
AN INTRODUCTION TO ENVIRONMENTAL ASSESSMENT



UNEP

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1. What this guide is for

This brochure is intended for all audiences concerned with decision and policy making in regard to the environment and sustainable development. There are many different types of environmental assessment methods available to support decision making at global, regional, national and local levels. As such, this guide sets out to:

- introduce some of the types of environmental assessment frameworks that are available (with a specific emphasis on those commonly employed by the United Nations Environment Programme (UNEP)) and gives two examples of common assessment types which UNEP does not normally undertake*;
- assist the user to better understand where and when to consider using one assessment framework over another;
- introduce and explain some of the most commonly encountered terminology in the field of environmental assessments; and
- provide examples of where and when some of the assessment methods have been used, and refer to some of the key organisations and partners involved in developing and implementing the assessments.

After a short introduction on environmental assessments in Section 2, examples of key questions for stakeholders with an interest in using or conducting an environmental assessment are provided in section 3. This is followed by more detailed outlines of some environmental assessment methods in the factsheets set out in section 5, providing a short description of each method, some of its key points, notable examples, and details of potential support partners.

We hope this guide can serve as a useful, quick-reference source of information for many audiences, including assessment practitioners, representatives of government and non-governmental organisations, academics, students, media and experts from the private sector.

*N.B. UNEP does not undertake EIA's or SEA's under its current programmes of work (2014-2017).

2. Why conduct environmental assessments?

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UNEP¹ defines an assessment as being the entire social process of undertaking a critical, objective evaluation and analysis of data and information, designed to meet a user's needs, and to support decision making. It applies the judgement of experts to new and existing information and knowledge, to provide scientifically credible answers to policy-relevant questions, quantifying where possible, confidence levels.

Environmental assessment is the process by which the consequences and effects of natural processes and human activities upon the environment are estimated, evaluated or predicted¹. Assessments can include within their scope ways to minimise, mitigate or eliminate those effects, and even to compensate for their impact^{1,2}. Follow-up programmes to verify the accuracy of the environmental assessment and the effectiveness of the proposed mitigation measures can also be stipulated within the remit of an assessment². Box 1 lists some of the functions of an assessment.

Box 1: Roles and functions of environmental assessments

Some of the roles and functions fulfilled by conducting an environmental assessment include:

- bringing together diverse strands of knowledge in a way that is useful for decision making;
- strengthening the relationship between science and policy;
- providing the means through which science informs decision making;
- establishing the importance of the issue being assessed;
- providing an authoritative analysis of policy-relevant scientific questions;
- demonstrating the benefits of policy options;
- identifying new research directions;
- providing options for technical solutions;
- demonstrating the risks and costs of different policy options; and
- influencing the goals, interests, beliefs, strategies, resources, and actions of interested parties which can lead to institutional change and to changes in the discourse about the issue being assessed.

Source: UNEP (2008)³

Environmental assessments have become key tools in the environmental management landscape. Resolution 2997 of the 1972 United Nations (UN) Conference on The Human Environment, Stockholm, stated, in part, that UNEP “should keep the global environment under review”. It is perhaps as follow-on from this event, given the emphasis that was placed upon environmental assessment and reporting, that environmental assessment became a more common feature of environmental management as conducted today by various stakeholders, in meeting a wide range of objectives⁴.

Some key points regarding environmental assessment outlined at the 1972 UN Conference included that it should “facilitate the development of social and cultural indicators for the environment”, and that “periodic reports on regional or sub-regional situations and on the international situation”, to feed into national reports on the state of, and outlook for, the environment, should be carried out. As a result of this call-out, it is perhaps unsurprising that there are many different types of environmental assessment in use and in development. These include, but are not limited to, Integrated Environmental Assessment (IEA), Ecosystem



Assessment (EA) and Environmental Valuation Assessments. Throughout the wide range of environmental assessment processes available, all recognise that policy responses are needed for effective environmental management and/or sustainable use of the environment.

An environmental assessment is a planning and decision making tool⁵, and as such, the main purposes of carrying out an environmental assessment are two-fold⁵:

- the immediate aim is to facilitate sound decision making – those decisions that explicitly consider the environment;
- usually (but not universally) they are also directed toward achieving or supporting the ultimate goals of environmental protection and sustainable development. These reference or end goals are variously phrased and framed in environmental assessment legislation and policies, as are the specific objectives to be met by the process.



