes that will be of primary concern for individuals, public interest groups and communities. The term scoping is used to describe the process of deciding what should be included in an EIA. It may be seen as a means for identifying the main public concern about a proposal and for organising the scientific work for the assessment. Some authors differ between social scoping and ecological (or technical) scoping. The social scoping is concerned with all aspects of communicating with the concerned public, including government agencies and interested parties and seeking feedback on the issues that are of concern to the various parties in the in the process. The purpose of ecological scoping is to develop a scientific study to assess the nature and extent of the likely effects of the proposed activity.

A scoping process involves two important parts: impact identification and public involvement.

Impact identification

Impact identification is establishing the basis for designing appropriate and efficient EIA studies, focused on particular impact areas. The purpose of impact identification is not to produce definitive statements about the nature, magnitude and significance of possible impacts. The assessor should not be trying to reach definitive conclusions during scoping but should be using the scoping process to organise the main EIA investigations to generate information on these issues.

The impact identification has been subject of a large number of proposed methods and techniques. These have often been called EIA techniques and have often been considered (or misinterpreted) to constitute the complete EIA. This has spread the view that EIA is a technical exercise and that the purpose of an EIA could be satisfied by using one or more of the techniques in a mechanical manner. However, the methods constitute useful aids in the identification of impacts in a structured and systematic way. The task of making decisions about the possible impacts and their importance still lies with the assessor.

The method development started in the 1970´s in USA and Canada. Lots of tools were developed to perform tasks within the EIA. Examples of these tools are checklists, matrices, overlays, and networks.

The risk of using these is that the EIA process becomes static and aspects not included in these mechanical tools are not taken into account. The tools may be of use for identifying impacts, while the prediction of impacts, evaluation and discussion on how to reduce impact are not taken into account. The fact that the literature on these methods usually does not mention that the method is not the complete EIA may be a danger to the result.

Checklists

A common, simple and inexpensive method is the checklist. These can be of different types. Below are the most common listed:

Simple checklists list the components or aspects, usually of the environment, that might be considered by the assessor, but no other assistance is provided to guide the impact identification process.

Descriptive checklists provide additional assistance by indicating, for example, the specific variables to be measured to characterise each component.

Scaling checklists go a step further and include simple devices for assessing importance or significance of suspected impacts. This might be through the use of letter or numeric scales, assigned after comparison with criteria supplied in the checklist, to indicate the importance of an impact. Another approach is to use threshold values, based on statutory criteria (e.g. for water quality standards) or on derived measures (e.g. visitor carrying-capacity for a given locality). The suspected impact can be estimated in broad terms and given a value to represent its significance. On that basis, a start can be made on comparing and ranking alternative project options.

The last type, the *questionnaire checklist*, is a form of scaling checklist but uses a series of carefully directed questions to elicit information about possible impacts and their likely importance.

Checklists help to organise the work and identify important issues. The risk of using checklists is that important issues not included in the checklist may exist. In Figure 2 an example of a simple checklist used to identify impact categories is given.

Matrices

A more detailed approach is given in matrices, where project activities are cross-tabulated with environmental components. Also matrices can be made quite simple or be developed into a stage with a large amount of information. The strength of the matrix approach is the usefulness in designing further studies, the inexpensive nature (also true for checklists) and their comprehensiveness. Limitations may be an inability to handle indirect impacts and temporal aspects, a potential rigidity of categories, an a difficulty to get an overview when many variable are included. In many cases numbers of magnitude and severity of impact are included on a very poor basis ("this feels larger than the other"). Thus many matrices used give much less and lower quality information than thought on first impression.

An example of a matrix is given In Figure 3.

Checklist of impact categories for land development projects (summarised from Schaenam 1976).

