Training Manual

A training manual on integrated environmental assessment and reporting

Training Module 6

Scenario development and analysis

Authors:

Jill Jäger, The Sustainable Europe Research Institute (SERI) Dale Rothman, International Institute for Sustainable Development (IISD) Chris Anastasi, British Energy Group Sivan Kartha, Stockholm Environment Institute (SEI) Philip van Notten (Independent Scholar)



International Institute for Sustainable Development













Table of Contents

List	List of Acronyms		
Overview			1
Course Materials			3
1.	Intr	oduction and learning objectives	3
2.	Wha	at is a scenario?	5
3.	A ve	ery short history of scenario development	6
4.	Exa	mples of scenario exercises	7
	4.1	Short-term country scenarios – Mont Fleur	7
	4.2	Medium-term regional and global scenarios – The UNEP GEO-3 Scenarios	8
	4.3	Long term global scenarios - Intergovernmental Panel on Climate Change (IPCC)	10
5.	The	purpose, process and substance of scenarios and scenario exercises	13
6.	Policy analysis 1		16
7.	. Developing scenarios – A complete process		20
	7.1	Clarifying the purpose and structure of the scenario exercise	22
	7.2	Laying the foundation for the scenarios	28
	7.3	Developing and testing the actual scenarios	33
	7.4	Communication and outreach	36
Refe	References		
Instr	Instructor Guidance and Training Plan		
Pres	Presentation Materials		

Module 6 A training manual on integrated environmental assessment and reporting

List of Acronyms

AIM	Asia-Pacific Integrated Model
CSER	Center for Environmental Systems Research (University of Kassel, Germany)
EU	European Union
EU ETS	European Union Emissions Trading System
GEO	Global Environment Outlook
GDP	Gross Domestic Product
IEA	Integrated Environmental Assessment
IMAGE	Integrated Model to Assess the Greenhouse Effect
IF	International Futures
IPCC	Intergovernmental Panel on Climate Change
NIES	National Institute for Environmental Studies (Japan)
RIVM	Rijksinstituut voor Volksgezondheid en Milieu (Dutch Institute for Public Health and Environment)
SoE	State of the Environment
UNEP	United Nations Environment Programme
WaterGAP	Water Global Assessment and Prognosis Model

Overview

This module will help you develop scenarios and analyse them, either in terms of the impact they would have on existing policies, or the kinds of policies that would be needed in order for a particular scenario to unfold. The module provides the basis for an entire process for developing and analysing scenarios.

A scenario is not a prediction of what the future will be. Rather it is a description of how the future might unfold. Scenarios explore the possible, not just the probable, and challenge users to think beyond conventional wisdom. They support informed action by providing insights into the scope of the possible. They also can illustrate the role of human activities in shaping the future, and the links among issues, such as consumption patterns, environmental change and human impacts. In this way, they make use of the general DPSIR framework.

Scenarios were first used formally after World War II as a method for war game analysis. Their value was quickly recognized, and the use of scenarios for a number of other strategic planning applications developed. Today, scenario development is used in a wide variety of different contexts, ranging from political decision making to business planning, and from global environmental assessments to local community management.

There are hundreds of examples of scenarios developed during the last 30 years or so. A small number of examples are selected here to illustrate the range of scenarios that have been developed, from specific country/regional exercises to global visions of the future, covering a range of time frames from 10 to 100 years. The illustrations are the Mont Fleur scenarios for South Africa, the Global Environment Outlook (GEO-3 and GEO-4) scenarios and the Intergovernmental Panel on Climate Change (IPCC) scenarios.

A range of processes has been used to produce scenarios. We can distinguish among these according to three overarching themes: project goal, process design and scenario content. Goals might include raising awareness, stimulating creative thinking and gaining insight into the way societal processes influence one another. An overriding goal is usually to directly or indirectly support decision making. Process design addresses aspects such as scope and depth of the analysis, the degree of quantitative and qualitative data used, and choices among stakeholder workshops, expert interviews or desk research. Scenario content focuses on composition of the scenarios (i.e., on the variables and dynamics in a scenario and how they interconnect).

While many different processes have been used to develop and analyse scenarios, most involve steps similar to ones used in this module, although emphasis on particular steps varies. The steps used in this module are grouped as follows:

Clarifying the Purpose and Structure of the Scenario Exercise

- a. Establishing the nature and scope of the scenarios.
- b. Identifying stakeholders and selecting participants.
- c. Identifying themes, targets, indicators and potential policies.

Laying the Foundation for the Scenarios

- d. Identifying drivers.
- e. Selecting critical uncertainties.
- f. Creating a scenario framework.

Developing and Testing the Actual Scenarios

- g. Elaborating the scenario narratives.
- h. Undertaking the quantitative analysis.
- i. Exploring policy.

Communication and Outreach

A full scenario process would ideally involve going through each of the above steps. In many cases, however, the scenario development will be nested within an overall integrated environmental assessment and reporting process. Thus, to the extent possible, the scenario development should be pursued in concert with the other components of this process, such as those described in Modules 4 and 5 of this training manual. Furthermore, many times, particularly in a national-scale GEO-type process, we avoid developing completely new scenarios. Instead, scenarios at the national level are developed based on existing scenarios at a higher level (e.g., global and regional scenarios developed for GEO). This adoption and adaptation facilitates scenario development by providing the core information needed in the process, but can present significant challenges in terms of methodology and credibility of the results.

Course Materials

1. Introduction and learning objectives

Module 5 of the workbook focuses on assessments of the state of the environment (SoE) and trends. In Module 6, we address the fourth and fifth steps shown below (Figure 1).

Figure 1: Key questions to be answered by SoE analysis and policy assessment in the IEA framework.



This module shows you how to develop scenarios and analyse them in terms of the impact they could have on existing policies or the kinds of policies that would be needed in order for a particular scenario to unfold. The module provides the basis for an entire process for developing and analysing scenarios.

The module begins with an introduction to what scenarios are (and are not), and provides details on particular aspects of scenarios and their development. Depending on the primary purpose of the scenario exercise, the form, content and process of your scenario(s) will differ. A brief summary of the scenario development literature and a few examples are presented. This is followed by a section that addresses more specifically how scenario development and assessment can be used to address policy issues. We then provide step-by-step guidance on one approach to scenario development, noting where this might need to be modified for other purposes. Recognizing that national and regional scenario development will often build on existing scenarios rather than start from scratch, we provide guidance on how this can be done. Finally, the module concludes with a section focused on the importance of communication and outreach as part of a scenario exercise.

After using the material presented in this training module you will:

- be familiar with the types of scenarios;
- have developed an understanding of the structure, complexity and dynamics of scenario processes;
- **b**e familiar with the steps required for the development of scenarios; and
- understand how scenarios can be used for the discussion and development of policy options.

The success of a scenario process depends crucially on excellent facilitation. Scenario development and analysis is a demanding process, although we have tried to make it as easy as possible by presenting one step-by-step process.





EXERCISE

Think of a time when you have imagined different future possibilities to help you solve a problem in your everyday life.

Take five minutes to write a brief summary focusing on the following questions:

- What was the situation, and what were the future possibilities?
- Were there key uncertainties on which the future depended?
- What information did you have to help you make your decision or prepare for the future?
- How did you think through this problem?

Take two minutes to share your thoughts with your neighbour.

Discussion in plenary.



https://wewer.3N

https://www.yunbaogao.cn/report/index/report?reportId=5_13583

