

SustainabilityA-Test

Advanced Techniques for the Evaluation of Sustainability Assessment Tools

European Commission, Research Directorate-General, project 505328

To realize progress towards the ambitions on Sustainable Development, the EU and others should set wise objectives and make sure that the implementation is taken care of in an effective way. This requires proper policies and a consistent implementation process. To make equitable decisions on which policies to develop and to review the progress made towards the sustainable development goals, tools (i.e. methodologies, models, approaches and appraisals) are needed that support strategy development, ex-ante sustainability impact assessments as well as policy reviews.

This project will assist in improving both impact assessments and the sustainable development strategy definition by high level validation of the tools using a consistent and comprehensive evaluation framework. The evaluation framework will include issues such as the pros and cons of the tools, what they can and cannot deliver, when they can be used, etc. First, a draft evaluation framework and key aspects of sustainable development, against which the tools will be evaluated, will be formulated. A catalogue of state of the art tools will be made and a preliminary evaluation of the tools in the context of different policy questions will be carried out based on literature reviews. In this phase the project will focus on water, climate change and agriculture & land-use policy questions. In the second phase of the project an array of tools will be tested in a case study on agriculture and land-use. In phase three the results from the first two phases will be used to derive a final evaluation framework that indicates how the tools relate, the merits of each tool, the circumstances under which they can be used, the constraints, the pros and cons and the extent to which they integrate externalities of policies. Moreover, the evaluation framework will show which tools are useful for answering which key aspects of sustainable development and will identify the trade-offs of using the different tools for addressing the three pillars of sustainable development (economic, environmental and social).

After this project there will be a better insight for policy-makers and those carrying out sustainability impact assessments, what tools they can best use in decision-making or assessment processes, given the available resources and the desired scope of the process. This can clearly improve the quality of the decision-making or assessment process and thus improve sustainability assessments and the sustainable development strategy definition.

Objectives

The strategic objectives of the project are:

1. To provide a consistent and peer-reviewed appraisal of the potential of common and emerging tools (i.e. methodologies, tools, approaches and appraisals) for sustainable development related assessments in support of the various stages of policy.
2. To make the appraisal of the tools vis-à-vis key aspects of sustainable development as provided in this proposal and to sharpen these key aspects on the basis of this project.
3. To provide and apply a framework for the evaluation of the tools.
4. To increase insights in how the various scientific tools relate to the requirements of participation and consultation.
5. To disseminate the results widely among assessment practitioners as well as users.
6. To identify important and promising issues for targeting subsequent research and development efforts
7. To build on the considerable knowledge with regard to integrated environment assessment that is available among the members of the European Forum for Integrated Environment Assessment (EFIEA) and in international organisations



Approach

The approach taken is:

1. To examine the theoretical and conceptual basis of the tools and their uses based on a literature review of applications of the tools and a case study, and
2. To develop a synthesis in which the various tools and a number of assessment methods are compared with the requirements of sustainable development assessments and to formalise this synthesis in an evaluation framework.

This will lead to an overview and evaluation framework of methodologies, models, approaches and appraisals (the “toolbox”), and give better insights in how these different tools are defined and how they relate to each other. This will be presented in an evaluation matrix. It shows which tools can be part of which methods or broader instruments or approaches to measure and assess the three pillars of sustainable development (SD) and strategy definition. The focus will be on state of the art modelling and simulation tools, monetary assessment tools and on methods for stakeholder analysis and modelling.

The measurable end result that is aimed at will be a framework that gives:

