INTEGRATED ASSESSMENT: MAINSTREAMING SUSTAINABILITY INTO POLICYMAKING

A GUIDANCE MANUAL

UNEP

United Nations Environment Programme

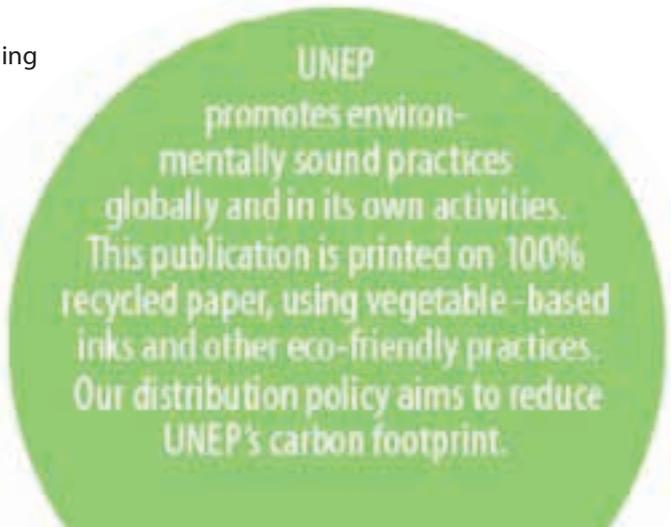# Integrated Assessment: Mainstreaming sustainability into policymaking

A guidance manual

August 2009

Acknowledgements

United Nations Environment Programme

The United Nations Environment Programme (UNEP) is the overall coordinating environmental organization of the United Nations system. Its mission is to provide leadership and encourage partnerships in caring for the environment by inspiring, informing and enabling nations and people to improve their quality of life without compromising that of future generations.

In accordance with its mandate, UNEP works to observe, monitor and assess the state of the global environment, improve the scientific understanding of how environmental change occurs, and in turn, how such change can be managed by action-oriented national policies and international agreements. UNEP's capacity-building work thus centers on helping countries strengthen environmental management in diverse areas that include freshwater and land resource management, the conservation and sustainable use of biodiversity, marine and coastal ecosystem management, and cleaner industrial production and eco-efficiency, among many others.

UNEP, which is headquartered in Nairobi, Kenya, marked its first 35 years of service in 2007. During this time, in partnership with a global array of collaborating organizations, UNEP has achieved major advances in the development of international environmental policy and law, environmental monitoring and assessment, and the understanding of the science of global change. This work also supports the successful development and implementation of the world's major environmental conventions.

In parallel, UNEP administers several multilateral environmental agreements (MEAs) including the Vienna Convention's Montreal Protocol on Substances that Deplete the Ozone Layer, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (SBC), the Convention on Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (Rotterdam Convention, PIC) and the Cartagena Protocol on Biosafety to the Convention on Biological Diversity as well as the Stockholm Convention on Persistent Organic Pollutants (POPs).

Division of Technology, Industry and Economics

The mission of the Division of Technology, Industry and Economics (DTIE) is to encourage decision-makers in government, local authorities and industry to develop and adopt policies, strategies and practices that are cleaner and safer, make efficient use of natural resources, ensure environmentally sound management of chemicals, and reduce pollution and risks for humans and the environment. In addition, it seeks to enable implementation of conventions and international agreements and encourage the internalization of environmental costs.

UNEP DTIE's strategy in carrying out these objectives is to influence decision making through partnerships with other international organizations, governmental authorities, business and industry, and non-governmental organizations; facilitate knowledge management through networks; support implementation of conventions; and work closely with UNEP regional offices. The Division, with its Director and Division Office in Paris, consists of one centre and five branches located in Paris, Geneva and Osaka.

Economics and Trade Branch

The Economics and Trade Branch (ETB) is one of the five branches of DTIE. ETB seeks to support a transition to a green economy by enhancing the capacity of governments, businesses and civil society to integrate environmental considerations in economic, trade, and financial policies and practices. In so doing, ETB focuses its activities on:

- Stimulating investment in green economic sectors;

- Promoting integrated policy assessment and design;

- Strengthening environmental management through subsidy reform;

- Promoting mutually supportive trade and environment policies; and

- Enhancing the role of the financial sector in sustainable development.

Over the last decade, ETB has been a leader in the area of economic and trade policy assessment through its projects and activities focused on building national capacities to undertake integrated assessments – a process for analysing the economic, environmental and social effects of current and future policies, examining the linkages between these effects, and formulating policy response packages and measures aimed at promoting sustainable development.

This work has provided countries with the necessary information and analysis to limit and mitigate negative consequences from economic and trade policies and to enhance positive effects. The assessment techniques and tools developed over the years are now being applied to assist countries in transitioning towards a green economy.

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Foreword

Globalization does not just spread economic ups – and the very recent deep downs – rapidly across the globe. It can also do the same for compelling and transformational ideas such as the Global Green New Deal/Green Economy Initiative.

In order to support and sustain those fresh winds blowing from the current financial and economic crisis, adaptive governance and creative policymaking need to be supported.

This is the departure point for this guidance manual: Integrated Assessment: Mainstreaming Sustainability into Policymaking.

Its aim is to enable those making policy to involve stakeholders and to catalyse an integrated approach towards addressing the environmental, social and economic challenges of our age.

The integrated assessment proposed in this guidance responds to these aims by bringing scientific rigour to often complex decision-making processes in order to deliver a credible and defensible outcome.

One of its key goals is to assist in avoiding those perhaps narrow or short-sighted outcomes that tackle some challenges but ultimately fail to take the opportunity to deal with multiple challenges by failing to balance or see the full suite of implications.

For example, does a proposed policy also capture opportunities such as job generation, income increases, promotion of trade, or poverty reduction?

The "car scrapping" schemes, adopted by some countries as part of their economic recovery and stimulus packages are a case in point.

While some may have been effective "Green New Deal" measures – stimulating economic activity, boosting fuel efficiency, conserving or boosting employment, stimulating innovation in the area of hybrid and alternative vehicles and capable of

reaching all sectors of society – others may have fallen far short of these multiple green economy aims.

The guidelines set out in this document are designed to be comprehensive but also easy-to-use and employ for carrying out integrated assessments that in turn can mainstream sustainability into policymaking processes and plans.

The broad menu of methodologies should enable a wide community of policy analysts, policy advisers and policymakers to apply a systems-lens to their choices, objectives and goals. Meanwhile the building-blocks approach is designed to be adaptable to existing national and local policymaking processes.

I am sure these guidelines will prove not only useful but will become a primary working instrument for policymakers and analysts not only in the environmental arena but right across the economic and social spheres and that they can play a role in achieving a more intelligent, creative and sustainable management of economic development and thus contribute to human well-being.

Together they are very much a bridge between various policy communities and interested parties and their increasingly shared and common pursuit to deliver tomorrow's Green Economy today.

Achim Steiner

UN Under-Secretary General and Executive Director, United Nations Environment Programme

Executive summary

This guidance manual provides support in using Integrated Assessment as a tool for mainstreaming sustainability into policymaking processes (policies, plans and programmes). In doing so, it uses international experiences in the area of Strategic Environmental Assessment (SEA) and Integrated Assessment (IA) during recent years, and in particular includes UNEP's country-level experiences of Integrated Assessment of trade-related policies, with a focus on the agricultural sector, undertaken over the last ten years in a large number of countries.

Integrated Assessment (IA) is defined as a participatory process of combining, interpreting and communicating knowledge from various disciplines in such a way that a cause-effect chain – involving environmental, social, and economic (ESE) factors – associated with a proposed public policy, plan or programme can be assessed to inform decision-makers.