1 Local economy

Public fiscal balance
Employment
Wealth

2 Natural environment

Air quality
Water quality
Noise
Wildlife and vegetation
Natural disasters

3 Aesthetics and cultural values

Attractiveness
View opportunities
Landmarks

4 Public and private services

Drinking water
Hospital care
Crime control
Feeling of security
Fire protection
Recreation - public facilities
Recreation — informal settings
Education
Transportation - mass transit
Transportation - pedestrian
Transportation — private vehicles
Shopping
Energy services
Housing

5 Other social impacts

People displacement
Special hazards
Sociability/friendliness
Privacy
Overall contentment with neighbourhood

Figure 2 A simple checklist (from Morgan 1998)

Matrix I

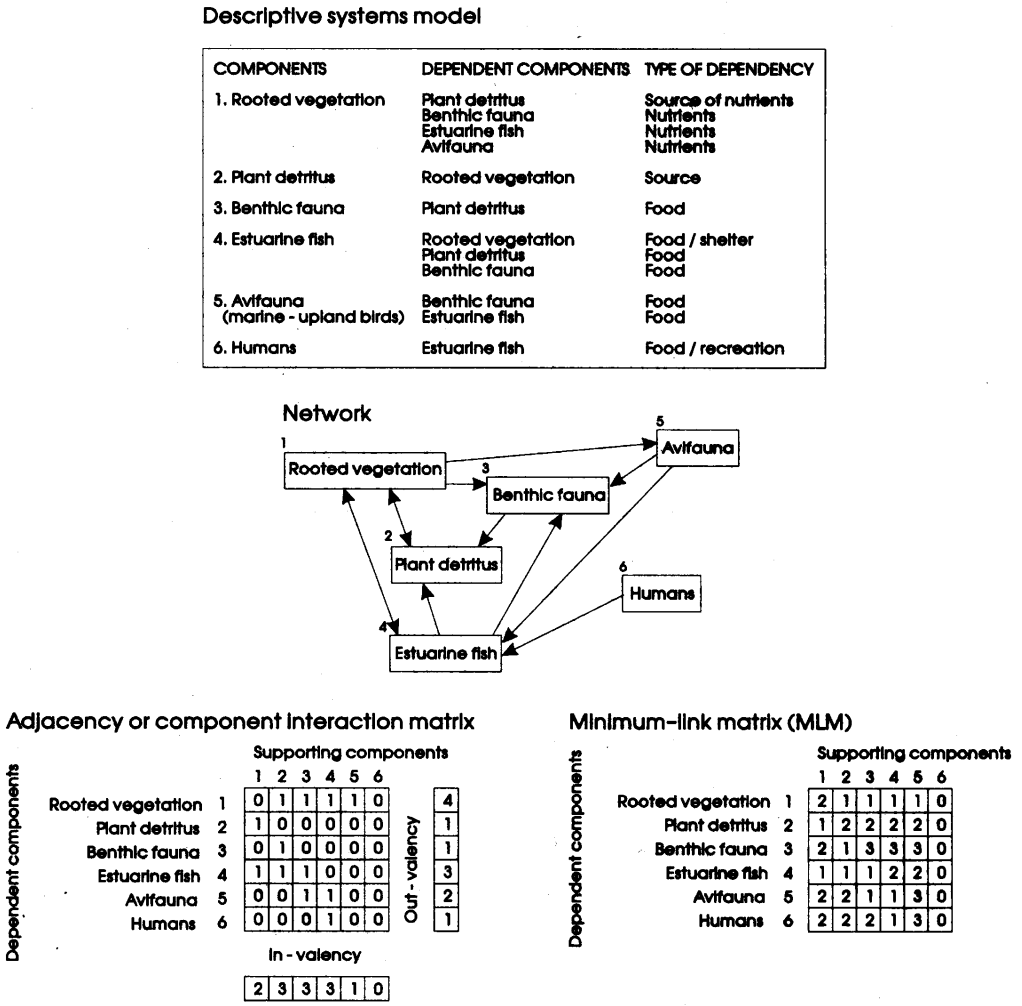
	Clearing plants	Soil levelling	Accesses and roads to yard	Industry buliding	New workers' house building	Port widening and arrangement for docking ships
Landscape alteration	ilz	ilz	ilz	ilz	ilz	ilz
Loss of outspace light	ilz	ilz	ilz	ilz	ilz	ilz
Changes in soil stability	ilz	ilz	—	—	—	—
Changes in general characteristics of soil	ilz	ilz	ilz	ilz	—	ilz
Growth of air pollution	—	—	ilz	ibz	—	—
Growth of water pollution	—	—	ilz	ilz	—	ilz
Changes in town and country layout	—	—	ilz	ilz	ilz	ilz
Loss of visibility	—	—	—	ilz	—	—
Growth of population in nearby villages	—	—	—	ilr	ilz	ilr
Changes in agricultural sector	ilz	—	ilz	—	ilz	ilz
Changes in labour market	—	—	ibz	ilz	ilz	ilz
Changes in income distribution	—	—	—	—	—	—
Alteration of economic activities using local resources	ilz	—	ibz	ilr	—	ilr
Alteration of population health and hygiene conditions	—	—	—	ilr	ilz	—