3. Key questions

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The following are examples of key questions to consider when setting out along the assessment pathway:

- What is the scale of the assessment?
 - i.e. global, regional, national or local
- What is the principal ecosystem, habitat, or landscape component to be assessed?
 - i.e. oceans, freshwater, dry-lands etc.
- What is the main reason for conducting an assessment? – i.e. a disaster (naturally occurring or induced by human behaviour), climate change, land-use change, a new construction or development project
- What potential impacts could result from ‘X’, and how will an assessment help in addressing these? – e.g. what will the impacts of climate change be and how will an assessment help in addressing these impacts?
- What is the timeframe in which the assessment needs to take place? – i.e. a rapid assessment is required in order to assess the consequences and implications following a natural disaster such as an earthquake; or if the assessment is forward-looking it includes scenarios about the future?
- Will the assessment need to be repeated?
- What is the legislative or regulatory requirement?
- Who will be the main user of the results, and what type of information will be most useful to this actor to inform decision making?
- What sort of policies and decisions will be informed by the assessment?
- What level of certainty is required/how can the uncertainty related to the assessment be communicated?

4. Assessment process and design

Environmental assessments vary not only in their content and coverage, but also in their design and process. Some assessments are designed as a one-off assessment, whereas others are a part of longer-term on-going processes, or assessments may be required in order to fulfil or satisfy planning policy. Some environmental assessments involve expertise from many disciplines, whilst others are based on contributions from selective groups of experts. The breadth of the desired target audience also varies considerably between assessments.

Global assessments of the nature of the Intergovernmental Panel on Climate Change (IPCC) are generally overseen by inter-governmental governance bodies, providing significant legitimacy for their findings amongst national governments. At national level, governance structures can include multi-stakeholder boards comprising governmental, non-governmental and private sector stakeholders. Strong governmental involvement in assessment governance acts to support the uptake of findings into policy.

Many of UNEP's assessments are designed with the intention of influencing decision-makers within the context of Multilateral Environmental Agreements (MEAs) or inter-governmental bodies such as the United Nations Environment Assembly (UNEA) of UNEP.

Global scale assessments can involve high numbers of individuals (1,000 – 2,500), moderate numbers (400 – 900 individuals), or low numbers (<60 individuals)⁶. This is dependent upon the overall scope of the assessment including geographical extent/coverage, timescale, underlying theme, and level of scientific sophistication and is often related to budgetary considerations. Assessment teams can involve a broad range of stakeholders, including scientific, social and technical experts, indigenous community leaders and policy-makers, representing a mix of those carrying out the assessment, those that will use it and those whom it will affect. Environmental assessments generally have very strong and credible scientific foundations as a result of the make-up of the assessment teams, and very often from the involvement of multi-stakeholder advisory groups or guidance teams⁶.



A variety of conceptual frameworks are used for assessment design and implementation. In many regional and national assessments, variations and derivatives of the Drivers-Pressures-State-Impacts-Responses (DPSIR) framework are used. The UNEP “IEA Community Platform” website (www.unep.org/ieacp) provides a useful resource for additional information.

The environmental assessment methods presented within this document cover an array of situations and circumstances, ranging from global to local, from the involvement of high numbers of people in the assessment to maybe just tens of people involved. This great range of variation within and between assessments is reflected in the variations in costs attached to the assessment process. At one end of the scale the average cost of a national State of the Environment Assessment with engagement of a moderate number of stakeholders over a 2-year timeframe may cost in the order of US \$100,000. On the other hand, global assessments such as UNEP’s GEO, the Global Mercury Assessment 2013, or the Millennium

Ecosystem Assessment (MA), have costs in the millions of US\$, typically engage several hundred participants/contributors, and take up to five years to produce⁷.

With many variables at play in environmental assessment processes, it is very important to tailor the assessment process to its objectives. Emphasis should be placed upon objective setting, broad inclusive stakeholder participation, peer-review, communications, and evaluation, thus maximising the potential for assessments that are credible, legitimate, and relevant to decision-makers’ needs.

Legend for assessment factsheets:



Global scale assessment



Regional scale assessment



National scale assessment



Local scale assessment



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