Being cross-sectoral by definition, IA considers the relationships between the ESE dimensions of a specific policy and the driving forces behind it, thus providing a powerful tool to highlight the connections between the proposed policy and job creation, income generation, trade promotion, environmental sustainability and poverty reduction.

The purpose of this guidance manual is to document and share knowledge to stimulate an integrated and proactive approach to integrated assessment. It also aims to branch out the IA in order to motivate and support wider application and address specific concerns such as climate change and biodiversity. Furthermore, its aim is to support Integrated Policymaking for Sustainable Development, with a view to embedding sustainability within policymaking processes, thus ensuring that IA is not implemented as an isolated exercise, but rather as an integral part of a policymaking process.

The IA approach supported in this document displays full sustainability/ESE integration, combined with integration in the policymaking process in a proactive and strategic way, thus enhancing positive sustainability outcomes. Integration remains flexible by means of building blocks that are presented in Chapter 2 and structured in relation with the IA process (see Box 2.1). Structuring IA through building blocks is particularly useful for policy-makers who are

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Box 2.1: Integrated Assessment building blocks

A. Process
A1: Process design and links

A2: Policymaking decision windows

A3: Communication strategy formulating

B. Policy institutional context
B1: Institutional analysis and change

B2: IA team organizational model

B3: Stakeholder engagement and strengthening civil society

B4: Evaluation and learning

C. Analytical Contents
C1: Strategic framework and identification of key sustainability issues

C2: Trends and scenarios

C3: Identification of opportunities and alternative policy option

C4: Assessment of impacts/ risks and benefits

C5: Monitoring and evaluation

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aware of the need to take into account sustainability at an early stage of their policymaking process, but need to tailor the IA to their policymaking process, or do not well know how this can be done. For them, a flexible and tailor-made approach may be developed in a spirit of mutual trust, and based on initiatives taken by policymakers themselves.

The "building block" approach to conducting IA offers the opportunity to make assesment less procedural and more flexible, tailored to different assessment contexts and policy proesses. It aims to address:

● Integrated policy design and ways to benefit from policy windows;

● Engagement of multiple stakeholders and feed a continuous dialogue;

● Bringing about institutional change oriented at improving sustainability governance;

● Integrating environmental, social and economic sustainability issues;

● Making use of opportunities or win-win options in design of alternative policy options; and

● Formulating policy options to create sustainable development benefits, rather than mitigate or compensate risks.

In using the building blocks, there is flexibility in terms of their timing and sequencing in the IA process, and also in terms of the intensity of their application. Since each building block has an essential role to play in a proactive and policy-centered approach to conducting IA, it is recommended that all

building blocks be applied. However, the intensity of using each building block can vary on a case-by-case basis, from limited attention (e.g. limited time and data or funding impede a wider stakeholder engagement or scenarios development) to in-depth fulfillment of all suggested activities. The description of the building blocks in Chapter 3 provides guidelines corresponding to different capacities and intensities of using each building block.

The aim of this guidance document – to stimulate the integration of the use of IA building blocks into policymaking – can be linked to the generic framework for policymaking as illustrated in the Figure 2.1.

The scope of the manual is to encourage the use of building blocks in a flexible way, according to the needs of practitioners and opportunities to influence the policymaking process. In order to facilitate their use, the 12 building blocks are described in Chapter 3 using the following elements:

● Purpose, referring to the specific objective of using the building block;

● Minimum requirements, referring to the main results expected by adopting the building block;

● Guidelines, being specific guidelines for application of the building block;

The building blocks are illustrated by means of two sets of examples: a real IA assessment carried out in Viet Nam and Senegal and supported by UNEP, and a theoretical application of an IA process. Furthermore, the Annex 1 includes a comprehensive description and usage guide for the tools associated with and specific to each building block.

This guidance document is directed to two audiences:

● Assessment practitioners and planners interested in a more integrated, proactive and flexible use of IA to improve policymaking and planning processes;

● Policy practitioners and decision-makers who wish to seek guidance on how to make public policies contribute to sustainable development

The broad menu of methodologies included in the guidelines should make them useful not only to those involved in the environmental arena but right across the economic and social spheres.

Figure 2.1: Characteristic generic stages of the policy cycle
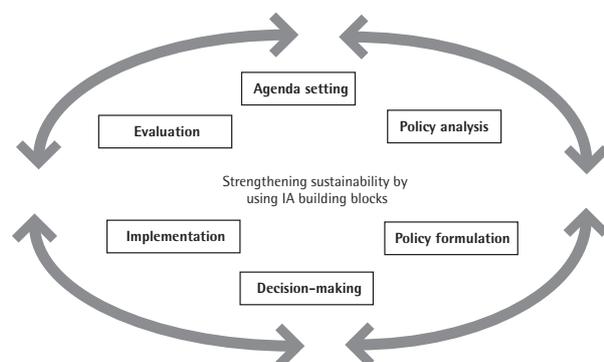
1. Introduction:
Purpose of this document

This document is based on international experiences in the area of Strategic Environmental Assessment (SEA) and Integrated Assessment (IA) during recent years, and in particular includes UNEP's country-level experiences of Integrated Assessment of trade-related policies in the agricultural sector, undertaken over the last ten years in a large number of countries.

From these experiences different insights and lessons emerge, one of which could be described as an integrated and proactive assessment approach. The main purpose of these experiences is to mainstream sustainability into policymaking processes and plans, and this in turn will contribute to capacity building and might lead to institutional change. The approach is designed to be closely linked to existing (national and local) planning and policymaking processes, and is necessarily relatively flexible and open.

The purpose of this document is threefold:

1. To document and share knowledge based on experiences, focused on practices to stimulate an integrated and proactive assessment approach.

2. To enable the branching out of IA in order to stimulate and support wider application and address specific concerns such as climate change and biodiversity. In this document we have adopted a "building-block" approach of conducting IA, which offers the opportunity to make assessment less procedural and more flexible, tailored to different assessment contexts and policy processes.

3. To support Integrated Policymaking for Sustainable Development, with a view to embedding sustainability within policymaking processes. The aim is to ensure that IA is not implemented as an isolated exercise, but rather as an integral part of a policymaking process. It is expected that by taking the policymaking process as the starting point, a specific and proactive approach to IA may be effective to advance sustainable development objectives.

International experience has demonstrated that IA can contribute to sustainable development outcomes by making assessment practice more integrated in terms of sustainability dimensions, more proactive and opportunity-oriented, less procedural and more an integral part of a policymaking process.

Relationship between Integrated Assessment and Strategic Environmental Assessment

Integrated Assessment as presented in this document may be considered as one type of SEA. The Organization for Economic Co-operation and Development's Development Assistance Committee (OECD DAC) Guidance on SEA has presented a model for SEA application in the formulation and assessment of development policies, plans and programmes, commonly agreed and shared between DAC members. It draws on practical experience and established good practice, and has been developed through consultation with SEA practitioners.

The OECD DAC model allows for some flexibility in developing appropriate applications of SEA in different contexts and as a response to the diversity of needs. It was presented in the context of a rapidly emerging framework of international and national legislation on SEA in both developed and developing countries.

According to the OECD DAC reference, SEA refers to a range of "analytical and participatory approaches

that aim to integrate environmental considerations into policies, plans and programmes and evaluate the inter-connections with economic and social considerations". SEA can be described as a family of approaches which uses a variety of tools, rather than a single, fixed and prescriptive approach, which is currently a generally accepted notion firstly introduced by Goodland (1997).

A good SEA is adapted and tailor-made to the context in which it is applied. One type of variation is the level of integration. SEA is described as a continuum covering environmentally focused assessment on the one side to a fully Integrated Assessment in Environmental, Social, and Economic (ESE) terms on the other. Another type of variation refers to the continuum from SEA applied as a response to existing policy options to a more proactive approach where policymakers are supported at early stages of decision making to define integrated policy options at strategic level in order to realize sustainability benefits.