EFFECTS
r=reversible; b=short-term; z=local level; i=irreversible; l=long-term; r=regional level

A preliminary impact matrix for an aluminium smelter in Sardinia, showing the use of a simple, significance-rating system (Polelli, 1992).

Figure 3 An impact matrix. (From Morgan 1998)

In order to find not only direct links between components in the system matrix manipulations may be used. The matrix comprises the environmental components found in a given study area, listed along both axes of the matrix: the cells then represent possible linkages between the components. This is illustrated in Figure 4. The analyst codes those cells where a direct link exists a "1", the other cells have a "0". On multiplying the matrix by itself, the resultant matrix indiates those components that can be reached within one (direct link) or two (indirect link) steps from another component. Further matrix multiplication can identify 3-, 4-, 5-step links between the environmental components.

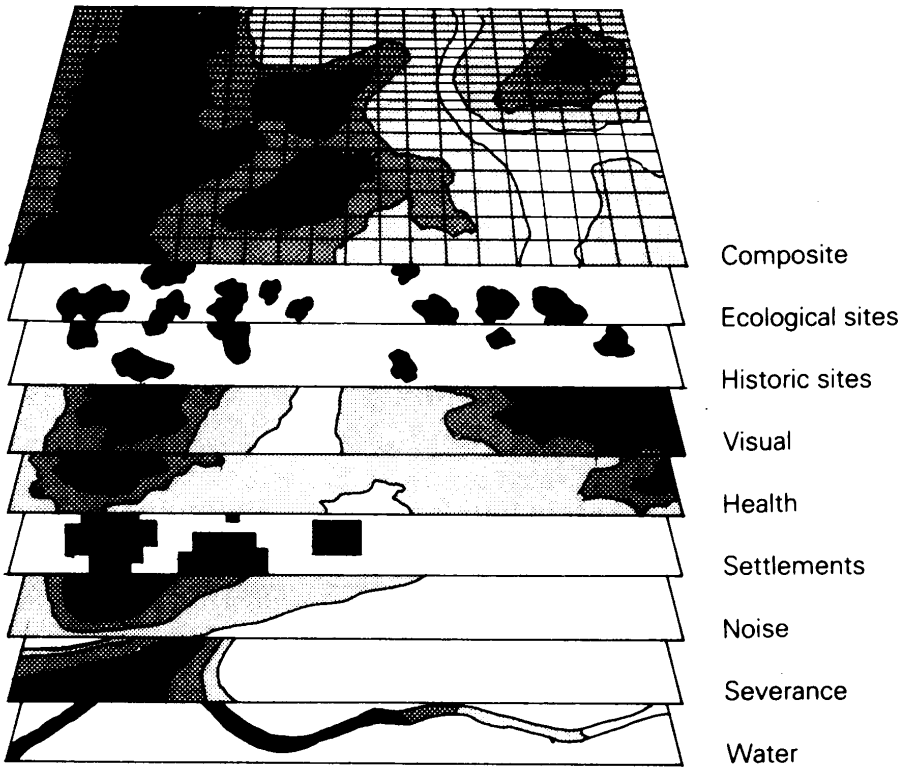


An example of the use of the component interaction matrix to analyse a simple estuarine system. The simple descriptive model is represented by a network, which provides the basis for the component interaction matrix and the derivation of the minimum-link matrix (redrawn from Shopley, Sowman and Fuggle, 1990).

Figure 4 A component interaction matrix (from Morgan 1998)

Overlays - graphical methods

Overlays may be used to identify geographic areas where the environmental load or the sensibility of the environment to a load is high. Here maps of different properties and environmental loads are superimposed. This is illustrated in Figure 5.