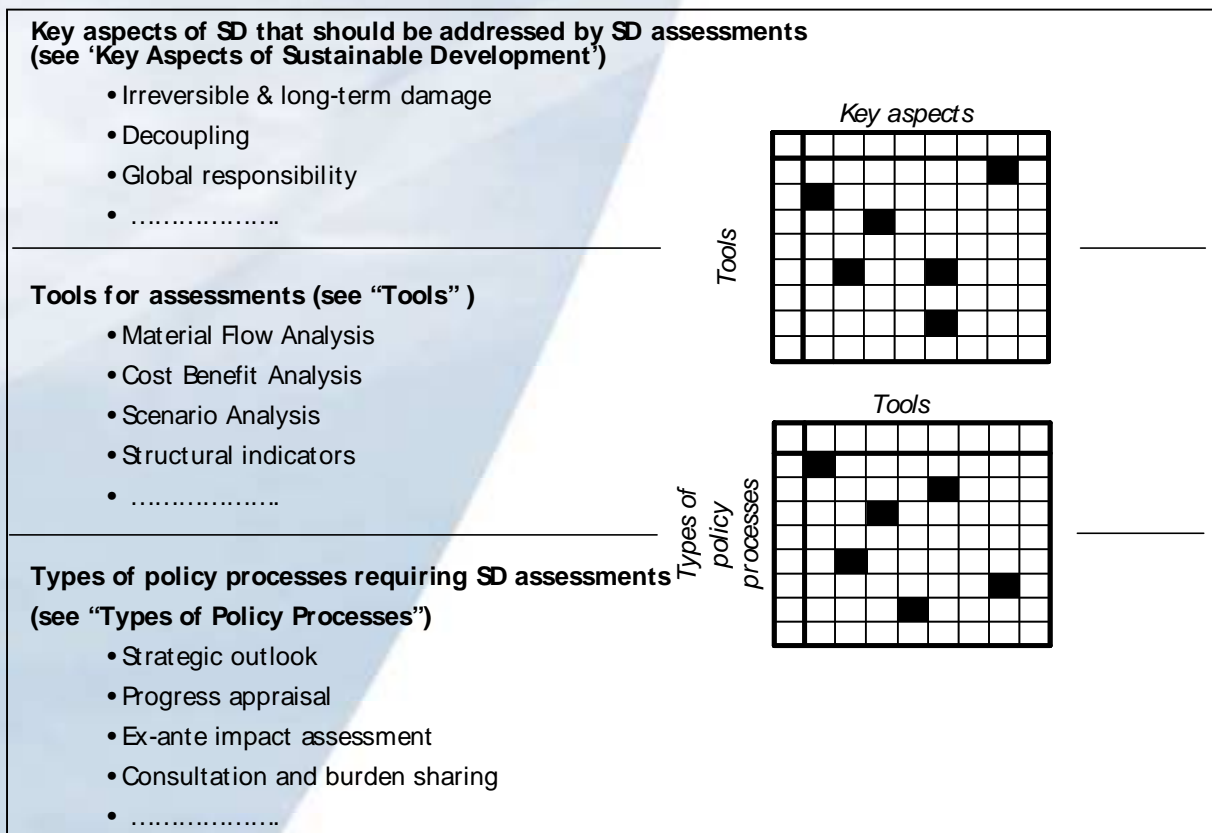
1. An overview of the different possible sustainable development assessment tools;
2. The pro’s and cons of each tool under different circumstances;

3. A comparison between the different possible tools (including a description of what tool, method or form of appraisal can be best used in which circumstances; what a tool or method can deliver and what it can not deliver, comparison of costs, time horizon etc.);
4. An analytical evaluation framework of the relation between the different tools and concepts;
5. Adjusted and partially combined tools for improved decision support for sustainable development assessment and strategy definition.

The evaluation hinges on two basic questions:

- Whether the application of a given method or tool, as part of assessments, can address the various key aspects of sustainable development (for example, irreversibility); and
- Whether a given method or tool, as part of assessments, matches the information requirements of the various policy processes to be supported (for example, timeliness or country-level breakdown).

A provisional evaluation framework is presented below. The resulting analytical evaluation framework helps understanding how tools interact and relate to each other, what types of questions they do address and what types of answers they provide. It shows whether they are complementary or competing, and how they can be usefully combined in different decision contexts.



Types of policy processes

To make the right decisions on which policies to develop and to review the progress made towards the SD goals, tools are needed that support both the decision-making processes, and the sustainability impact assessments. In addition community decision-making on the broad area of SD needs further insight in the applicability and limitations of tools such as Cost Benefit Analysis and Cost Effectiveness Analysis. Thus, various policy processes need input in the form of sustainable development assessments. Their requirements differ, for example with respect to time horizon, specification of the information by country or by sector, comprehensiveness and robustness. This project will consider the requirements of a small range of **types of policy processes** such as:

- Strategic orientation;
- Progress appraisal;
- Ex-ante impact assessment; and
- Consultation and burden sharing