A third type of variation concerns the key emphasis on impact-based approaches (comparable to an extended Environmental Impact Assessment (EIA) with the emphasis on the assessment of effects and mitigation measures), or institution-based approaches (with an emphasis on capacity building and institutional strengthening as enabling conditions for environmental mainstreaming, Ahmed and Sanchez-Triana, 2008), or policy-based approaches (with an emphasis on proactive integration of environmental and sustainability objectives and integration in decision-making processes, Partidário 2007). These approaches are not mutually exclusive and there are elements of each in every approach. However the respective variation will inevitably lead to different SEA outcomes.

Integrated Assessment (IA) is defined as a participatory process of combining, interpreting and communicating knowledge from various disciplines in such a way that a cause-effect chain – involving environmental, social, and economic factors – associated with a proposed public policy, plan or programme can be assessed to supply adequate information decision-makers.

Stakeholder participation is a key element of Integrated Assessment. Picture: UN photolibrary

IA, as generally promoted by UNEP, belongs to the side of the SEA continuum that is aimed at integration of ESE issues, as well as a proactive approach of integration at strategic levels in the policymaking process, preferably at early stages, resulting into policy options to enhance sustainability rather than proposing options for mitigation and compensation

Being cross-sectoral by definition, IA considers the relationships between the ESE dimension of a policy and the driving forces, thus providing a powerful tool to highlight the connections between the proposed policy and job creation, income generation, trade promotion, environmental sustainability and poverty reduction.

Experiences

The IA approach and building blocks presented in this document are based on broad international experience, and key references have been included. UNEP experiences relate to IA projects to assess environmental, social and economic impacts of trade-related policies. The assessments have been conducted by national institutions with technical assistance from UNEP, and thus contribute to national capacity building.

Analytically, the IA approach aims to identify the impacts of proposed policy initiatives on the long-term ESE dimensions of sustainable development, including the linkages between these dimensions, and where possible identifies opportunities and proposes alternative policy options designed to create synergy and maximize sustainable development gains.

Finally, recommendations are given that seek to maximize the synergies and minimize trade-offs among the ESE dimensions of sustainability.

Integrated Policymaking for Sustainable Development

Many international efforts have stimulated attention for integrating assessment into policymaking processes, in order to enhance outcomes of improved decision making. Since 2005, UNEP has taken steps to encourage Integrated Policymaking for Sustainable Development (IPSD) by increasingly placing IA tasks and activities within the overall policy cycle.

The aim is to bring sustainability considerations into policymaking from the start and secure political commitment as well as institutional capacity to implement integrated policies. IPSD is a generic, normative public policymaking approach that considers ESE implications and interactions stemming from policy issues and their alternative solutions.

This document outlining building blocks for IA must be seen in close conjunction with Integrated Policymaking for Sustainable Develpment (UNEP 2009). While IA is to be closely linked to the policymaking process, such processes can contribute to sustainable development by effective use of the IA building blocks.

Audience

These IA guidelines are directed to two audiences:

1. Assessment practitioners and planners interested in a more integrated, proactive and flexible use of IA to improve policymaking and planning processes;

2. Policy practitioners and decision-makers who wish to seek guidance on how to make public policies contribute to sustainable development.

Structuring IA through building blocks may be particularly useful for policymakers who are aware of the need to take into account sustainability at an early stage of their policymaking process, but need to tailor the IA to their policymaking process, or do not well know how this can be done. For them, such a flexible and tailor-made approach may be developed in a spirit of mutual trust, and based on initiatives taken by policymakers themselves.

2. Background and introduction to building blocks

2.1 Assessment typology

Integrated Assessment (IA) as generally promoted by UNEP can be considered as one approach within the family of SEA, belonging to the side of the SEA continuum that is aimed at integration of ESE issues, as well as a proactive approach of integration at strategic levels in the policymaking process, preferably at early stages, resulting in policy options to enhance sustainability rather than proposing options for mitigation and compensation.

There is great diversity in the application of SEA in terms of the use of approaches and tools. Some SEAs are "stand-alone" processes running parallel to core planning processes while others are integrated into planning, policy or decision-making processes. SEA may focus on environmental impacts or its scope can be the integrated consideration of the three dimensions of sustainability: Environment, Social and Economic (ESE).

SEA may be applied to predetermined policies, plans and programmes or be integrated into their formulation. SEA may engage a broad range of stakeholders or be limited to expert policy analysts. SEA can be conducted in a short time frame or over a long period. SEA may consist of a quick analysis or a detailed analysis. Environmental Assessment (EA) can be the starting point of an SEA but SEA can also be fed into an existing process, such as policy analysis. Furthermore SEA can be a finite, output-based effort or a more continuous effort that is integrated within institutional processes.

SEA has undergone a fast evolution worldwide and its current practice is quite diversified. Basically, the following three options have developed from practical experiences, and these are equally relevant to IA.

1. *Impact-centred SEA:* The SEA aims to identify and help prevent and mitigate environmental impacts of decisions at a strategic level. This is basically an extension of EIA from projects to policies, plans and programmes. It helps overcome the inability of EIA to account for the cumulative effects of multiple, successive projects in a particular sector or area (Duinker and Greg 2005; Noble 2008), and also its inability to focus attention on strategic choices which, if they had been made, would have precluded the need for the project considered in the EIA (Fischer 2007). In this case the SEA is a distinct time-bound activity of predominantly technical nature.

2. *Policy-centred SEA:* The SEA aims to help integrate or mainstream environmental concerns by facilitating a proactive approach in the policymaking or planning process. This means that SEA will identify right from the beginning main environmental and sustainability objectives to be achieved and assist in operationalizing the concept of sustainable development in concrete ways by identifying sustainability risks and opportunities (Partidário 2007 and 2007a). The goal is up-streaming of environmental considerations into strategic decision making at the earliest stages of planning processes to ensure they are fully included and appropriately addressed. This is a more comprehensive, upstream approach which expands the scope of SEA beyond impact prediction and mitigation to the earliest stages of policy formulation. This type of SEA is highly dependent and influenced by political processes (Nitz and Brown 2001; Feldman and Khademian 2008).

3. *Institution-centred SEA:* The SEA assesses the regulatory and institutional capacity to enforce law or deal with the negative consequences of a policy and recommends institutional and governance strengthening requirements. An institution-

oriented SEA is useful to integrate environmental considerations in policies where environmental effects and opportunities are significant but hard to predict. It may inform decision-makers by highlighting the institutional conditions to improve environmental governance to adequately deal with risks and opportunities. It is emphasized that institution-centred SEA enhances learning and continuous improvement of policy design and implementation (Ahmed and Sanchez-Triana 2008).

The IA approach as elaborated in this guidelines document has close resemblance with the policy-centred type of SEA, while also including the learning element of the institution-centred approach.

Summarizing, the following four features particularly stand out in the IA approach supported in this document:

1. Full sustainability/ESE integration – as a response to the need for more integrated solutions and realising sustainable development goals in policymaking, there is full integration of the three (ESE) sustainable development dimensions (hence, we speak of sustainability and not environmental assessment);

2. Integration in policymaking process – in order to mainstream sustainability and stimulate the take-up of IA results by decision-makers, the IA building blocks are to be integrated in the policymaking process – at an early stage and at a strategic level – in order to contribute to policy formulation;

3. Proactive and strategic approach – a proactive approach will help develop policy options that address structural and strategic issues (e.g. root causes), to help avoid problems and generate benefits, rather than measures to mitigate and compensate negative impacts;

4. Flexibility by means of building blocks – as a response to the fact that policymaking processes are variable and largely unpredictable, building blocks that can be used in variable sequence and intensity and be tailored to different types of policymaking and planning processes are proposed.