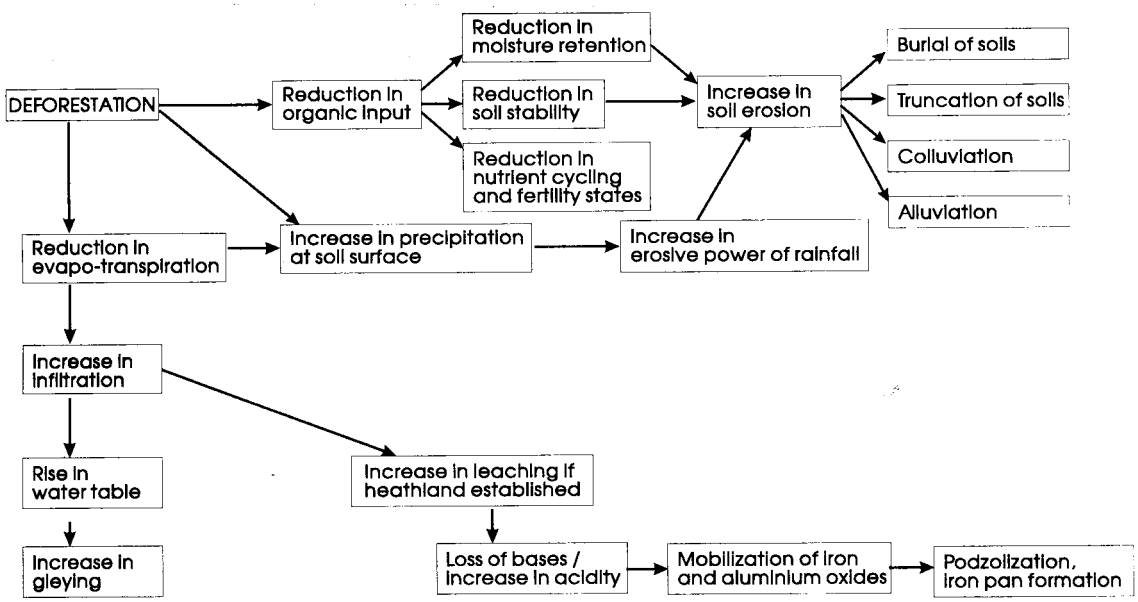


The use of overlays to show environmental impacts.

Figure 5 Overlay (from Wathern 1988)

Network diagrams

Network diagrams may be used to illustrate linkages and higher order effects in the system. Figure 6 illustrates how secondary and higher order effects may be evaluated in cause effect chains. A problem with this kind of diagrams is that i very easily tends to become large and complex. There are no quantitative measures on impact magnitude or significance as is often found in the matrices. This may be an advantage since the aim of the impact identification is not to quantify and the quantitative data is often poor at this stage in the study.



A network diagram to describe the possible consequences of deforestation on soil (redrawn from Davidson, 1982).

Figure 6 Network diagram (from Morgan 1998)

Systems diagrams and systems models

Systems diagrams and systems models are other tools used in the identification. This group ranges from conceptual model of environmental systems, typically "Box- and-arrow" diagrams, through to complex, quantitative models, which can also be used for impact prediction.

As more environmental scientists have been involved in EIA, the existing approaches have been questioned, especially the matrices and checklists. The environmental scientists hve forced attention back to the need for structured, rational, rigorous and focused EIA, in the same time designed for the particular study situation.

CS Holling et al have developed an approach to management of natural resources that has influenced EIA.- Adaptive environmental assessment and management. AEAM. The purpose of this method was to avoid the tendency to measure everything in order not to miss information that often occurs in EIA. There was also the aim to produce a tool to predict environmental effects. In their version of AEAM small work groups of scientist, decision-makers and modelling experts are designing a mathematical model of the system that can be influenced of the proposed project. In the work group a consensus has to be reached upon important properties and correlations in the systems modelled. The modellers make a mathematical model based upon the result of the working group. Here also the possibility to identify lack of important data. The model is evaluated by the working group and it may be refined if necessary.

The method of letting experts and administrators develop a conceptual description of the processes leading to environmental impact has been used in many projects, e g for winning of oil shale in Alberta Canada, construction of the Salto Grande dam on the border between Uruguay and Argentina but also in the evaluation of the impact of a final repository of spent nuclear fuel in Sweden, Finland, and Switzerland.