Key aspects of sustainable development

Göteborg gave the broad dimensions of SD. While acknowledging that a formal and detailed definition of SD is generally not a fruitful approach, we need to make these broad dimensions somewhat more concrete (i.e. operationalise them) in order to evaluate to what extent the tools can address what needs to be addressed. Thus, a list of key aspects will be taken as a point of reference for developing evaluation criteria. The key aspects will support the broader objectives of this sub-priority, and would in particular be developed on the basis of the SD 'key features' that the European Environment Agency (EEA) is currently developing with a view to adapting its future environmental assessments to SD information needs (EEA Discussion Paper No. 2, Putting EEA's environmental assessments and information in the SD context, May 2003). The **key aspects** are:

1. To provide future generations with the same environmental potential as the current one ('environmental legacy' OR 'inter-generational equity');
2. To ensure economic growth that is less natural resource intensive and less polluting ('decoupling');
3. To achieve a better integration of sectoral and environmental policies ('sector integration');
4. To maintain and enhance the adaptability of the environment system ('adaptability');
5. To avoid irreversible and long term environmental damage to ecosystems and human health ('irreversible damage');
6. To avoid imposing unfair or high environmental disbenefits on vulnerable population categories ('distributional equity');
7. The EU to assume responsibility for the environmental effects it causes outside the EU geographic area ('global responsibility');

8. To ensure the uptake of sustainable development goals and implementation of cost-effective policies at all levels of governance through rules, processes and practices ('SD governance').

The EEA states that "Each of these key features needs understanding and analysis for progress towards SD to be evaluated" and that "the list is not exhaustive yet". In this project we will further refine the provisional EEA list based on, amongst others, the outcomes of the workshop "A better Sustainable Development Governance: Indicators and other assessment tools" held in Rome on September 25 and 26 2003.

After this project there will be a better insight for policy-makers/decision-makers and those carrying out sustainability impact assessments, what tools they can best use in the decision-making or assessment process, given the resources (time, money, number of stakeholders, etc.) they have available and the desired scope of the process. They will know more clearly what each tool can provide and what it will not provide, how the different tools relate to each other (can results be compared or not, will a tool deliver quantitative or qualitative outcomes, what externalities can it take into account, what is its strength, what is its weakness), and the assessment of which aspects of SD it does and does not support. This can clearly improve the quality of the decision-making or assessment process, and thus improve sustainability assessments and the SD strategy definition, which were the objectives of this sub-priority.

Tools

Overviewing the various tools (i.e. methods, models, approaches and appraisals) that are being applied or advocated, it should first be reiterated that integrated assessment is the umbrella under which the more specific tools are employed. For example, the tool of highly aggregated indicators for biodiversity only speaks to sustainable development when applied in the context of – for example – the Doha trade negotiations.

It is not easy to classify the various tools. This is because methods overlap and the tools can be applied in all sorts of combinations within the framework of larger assessments. Moreover, different practitioners keep developing methods in response to the needs of their clients. Scientists, policy makers and industrial partners do not have one complete overview of tools that is agreed upon. Definitions of different tools are not always unequivocal and different schools group tools differently.

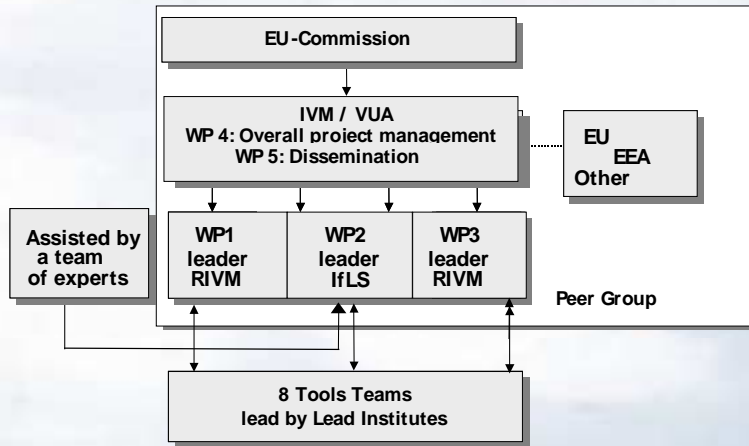
As the project is organised in teams of experts working on a set of tools we have provisionally classified the tools into 8 groups:



- Physical assessment tools
- Monetary assessment tools
- Modeling and simulation tools
- Scenario analysis tools
- Multi criteria analysis tools
- Environmental appraisal tools
- Transition management and analysis tools
- Stakeholder analysis and modeling tools

Project organisation

The organisation structure is presented below.



The work

The project consist of 5 work packages (WPs). They are discussed below.