To support this approach, the IA building blocks particularly aim to address:

● Integrated policy design and ways to benefit from policy windows;

● Engagement of multiple stakeholders and a continuous dialogue;

● Bringing about institutional change oriented at improving sustainability governance;

● Integrating environmental, social and economic sustainability issues;

● Making use of opportunities or win-win options in design of alternative policy options; and

● Formulating policy options to create sustainable development benefits, rather than mitigate or compensate risks.

2.2 Selected IA building blocks

Policymaking and planning processes follow different logic in different countries and sectors, and are inherently complex and, to some extent, unpredictable. Therefore, any approach that aims to integrate or mainstream sustainability issues will necessarily need to be flexible. However, at the same time the IA will need to guarantee a minimum of analytical rigour to justify the efforts, assure sufficient quality of outputs and positive benefits, and thus avoid a "green-washing" approach that in the end does not make any difference compared with the situation without conducting IA. Striking a balance between flexibility in terms of process and effectiveness in terms of results is the main challenge in the use of the IA building blocks.

A building blocks approach to Strategic Environmental Assessment was first proposed by Partidário (Partidário and others 2008). Together, the building blocks being proposed cover the key elements of a comprehensive IA approach that aims to integrate sustainability into policymaking. Building blocks can be used in variable numbers, sequence and intensity and will be tailored to different types of policymaking and planning processes. This is why the building blocks in this manual do not completely match with those used by Partidário.

Box 2.1. shows the various activities to be carried out when undertaking IA. A rough distinction can be made between three categories of activities which have a different purpose in the process:

A. *The process.* This is basically the organization of the IA process in relation to the policymaking process being the object of assessment. Activities include process design to assure the IA process is integrated in the policymaking process, communication linkages and the identification of key decision windows. This interface between the IA stages and its assessment activities and the strategic policymaking process is what makes the IA a flexible and integrative process aimed at enhancing sustainable development objectives.

B. *The policy institutional context.* This refers to the institutional context of the policy, and the IA objective to bring about positive change. Activities include the analysis of the institutional context and the institutional change brought up, the involvement of key stakeholders, identifying weaknesses and opportunities for strengthening and improving capacities, as well as structures and procedures aimed to enhance implementation of improved policy solutions and sustainability benefits.

C. *The IA analytical contents.* This is the actual "technical" part of the IA. Activities refer to the use of tools and techniques to analyse and assess sustainability issues, to define past and expected trends for scenarios, and to design relevant options for policymaking, allowing the necessary and sufficient information to be collected and fed into the policymaking process.

The IA building blocks were classified within one of these three categories, although there is often considerable overlap. This is useful to emphasize the different nature of building blocks in the assessment.

In using the building blocks, there is flexibility in terms of their timing and sequencing in the IA process, and also in terms of the intensity of their application. Since each building block has an essential role to play in a proactive and policy-centred approach to conducting IA, it is recommended that all building blocks be applied. However, the intensity of using each building block can vary on a case-by-case basis, from limited attention (e.g. limited time and data or funding impede a wider stakeholder engagement or scenarios development) to in-depth fulfilment of all suggested activities. This variation may depend upon such factors as:

● Earlier assessment work that has been done;

● Available time, resources and expertise;

● Data and information availability and uncertainties involved; and

● Institutional history and culture of participation.

The description of the building blocks in Chapter 3 provides guidelines corresponding to different capacities and intensities of using each building block.

Box 2.2. (opposite) highlights the essence of each building block in a proactive and policy-centred IA approach (described as "minimum requirements", see Chapter 3).

Box 2.1: Integrated Assessment building blocks

A. Process
A1: Process design and links

A2: Policymaking decision windows

A3: Communication strategy formulating

B. Policy institutional context
B1: Institutional analysis and change

B2: IA team organizational model

B3: Stakeholder engagement and strengthening civil society

B4: Evaluation and learning

C. Analytical Contents
C1: Strategic framework and identification of key sustainability issues

C2: Trends and scenarios

C3: Identification of opportunities and alternative policy option

C4: Assessment of impacts/ risks and benefits

C5: Monitoring and evaluation

Box 2.2: Minimum requirements for building blocks

Building block	Minimum requirements
A1: Process design and links	Understanding of the policymaking process, and design of the IA process that fits the policymaking process and enhances linkages for effective exchange and mutual benefits.
A2: Policy decision windows	Appropriate timing of inputs into the policymaking process and preparedness to make use of policy windows if and when these emerge, by packaging key messages and delivering them at the right moment to the right person/s.
A3: Communication strategy	Communication throughout the IA process with use of adequate communication tools to timely and effectively inform key decision-makers on relevant policy issues, sustainability issues and IA results.
B1: Institutional analysis and change	Understanding of existing institutional strengths and weaknesses that may be responsible for unsustainable development patterns in the relevant sector/s and institutions, and identifying strategic actions (means, capacities) to improve the institutional context.
B2: IA team organizational model	Adoption of an efficient organizational model of the IA team that has direct linkages with the policymaking process, at the highest possible level, with defined roles, recognizing the institutional context.
B3: Stakeholder engagement and strengthening civil society	Key stakeholders are identified (including vulnerable and minority groups, and civil society, if relevant) and actively engaged in a transparent and functional way during the IA and policymaking process, e.g. using a multi-stakeholder forum for debate on IA results and sustainability issues. Strengthening civil society may in turn contribute to more sustainable policy solutions.
B4: Evaluation and learning	Effectiveness of the IA process is determined, in relation to its set purpose, and lessons are identified as part of an institutional learning and strengthening process. The IA process contributes to institutional change and capacity building that benefits implementation of the more sustainable policy solutions.
C1: Strategic framework and identification of key sustainability issues	The strategic policy context, including sustainability objectives, is identified. This includes key sustainability issues with associated policy objectives and indicators, with a simple analytical framework to demonstrate the main interrelations and causal relations between key issues.
C2: Current trends and scenarios	Current trends are determined for the key (social, economic) sustainability issues associated with the subject of the policy process and simple scenarios are established that provide insight into future developments of key sustainability issues without the new policy or plan.
C3: Identification of opportunities and formulating alternative policy options	Opportunities are identified in a proactive way, and alternative policy options are defined that enhance sustainability objectives; these are made attractive to policymakers by demonstrating how they can help achieve sustainability objectives and realize sustainability benefits.
C4: Assessment of impacts/ risks and benefits	Proposed and alternative policy options are compared and assessed with respect to their impacts (i.e. expected risks and benefits), based on the best available knowledge including trends and stakeholder consultation; results are used to inform policymakers and formulate guidelines for implementation.
C5: Monitoring and evaluation	A record of performance is made throughout the policy life cycle, using monitoring systems, of policy implementation and IA recommendations, including performance on key sustainability issues, risks and benefits, and results are evaluated to enable timely intervention and correction of problems.

2.3 Assessment in the Integrated Policymaking process

One of the key challenges addressed in this guidance document is the integration of IA activities in the process of policymaking (with respect to the policy which is the object of assessment). This may be referred to as a policy-centred IA process, with the policy process being the leading process and providing the structure to integrate IA activities. Integrated Policymaking (IP) is a process whereby sustainability concerns are integrated in the policymaking process, by using IA building blocks, thus enhancing positive sustainability benefits.