The use of model simulation emphasises the need for model validation, i e to show that the model really describes the processes that will occur in nature.

A related methodology is "sound ecological principles" where ecologists model the couse effect chains of different impacts.

Scoping aids

There are "standard" checklists produced for different applications, especially development projects. Examples are lists from the Asian Development Bank, the Norwegian Agency for Development and Co-operation (NORAD) and the International Institute for Environment and Development.

In addition to these publications, more and more computer based tools issued. There are several types of computer aid:

- Simple screening packages
- Impact networks
- Expert systems/decision support systems for screening and scoping
- Reviewing packages
- Simulation models for scoping purposes.

Since EIA is quite complex and dependent on the context, user, aim etc, it is difficult to develop computer aids like expert systems that are suitable to the specific application. The risk of "tunnel vision" i e not taking important effects that are not in the package is obvious. EIA is also, in contrast to LCA, built on a large amount of communication and information collection and less on strict mathematical modelling or calculation.

Impact prediction

EIA is a means of foreseeing changes in environmental conditions that might result from a proposed action, and considering the implications of those changes. The information generated during the impact assessment can then be used to make informed decisions about the proposed activities. It is obvious that the prediction of change must be central to the process, and that the better our predictions, the better informed we are when making decisions. Although good information does not guarantee a wise decision, poor information will certainly hinder good decision-making.

The predictions must be supported by documentation of process and data. The prediction may also contain information on the probability of a certain impact to occur and the uncertainty in the prediction.

When the impacts to take into account are identified, there rests the work of predicting the magnitude and severity of these impacts. At this stage there is a need for relevant baseline information. What concerns the actual prediction of environmental impacts there is not a special EIA method or technique for this although attempts to make such a tool have been made. The simple fact is that the prediction of impacts relies on the methods and techniques of the many disciplines involved.

Impact evaluation, management and decision advice

Impacts are changes in nature. The response of people depends on the values they place on the environment affected. The evaluation has to be as objective as possible. This can be assured by requirements that the assessment is performed by an independent body. However, it is not possible to make truly objective assessments, since there are value-based judgements during the whole process.

Impact monitoring

In legislation there is often a demand for environmental reporting when treating permits to activities with large environmental impact. For other types of activities the demand for follow up of the EIA usually is less pronounced. When EIA is used in projects where a functioning Environmental management system (EMS) with e g EMAS registration or ISO 14 000 certificate, there is a demand for contious improvement and follow up of the envionmental performance within this system. Sometimes people talk of iterative EIA, indicating a follow up of the performance.

Public involvement

The degree of public involvement in EIA varies between different countries due to different legal reqirements as well as to tradition. In many countries like Sweden or the USA the public is supposed to have a large influence on the EIA process, while e g in Thailand the involvement is low. However, reality shows that public participation is often treated as a procedural exercise instead of a living process. (Shepard et al 1997). The contact with public often comes far too late in the process. (RRV 1996)

The importance of early communication with the public is essential to the success of an EIA and to the outcome of the proposed project. The public can be providing information into the process, regarding concerns to be recognised or considered or values to be reflected. Also in the procedural phase the public has a role as scrutinisers of the process, thereby encouraging better quality of the assessments. There are many examples of problems connected to public opinion against projects due to lack of communication during the planning and design process. However, there are also projects where an open dialogue between all parties involved has lead to situation where all see themselves as winners (Lindskog 1997).

The consideration of alternatives

Usually the consideration of alternatives is regarded as central in an EIA. Alternatives can be in locations, design alternatives or in means of implementation of a policy. There is also the "zero alternative" i e not to implement the proposal.

Risk and hazard assessment

EIA has elements of assessing risks, but not the common methodology of risk assessment. If the question is asked the risk of accidents etc may be included. Usually the RA treats more of the "unexpected" features like errors leading to catastrophes etc. Environmental Risk assessment (ERA) treats the effect of human activities on ecosystems. Hazard assessment treats the influence of natural catastrophes (earthquakes, landslides etc)

EIA and Decision-making

EIA is in itself a tool for decision-making. It is understood that the final report (EIS) is supposed to be used as a support for the decision-makers. However, decisions are taken at all stages during the EIA process and the result will be dependent on these decisions. All through screening and scoping decisions on what impacts to consider by developers who consult with the authorities and also rely on their own previous experience and professional judgement. (Weston 2000). This emphasises the need for a good documentation on the decisions taken during the process, especially the rationale for not further investigating an impact or an alternative.