WP 1: Design phase

The first 6 months in the project will be used to prepare a short draft description and analysis of applications of all tools based on a literature review. "Preliminary tool overview and evaluation papers" on all tools will be prepared, including a first evaluation of the different tools for different policy questions in the areas of climate change, water and agriculture & land-use based on a literature review and expert knowledge in and outside the consortium. This phase will also include discussions with experts outside the consortium on tools the consortium members do not have access to and an evaluation of in how far predictions of past applications of tools have been in line with outcomes of different policies (degree of fitness). The 8 tool teams will each assess 'their' tools. Special emphasis will be paid to modelling and simulation tools and monetary assessment tools. The literature evaluations will focus on three areas (climate change, water and agriculture& land-use).

In the first 3 months a smaller Design and Integration and Synthesis (I&S) group will identify the key aspects of sustainable development that should be addressed by modern assessments and against which we will evaluate the various methodologies and the results of phase 2

WP 2: Case study agriculture & land-use

In the second phase of the project (month 7 to 24) a case study on agriculture and land-use will be undertaken. The 8 tool teams will each apply a selection of tools to the case study. The exact case study definition and method used to apply these tools to the case study will be defined in phase 1.

At the end of phase 2 there will be an overview on what answers to the defined policy questions each tool can deliver.

WP3: Integration and Synthesis

In the third phase (month 22 to 28) the "I&S team" will compare and combine the results from the first two phases and make a "tool-by-tool" appraisal of all methods. This will result in:

1. An overview of the different methodologies that can be used in assessments related to sustainable development;
2. A comparison between the different methodologies in terms of what they can best be used for, considering content (for example time horizon) as well practical aspects (for example resources required);
3. A conceptual framework of the relation between the different tools and concepts.

The I&S team will also take a fresh look at the initial vision of the key aspects of SD as defined in the first phase, and refine it when necessary.

The resulting framework helps us understand how the methodologies relate to each other and what types of questions they can or cannot be used to address. Conceivably it will also be used to discuss the combination of methodologies in complex assessments, serving different decision contexts. Eventually, the framework can be used in incremental updates and follow-on project.

WP4:Overall management

This WP includes overall management and consultation of relevant international and national institutes.

WP5: Dissemination activities

All dissemination and PR related activities that will ensure that the results are spread as widely as possible



Project Partners

Vrije Universiteit Amsterdam –Institute for Environmental Studies (IVM), Netherlands

University of East Anglia -The Tyndall Centre for Climate Change Research (Tyndall), United Kingdom

Universität Osnabrück-Institut für Umweltsystemforschung (USF), Germany

Institut für Ländliche Strukturforschung an der Johan Wolfgang Goethe Universität (IfLS), Germany

Rijksinstituut voor Volksgezondheid en Milieu, Milieu- en Natuurplanbureau (RIVM-MNP), Netherlands

Ceský Ekologický Ústav (CEU), Czech Republic

Potsdam-Institut für Klimafolgenforschung (PIK), Germany

Joint Research Centre-Institute for the Protection and Security of the Citizen (JRC-IPSC), Italy

Stockholm Environment Institute (SEI), Sweden

Universiteit Maastricht -International Centre for Integrative Studies (ICIS), Netherlands

Universität Kassel - Wissenschaftliches Zentrum für Umweltsystemforschung (CESR), Germany

Universitat Autònoma de Barcelona-Institut de Ciència i Tecnologia Ambiental (ICTA), Spain

Ecologic- Institut für Internationale und Europäische Umweltpolitik (Ecologic), Germany

Fondazione Eni Enrico Mattei (FEEM), Italy

Wuppertal Institut für Klima, Umwelt und Energie (WI), Germany

Latvijas Universitāte-Vides zinātnes un parvaldības institūts, (IESAM), Latvia

Universiteit Twente – Faculteit Bedrijf, Bestuur en Technologie (UT-BBT), Netherlands

University of British Columbia-Sustainable Development Research Initiative (SDRI), Canada

Contact

M. Minnesma or C. Dorland
Institute for Environmental Studies
Vrije Universiteit Amsterdam
De Boelelaan 1087
1087 HV Amsterdam
The Netherlands
www.vu.nl/ivm
E-mail Marjan.minnesma@ivm.vu.nl
E-mail kees.dorland@ivm.vu.nl
Tel. +31 (0)20 4449555
Fax. +31 (0)20 4449553