Figure 2.1 shows a simple model with characteristic generic stages of the policy cycle. It includes the consideration of a problem or issue that requires government attention – agenda setting – which may be a problem or an opportunity, and usually requires that priorities are set. Problem definition, or the understanding of the opportunity in a policy context, is part of policy analysis, which contributes to understanding the issue, anticipating policy formulation. This is when options to address the problem are considered and recommended, based on forms of policy evaluation. A particular course of action is prescribed through decision making. That prescribed course of action is translated into action (policy implementation) and subsequently monitored and evaluated against the original policy aims. Adjustments to the policy are frequently needed and that requires careful consideration of the policy context through policy evaluation. Note that while this is a general description of a policymaking processes which can be used as a reference in this guidance, these processes are normally specific to different cultures and different steps or activities may be used in different countries.

Figure 2.1 characterizes Integrated Policymaking by six different stages of the policymaking process. Using the IA building blocks aims to strengthen sustainability of the policy.

A limited set of key elements characterizes the integration of sustainability concerns into each stage of the policymaking process, as highlighted in Box 2.1.

Figure 2.1: Characteristic generic stages of the policy cycle

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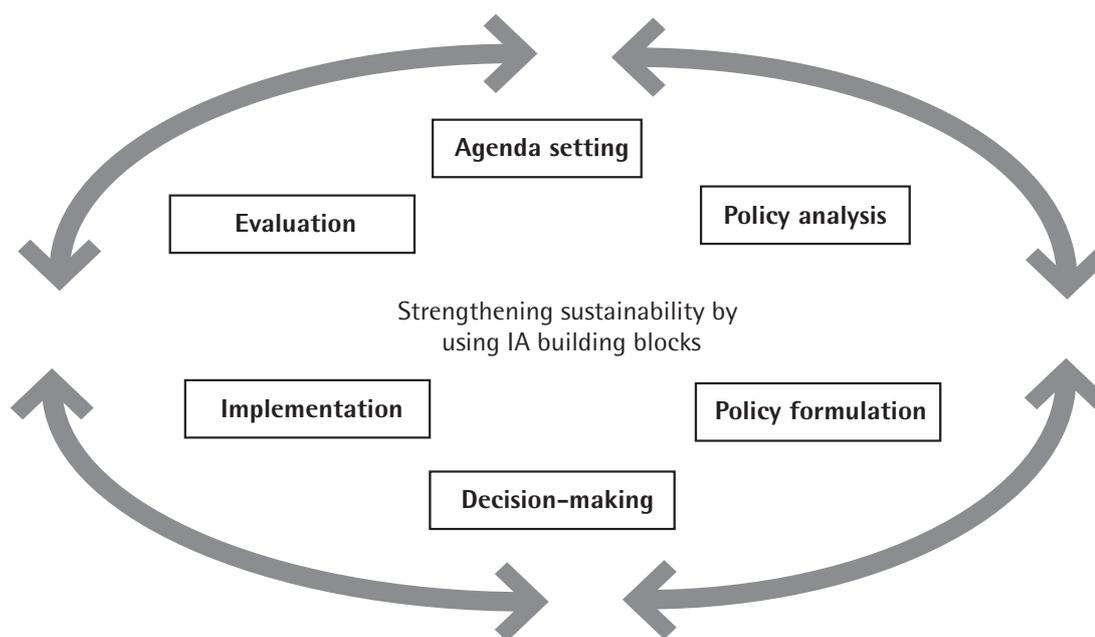
Box 2.3: Stages of policymaking process and key elements for integrating sustainability concerns

Stages of policymaking	Key elements
Agenda setting	• Defining vision, goals and policy objectives • Framing the issue in sustainability terms • Gathering and harmonizing the interests of different stakeholders • Managing the entry of an issue onto the agenda
Policy analysis	• Identifying problems • Identifying the policy issues • Conducting root-cause analysis • Setting up participatory inter-agency mechanisms • Designing processes • Seeking policy windows
Policy formulation	• Establishing preferences • Formulating policy options • Choosing criteria for decision making and comparing policy options
Decision making	• Making an informed decision • Using policy windows and managing policy dynamics • Supporting integration of sustainability issues in policymaking
Implementation	• Considering implementation challenges throughout a policy cycle • Getting organized and operational • Mobilizing resources proactively • Establishing learning processes and knowledge brokers • Managing stakeholder dynamics
Evaluation	• Specifying the type, scope, and criteria of evaluation • Collecting data and discussing attribution • Conducting Participatory Monitoring and Evaluation (PME) • Stimulating policy learning

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2.4 The use of building blocks in the policymaking process

In the "traditional" application of IA, the emphasis has been at the level of actual "technical" activities of impact assessment. In doing so, international and

UNEP experience in conducting IA has generally adopted a sequence of steps. The focus has generally been on building blocks C1 to C4, whereby building block C4 corresponds to the actual assessment of impacts – demonstrating how the policy, plan or programme being assessed affects sustainability objectives. However, the process- and institution-

oriented building blocks often received limited attention or were neglected altogether. This is a major reason why assessments often failed to have important impacts on the policymaking process.

The aim of this guidance document is to stimulate the integration of the use of IA building blocks into policymaking. This can be linked to the generic framework for policymaking as illustrated in Figure 2.1. The aim is to use building blocks in a flexible way, according to the needs of practitioners and opportunities to influence the policymaking process.

Figure 2.2 illustrates how building blocks can be connected to the policymaking generic stages. What the scheme shows is that IA and policymaking can be logically inter-linked in a way that combines their different activities.

It is emphasized that this scheme is only an example: the concept of using building blocks is

meant to enhance flexibility and therefore different selections of building blocks are possible, as are different sequences.

It can be observed from the scheme that certain building blocks may be repeated because their function is needed more than once in a policy cycle, as part of an iterative and cyclical process. The most evident cases are those of the A3, B2 and B3 building blocks (respectively communication strategy, IA team organizational model, and stakeholder engagement and strengthening civil society), as well as the decision-making stage as such in the policy process.

This policymaking stage and these three building blocks are therefore centrally placed as they have a role, at various moments, throughout the entire policy cycle, although driven by different objectives. Likewise, several analytical content-related building blocks may be applied at different stages of the policy cycle.

Figure 2.2: The use of building blocks as associated with the policymaking stage
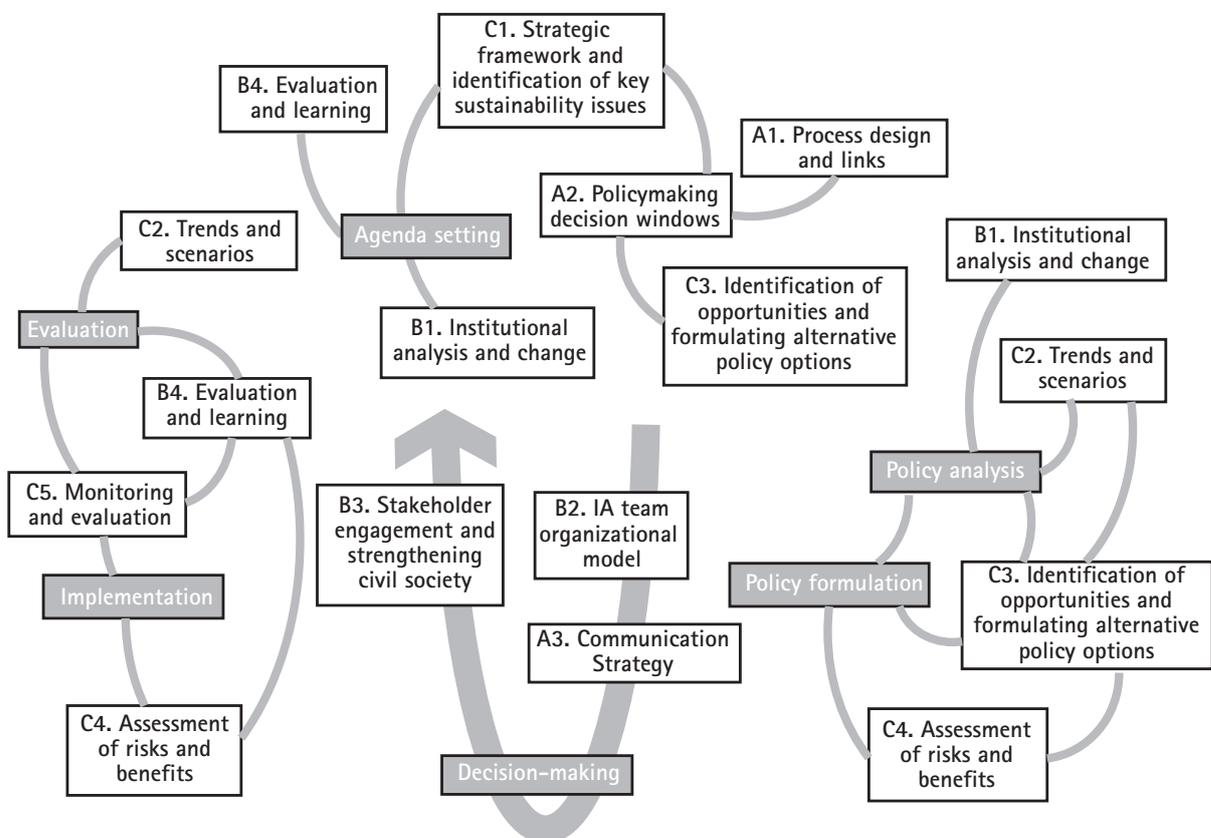
3. IA building blocks

