IEA

Training Manual

A training manual on integrated environmental assessment and reporting

Training Module 5

Integrated analysis of environmental trends and policies

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List of Acronyms

AIM	Action-Impact Matrix
CAFC	Company Average Fuel Consumption
CAFÉ	Corporate Average Fuel Economy
DPSIR	Drivers-Pressures-State-Impacts-Responses
EEA	European Environment Agency
EIA	Environmental Impact Assessment
EVRI	Environmental Valuation Resource Inventory
GEO	Global Environment Outlook
GHG	Greenhouse Gas
IA	Integrated Assessment
IAASTD	International Assessment of Agricultural Science and Technology for Development
ICSU	International Council for Science
IEA	Integrated Environmental Assessment
MA	Millennium Ecosystem Assessment
NFU	National Farmer's Union
NGO	Non-Governmental Organization
NRCAN	Natural Resources Canada
R&D	Research and Development
SA	Sustainability Assessment
SEA	Strategic Environmental Assessment
SMART	Specific, Measurable, Aggressive but achievable targets, Relevant, Time-bound
SOLEC	State of the Great Lakes
SoE	State of the Environment
S&T	Science and Technology
TEV	Total Economic Value
TERI	The Energy and Resources Institute
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change

Overview

Integrated analysis of environmental trends and policies is one of the core elements of integrated environmental assessment (IEA). The integrated analysis described in this module helps answer the following three questions:

1. What is happening to the environment and why?

2. What are the consequences for the environment and humanity?

3. What is being done, and how effective is it?

In order to answer these questions, IEA analyses environment and human well-being trends and dynamics based on the drivers-pressures-state-impacts-responses (DPSIR) framework.

Using this framework, the assessment identifies the drivers of human development and associated pressures that, along with natural processes, affect the state and trends of the environment. Changes in the state of the environment have impacts on ecosystem services and aspects of human well-being. In order to assess how society is responding to these problems and effectiveness of these responses, IEA analyses policies directed at the mitigation and conservation of the environment, as well as adaptation by people to the environmental impacts.

Integrated assessment of the state of the environment identifies priority environmental and sustainability issues, specific indicators, and policy targets for a given issue. Such a process could also be used to identify linkages to human well-being. The current module reviews three types of analyses of impacts on human well-being: a qualitative analysis of impacts, an analysis based on the ecosystem and human well-being framework, and analysis of ecosystem—human well-being connections based on economic valuation.

The analysis of policy responses identifies existing policy measures, both in terms of their effects and their effectiveness. This involves considering both the policy landscape to identify potential gaps, and an in-depth analysis of particular policies or policy mixes to determine their effectiveness in light of targets. Analysing existing policy measures is based on the following steps:

A. *Understanding the issue* to determine what is happening to the environment, why and what the impacts are.

B. *Preparing a policy report card* to understand the array of high-level strategies affecting the environmental issue.

C. *Conducting a policy instrument scan* to identify the mix of policies influencing the environmental issue, and the effectiveness of such a mix.

D. *Performing a policy gap and coherence analysis* to determine if relevant policies are in place and are focused on the most important drivers and pressures.

Notes

Course Materials

1. Introduction and learning objectives

Integrated analysis of environmental trends and policies refers to a set of processes and methods to analyse the state of the environment as it is affected by natural forces, human activities and policies.

Traditional SoE reporting that tries to answer the question, "What is happening to the environment?" has been around for over three decades. Beginning in the late 1990s, several countries prepared SoE reports using the IEA approach, with increasing emphasis on root causes, policy drivers and impacts of environmental change. The IEA approach has a series of questions the assessment seeks to answer (Figure 1).

Module 1 of this Training Manual presents detailed information on the evolving concepts and methods used in the Global Environment Outlook (GEO) and related reports by UNEP. This module focuses on answering the first three questions in Figure 1. The fourth and fifth questions build on the first three, and are addressed in Module 6.

In **Step 1** (Figure 1), you will learn about compiling and analysing quantitative and qualitative information related to the status and trends of the environment, including spatial and temporal characteristics of change. We also will address how drivers—natural or anthropogenic—exert influence.

Step 2 will guide you through identifying and analysing ways environmental change affects the ability of the environment to provide specific services such as pollination of crops by insects, regulation of carbon in the atmosphere or the cultural or recreational value of landscapes. Here, you also will investigate direct versus indirect impacts on human vulnerability and well-being as well as the potential costs of those effects.

Step 3 involves identifying all policies that have significant influence on the environment and human well-being. It also helps identify policy gaps and opportunities for policy innovation, and determine the effectiveness of policies.

In order to illustrate the concepts and methodologies introduced in the three steps in this module, a feature case study focusing on the Red River basin in North America will be used. Different aspects of the case study will be presented as applicable to the methodology discussed in various sections.

Upon successful completion of this module, you will be prepared to:

- Identify priority issues influencing environmental change.
- Describe and interpret environmental change through time and space, by making use of qualitative and quantitative information, including indicators.
- Identify direct and indirect causes of environmental change.
- Identify and characterize impacts of environmental change on environment and society.
- Identify and analyse policy mechanisms and responses that directly or indirectly contribute—in positive or negative ways—to environmental change.

Keeping environmental state-and-trends assessment for all issues clustered helps analyze crosscutting issues within the environmental domain and then, separately, discuss policy matters in one section that may facilitate comparison. However, separating the analysis of policies from the description of underlying environmental status and trends might make for a more fragmented report.

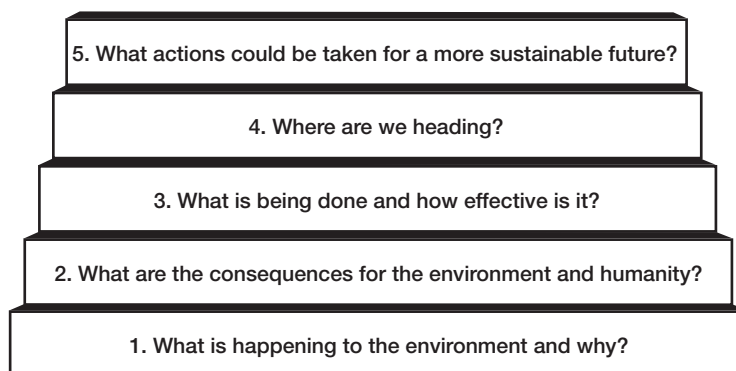## BOX 1: What is an integrated environmental assessment?

The world is faced with major environmental challenges, which have complex causes and consequences. This requires a structured process of dealing with environmental issues and their interactions with society, including political processes and the economic system. It needs to use knowledge from a wide range of scientific disciplines and stakeholders, so that integrated insights are made available to decision-makers.

An assessment is the entire social process for undertaking a critical objective evaluation and analysis of data and information designed to meet user needs, and to support decision making. It applies the judgment of experts to existing knowledge to provide scientifically credible answers to policy relevant questions, quantifying where possible the level of confidence.

Integrated Environmental Assessment provides a participatory, structured approach to linking knowledge and action. Over time, GEO has developed an increasingly integrated approach to environmental assessment, the use of indicators and reporting in answering the questions shown on Figure 1.

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Figure 1: Key questions to be answered by State of the Environment (SoE) Assessment and Policy Analysis in the IEA Framework.

5. What actions could be taken for a more sustainable future?

4. Where are we heading?

3. What is being done and how effective is it?

2. What are the consequences for the environment and humanity?

1. What is happening to the environment and why?

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