EIA in Sweden

Under the Environmental Code, a permit or licence must not be granted unless an Environmental Impact Assessment (EIA) has been made. This applies to new projects as well as to changes in on-going activities. The government may also demand an EIA for projects that will not need permit according to the environmental code, e g for shore protection.

The purpose of an EIA according to the code is to identify and describe direct and indirect effects on humans, animals, plants, soil, water, air, climate, landscape, cultural environment, and management of land and water resources. The purpose is also to identify and evaluate parameters that may affect the safety of projects involving hazardous chemicals.

An EIA must contain:

- A description of the project with information on localisation, design and extent of activities
- A description of the measures needed to avoid, decrease or remedy adverse impact.
- The information needed to evaluate the main impact on man and environment and on resource management of land and water.
- A statement on alternative locations if possible, and on alternative design
- A statement on the "zero alternative", i e the consequences if the project is not realised.

An EIA will be prepared and financed by the permit applicant.

The Code contains several provisions regarding the preparation of the EIA. At a very early stage of the process, the permit applicant must also consult with the responsible authority (länsstyrelse) and private parties particularly affected by the activity. The authority will then decide whether the activity involves a significant impact on the environment. If that is the case, a more extensive procedure will apply (involving additional consultations with neighbours) and a more detailed EIA must be prepared.

What concerns plans, each authority applying the environmental code are responsble to have plans according to the "plan and building act (Plan- och bygglagen) together with the planning documentation needed to give information on issues regarding resource management of land and water. At present there is no formal requirement of EIA for plans.

An example of an EIA for a change and increase in production in a metal processing plant is given in Appendix 2. The reader of this report may note that this is the environmental statement - nothing is mentioned on the EIA process concerning contacts with stakeholders etc. An example of an EIA for a planning process is found in Appendix 3. This in made before the environmental code but follows the principles for EIA. In this there is also a reporting of the public participation.

Conclusions

EIA is an important tool in assuring that projects and plans will not give an adverse impact on the environment. The use of EIA has developed throughout the world and may different applications exist.

An important feature with EIA, that is no as pronounced in some other systems analytic methods, is that the aim is not to produce the report that describes the impact but to "make things happen" i e to initiate a process that gives the opportunity to implement the alternative that is regarded as "best" by as many involved as possible. The report is very important in this process, but not the goal. This approach means that also social aspects come into focus

together with scientific and technical aspects. A well performed EIA process thus could not only prevent costs due to not having taken the environmental aspects into account at an early stage, but also prevent possible public opinions and protest actions against a project.

The need for openness and high scientific quality in the impact prediction is obvious. The whole process is built on trust between the involved parties, which sets requirements on a sound scientific foundation. There are also a large number of decisions taken along the whole process and the basis for these decisions (which alternatives to consider, which impacts to include, etc) has to be well documented and agreed upon.

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Swedish legislation of importance

Förordning om miljökonsekvensbeskrivningar (1991:738, 1992:445)

Lagen om hushållning med naturresurser (SFS 1987:12, SFS 1987:247),

Miljöbalk (1998:808)

Miljöskyddslagen (SFS 1989:363)

Appendix 1 Terms in English and in Swedish

Antropogenic	antropogen - av mänskligt ursprung
Applicant	sökande
Authority	myndighet
Cause-effect chain	orsak-verkan kedja
Checklist	checklista
Decision-maker	beslutsfattare
Environmental code	miljöbalken
Environmental Impact Assessment (EIA)	Miljökonsekvensbeskrivning (MKB)
Environmental load	miljöbelastning
Environmental management	miljöstyrning
Impact	påverkan
Infrastructure	infrastruktur (vägar, VA-system etc)
Initial Environmental Evaluation (IEE)	MKB förstudie
Inventory	inventering
Legislation	lagstiftning
Matrix (matrices)	matris (matriser)
Permit	tillstånd
Risk assessment	riskanalys
Scope	omfattning
Screening	gallring, sovring
Strategic Environmental Assessment(SEA)	plan-MKB