The following description of the 12 building blocks follows the categories as proposed above, in terms of, i) the Integrated Assessment and policymaking process, ii) the institutional context of the policy, and iii) the IA analytical contents.

These categories are meant to highlight the nature of each building block and suggest its use in a certain context; they are not meant to limit the understanding, or the use, of a building block to certain boundaries.

Each of the building blocks can be described by the following elements:

- Purpose, referring to the specific objective of using the building block;

- Minimum requirements, referring to the main results expected by adopting the building block;

- Guidelines, being specific guidelines for application of the building block;

- References and tools: not exhaustive but meant to give further background guidance;

- Various examples and boxes are given to illustrate the building blocks. Two sets of examples are highlighted throughout several building blocks:

1. One is from an Integrated Assessment carried out in Viet Nam and Senegal of the impact of trade liberalization on the rice sector, supported by UNEP (UNEP 2005a).

2. The other is a theoretical application of an Integrated Assessment of a biofuels promotion policy (based on best practices and experiences).

3.1 Building blocks associated with the IA process

A1: Process design and links

Purpose: To ensure that the IA process is designed to fit the policymaking process.

Minimum requirements: Understanding of the policymaking process, and design of the IA process that fits the policymaking process and enhances links for effective exchange of ideas and mutual benefits.

Guidelines:

1. *Understand the logic of the policymaking process.* Analysis will focus on the structure of the policymaking process, i.e. its main steps, its purpose, the key decision moments and the power relations. At a generic level, elements of a policy cycle are as indicated in the simple model in Figure 2.1, and key elements can be found in Figure 2.2, but may greatly vary between countries. These key elements are applied in an iterative fashion and are adapted to the issues and circumstances of the particular country. The framework is therefore a reference framework, not a prescription.

2. *Define the purpose and target of the IA.* What elements of the policymaking process and/or the institutions involved does the IA aim to influence? What is the purpose of the IA? In terms of content this may be a sector or a sub-sector, and it may be geographically limited or not. In terms of process it may focus on awareness-raising among certain decision-makers, institutional change and/or

capacity building. It may be strategic to focus the IA on one particular element (e.g. sub-sector) of the policy process, which is most relevant for sustainability, or which for other reasons has drawn major public attention.

3. *Design of the IA process to fit the policymaking process.* Knowing the purpose of the IA (in terms of the policymaking process and/or institutions involved) and the logic of the policymaking process, will allow the IA process to be designed in such a way as to optimize linkages for an effective exchange of ideas and mutual benefits. In most cases, the IA process design should include a high level of flexibility.

References and tools

UNEP Integrated Assessment and Planning Approach and Projects (UNEP 2006)

UNEP Integrated Policymaking for Sustainable Development: A Reference Manual (UNEP 2009)

Partidário and others 2008

A2: Policymaking decision windows

Purpose: To understand and influence the policymaking process by taking advantage of decision windows.

Minimum requirements: Appropriate timing of inputs into the policymaking process and preparedness to

Application to Integrated Assessment of biofuels policy

Policymaking processes on biofuels are complex because numerous policy objectives and sectoral interests are involved. Policies promoting biofuels are largely based on the assumption that replacing fossil fuels by biofuels will reduce carbon emissions. This objective has been triggered by growing insights in the expected impacts of climate change, and also high dependence on fossil fuel imports. Biofuels production has important implications for other policy fields, such as food security, biodiversity conservation as well as income generation in production areas (poverty reduction). Thus, key sectors involved are: energy, environment (climate change), agriculture and security (internal affairs), as well as biodiversity / nature conservation, food security and development aid.

In the European Union, one of the main challenges of policymaking on biofuels is that of assuring coherence with other sectoral interests and the different policy levels involved. For instance, there is an EU biofuels policy target (ensuring that 10 per cent of fuel comes from biofuels by 2020), and there are policy targets of member countries. However, coherence of these policy targets with policies from other sectors may be at stake.

An Integrated Assessment of a biofuels policy should clearly define the purpose and focus of the study, for instance on specific sectors, sustainability issues or geographical areas where biofuels are produced. The entire intersectoral scope would be too large. The focus may depend upon the added value of the Integrated Assessment as compared to existing assessment studies. For instance, an Integrated Assessment of the biofuels policy in EU countries might focus upon:

● First generation biofuels technologies;

● Problems and opportunities associated with biofuels production in southern countries;

● Sustainable development perspectives for production countries; and/or

● Long-term and indirect effects.

Example from Integrated Assessment of the rice sector in Viet Nam

An IA was carried out in Viet Nam on the impact of trade liberalization on the rice sector, supported by UNEP (UNEP 2005a). One important element of the assessment was the understanding of the policymaking process and opportunities for influencing it. Figure 3.1 (opposite) highlights the main stakeholders involved and the expected sphere of influence.

Figure 3.1: Main stakeholders in trade liberalization of rice in Viet Nam
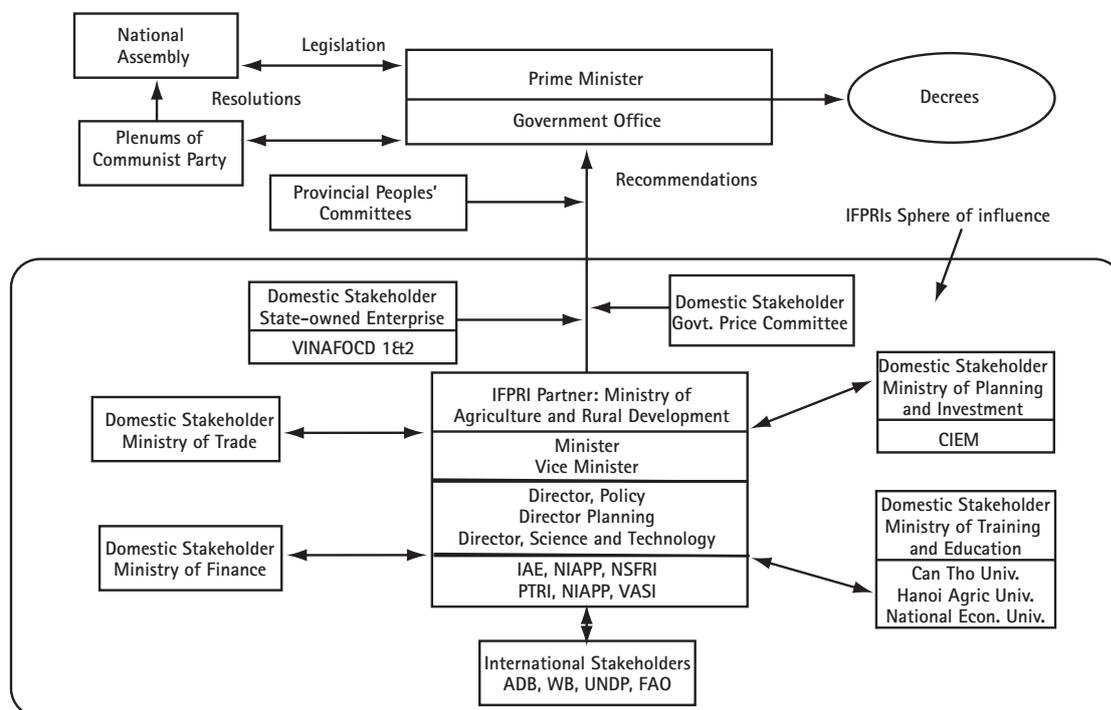
Source: UNEP 2005a

make use of policy windows if and when these emerge, by packaging of key messages and delivering these at the right moment to the right person/s.

Guidelines:

1. *Understand, identify and be prepared for policy windows.* This requires experience, analysis and close contacts with the relevant policymakers.

Journalists tracking specific lines of issues are also excellent in keeping an eye on potential policy windows. Legislation comes up for renewal on schedule, for instance, creating opportunities to change, expand or abolish certain policies and programmes. This is true for routine, institutionalized planning exercises such as multi-year national development planning. IA

Application to Integrated Assessment of biofuels policy

Possible windows of opportunity to influence policymakers on the subject of biofuels are associated with issues of high public interest such as rising fossil fuel and food prices. Communication and policy briefs need to demonstrate the linkages between these issues and the biofuels policy.

Policy briefs will communicate the benefits of biofuels for different policy fields, as well as insights into their expected impacts on carbon emissions, land-use change and food competition. These would emerge from model

and scenario studies undertaken by research institutes as part of the IA.

One example is the use of palm oil as an important stock for biofuel. Energy companies started using palm oil in large quantities to produce biodiesel and thus meet policy targets. However, it was demonstrated that palm oil production was often at the expense of virgin forests. Recent studies showed that palm oil plantations are being established by deforestation and peatlands clearing, and therefore contribute to carbon emissions instead of reducing them This has contributed to public concern and a major change in perception, and eventually a change in biofuels policy targets.

practitioners need to be aware of these cycles and their internal deadlines.

2. *Utilize crisis policy windows.* Crisis windows are major events, such as change of government, conflicts, natural disasters, and major sports events such as the Olympic Games. While some of these windows can be foreseen to various degrees, they still remain largely unpredictable.

3. *Utilize institutionalized policy windows.* In most cases institutionalized opportunities exist, such as periodic elections or budgetary cycles with policy windows where IA practitioners can promote IA results, alternative policy options and policy briefs on sustainability issues. While most policy windows open quite predictably, open windows are scarce and often temporary. IA practitioners must identify the types of windows available for their issues to enter the policymaking agenda and be prepared to promote policy options to problems when an opportunity arises.

References and tools

UNEP Integrated Policymaking for Sustainable Development: A Reference Manual (UNEP 2009)

A3: Communication strategy

Purpose: To develop and adopt a communications strategy that can effectively inform policymakers and the public.

Minimum requirements: Communication throughout the IA process with use of adequate communication tools to timely and effectively inform key decision-makers on relevant policy issues, sustainability issues and IA results.

Guidelines:

1. *Design of a communication strategy including adequate budget.* A communication strategy will be designed in the early stages of the IA process, defining target groups and communication tools, as well as a budget, human expertise and responsibilities. It will include traditional tools and modern communication and information technologies, skills such as dialogue, persuasion and negotiation as well as innovative tools. Examples of these are: visual techniques, policy briefs, thematic

papers or presentations and 3-D virtual reality with instantaneous engagement. A website could also be established for continuous updates on the IA process, using messages, newsletters, policy briefs etc. Use could be made of an existing government website. Particular attention should be given to communicating IA results to policymakers and policy briefs are an especially suitable tool for this. Key stakeholders should be continually informed, not just at a late stage of the IA process.

2. *Enhance frequent interaction between the IA team and policymakers.* Define appropriate communication tools and be prepared by having communication materials focused on relevant sustainability issues available in time. Communication with policymakers will need to be tailor-made in terms of audience and timing. Short policy briefs or one-pagers, highlighting key issues on the agenda of the policy negotiation process are recommended. Decisions may be rushed (without considering the results of the IA process) due to external forces or sudden events that require immediate responses, such as in a post-conflict or post-disaster situation.

3. *Understand the receptiveness of different policymakers.* Ministries of Finance, for example, will be more receptive to quantified estimates of the environmental effects (positive or negative) of various policy options (e.g. in terms of percentage of GDP). Ministries and agencies mandated to reduce poverty will be receptive to impacts of given policy choices on the most vulnerable groups, especially if they result from consultation with affected groups. Elected officials tend to have short-term horizons and will be more receptive to information on short-term impacts.

References and tools

See keysheets of the Netherlands Commission on EIA, including one on institutional capacity. http://news.eia.nl/www/ncea/products/publications.htm

3.2 Building blocks associated with the policy institutional context

B1: Institutional analysis and change

Purpose: To identify institutional causes explaining unsustainable development patterns in the relevant policies and sectors, and bring about positive change for mainstreaming of sustainability issues.

Minimum requirements: Understanding of existing institutional strengths and weaknesses that may be responsible for unsustainable development patterns in the relevant sector/s and institutions, and identifying strategic actions (means, capacities) to improve the institutional context.

Guidelines:

1. *Identify relevant institutions.* What are the relevant institutions associated with the policymaking process being the subject of the IA? Given the multi- and inter-sectoral nature of most sustainability challenges, different institutions will be involved, directly or indirectly.

2. *Analyse the institutional causes of unsustainable development patterns.* One entry point of institutional analysis is to start out from unsustainable development in the sector. Important root causes are institutional failures, and can be found in different areas. For instance:

- Poor regulatory processes to manage market forces;
- Poor use of economic tools to steer the market;
- Insufficient coordination between relevant agencies;
- Lack of human capacities to manage certain issues;
- Poor law enforcement, corruption, etc.

3. *Identify institutional weaknesses and opportunities.* Analyse relevant institutions on key issues to be strengthened. Institutional Analysis focuses on formal institutions, such as values and belief systems, rules, resource allocation and authorization procedures, as well as informal rules of the game, power relations and incentive structures. The following is a preliminary overview:

Institutional opportunities and weaknesses exist at the level of internal processes, relationships among organizations (e.g. between ministries), or is a product of the way that the system is organized (reporting hierarchies) or operates (accountability mechanisms, information-sharing mechanisms, etc).

4. *Identify priorities for institutional change.* Improvements of institutional frameworks are generally required to enhance the chance that sustainability issues are not only integrated into policies, but are also actually implemented. To do so, there needs to be adequate funding, capacity building, effective feedback mechanisms, accountability mechanisms, adequate monitoring and enforcement strength. Interactions with relevant institutions and key stakeholders should ensure that priorities are agreed upon by the institutions involved.

5. *Draw out an action plan for improving institutions.* This would focus on capacities to be improved and instruments to be introduced and applied in order

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Box 3.1: Components of an Institutional Analysis:

- Organizational structures and functions for environmental and sustainability governance;
- Organizational resources and capacities;
- Values and belief systems;
- Current planning, monitoring and evaluation practice;
- Legislation and law enforcement;
- Collaboration between government and civil society;
- Horizontal (inter-sectoral) linkages between relevant institutions;
- Vertical relations within institutions, level of decentralization;
- Formal and informal rules and regulations; and
- Existence of capacity building and learning processes and structures.

to overcome identified institutional weaknesses. It may be achieved through improvements in any of the instruments below:

- Innovations in the regulatory processes or economic tools;

- Improved coordination between relevant authorities;

- Enhanced capacities of the key stakeholders to manage certain issues; or

- Law enforcement, anti-corruption efforts, etc.

References and tools

Kulsum Ahmed and Ernesto Sánchez-Triana (editors), 2008. Strategic environmental assessment for policies: an instrument for good governance. World Bank.

See keysheets of the Netherlands Commission on EIA, including one on institutional capacity: http://news.eia.nl/www/ncea/products/publications.htm

See SEA Toolbox of World Bank for institutional analysis and SWOT analysis: (http://www.worldbank.org/seatoolkit)

B2: IA team organizational model

Purpose: To implement an adequate organizational model for applying Integrated Assessment in an effective and efficient way.

Minimum requirements: Adoption of an efficient organizational model of the IA team that has direct linkages with the policymaking process, at the highest possible level, with defined roles, recognizing the institutional context.

Guidelines:

1. *Define roles and responsibilities for conducting IA.* What are the specific roles required to conduct IA, and where are these currently found? Where are the gaps and where are the opportunities to anchor roles and responsibilities into existing institutions?

2. *Develop an organizational model linked to the policy process.* Since IA is an inter-sectoral and inter-disciplinary process, its organization may be complex. In many cases environmental departments take the initiative, considering IA as an extension of SEA with an emphasis on integrating sustainability

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Box 3.2: Roles and responsibilities for conducting IAs

- Screening on the need for IA on plans/policies;
- Drafting ToRs;
- Quality review of IA report and process;
- Undertaking IA studies and application of tools;
- Monitoring plan/policy implementation;
- Supporting IA processes with legal and procedural advice;
- Organizing and managing the IA process, including public participation;
- Maintaining a register or database of impact assessments;
- Sustainability awareness raising, training, capacity building;
- Creating high level commitment/political support;
- Developing IA guidance material;
- Funding IA in state/department budget; and
- Responsibility to deal with feedback mechanism and accountability.

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dimensions. Different organizational models are available for conducting IA, for example a secretariat within the ministry of environment combined with IA desks in relevant sectors at ministerial level. In addition, there may be focal points at decentralized levels (See Figure 3.2). While some of these structures may be ad-hoc, a model may be developed that can be used for subsequent IA and SEA projects. These arrangements serve the purpose of mainstreaming sustainability into policy processes. Another option is to identify key persons and/or establish an advisory group which forms a communication channel between the IA team and the policy makers and which will establish personal relationships with key decision-makers.

References and tools

See keysheets of the Netherlands Commission on EIA, including one on institutional capacity: http://news.eia.nl/www/ncea/products/publications.htm

Figure 3.2: Different organizational models
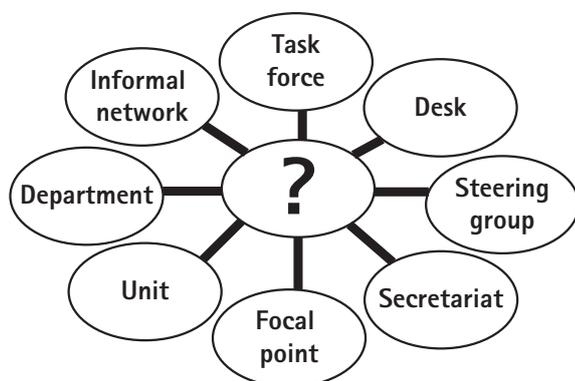
B3: Stakeholder engagement and strengthening civil society

Purpose: To maintain an open and transparent dialogue with relevant stakeholders, to help provide clarity and accountability throughout the IA process and build up capacities.

Minimum requirements: Key stakeholders are identified (including vulnerable and minority groups if relevant) and actively engaged in a transparent and functional manner during the IA and policymaking processes, e.g. using a multi-stakeholder forum for debate on IA results and sustainability issues. This will contribute to the strengthening of civil society, which may in turn contribute to more sustainable policy solutions.

Guidelines:

1. *Conduct a stakeholder analysis.* Stakeholder mapping can be done by just listing key stakeholders. Stakeholders cover government, private sector and civil society, and different sectors relevant for sustainability issues associated with the policy process. Stakeholders should include minority and vulnerable groups. Especially pay attention to existing stakeholder coalitions, partnerships and working groups. A stakeholder analysis covers those who are potentially affected or concerned by, interested in, important to, or having any power over the policy being initiated.

It considers different interests, levels of organization, resources and capacities, power relations, networks and other interrelations. It looks at current and potential areas of conflict between stakeholder groups.

2. *Review legal requirements for stakeholder engagement.* Legal requirements as regards access to information, public participation, consultation, access to justice (e.g. appeals) and accountability will need to be met. These exist for formal EIA processes.

3. *Organize public consultations.* These should be complementary to the public consultation already in the policymaking process, if one exists. Public meetings and hearings should be organized to present information to the public and stimulate debate. They are a formal way of presenting and exchanging information and views on a proposal and are best used in conjunction with more informal methods of engagement such as informal meetings and facilitation. Public meetings and hearings should be announced in public notices in newspapers citing time, date and place of a hearing. Guidelines and standards for public consultation are given in Box 3.3.

4. *Plan stakeholder engagement.* Stakeholder engagement should be planned to help provide clarity and accountability throughout the IA and policymaking processes. Tools include multi-stakeholder commissions and task forces at certain points in time, e.g. by conducting specialized activities. Other tools are expert panels and focus groups, e.g. for specific sectors or stakeholder groups. Stakeholder engagement needs to be flexible and iterative if the full benefits of engagement are to be reaped. Special measures are required to ensure the participation of vulnerable groups and to guard against powerful groups capturing the stakeholder dynamics.

5. *Consider establishing a multi-stakeholder forum.* Continuous engagement by a multi-stakeholder forum can help facilitate debate and generate consensus. A multi-stakeholder forum with selected representatives from stakeholder/interest groups can be engaged at specific points in time. One aim is to build up constituencies for ambitious

interventions, where policy options are contested or facing uncertain prospects due to incomplete information. A stakeholder forum would include key stakeholders in a balanced way.

6. *Draw up an action plan to strengthen civil society.* For civil society to engage effectively in the policymaking process, in many cases capacities may need to be developed. Appropriate civil society

(non-governmental) organizations may not exist, may lack expertise or resources (money, time, staff, equipment), may be disorganized or may not understand the opportunities presented by engagement in policymaking. Organizations representing the interests of disadvantaged groups are likely to be weaker than those representing stronger groups (e.g. industry). Tools such as stakeholder and institutional analysis may be

Application to Integrated Assessment of biofuels policy

A range of multi-stakeholder initiatives have emerged in various countries as a response to policies promoting biofuels. These initiatives either bring together stakeholders with corresponding interests (such as NGO coalitions or coalitions of energy companies) or may constitute partnerships between stakeholders with conflicting interests (e.g. private sector and civil society groups). In addition, a range of working groups have emerged around themes associated with biofuels production, such as around biodiversity, carbon emissions and climate change, food security and social impacts.

In order to identify the key stakeholders, insight is required in the main objectives, problems and opportunities associated with the biofuels policy. The main objectives are aimed at meeting present and future energy needs, security through less dependence on fossil fuels and reduced carbon emissions. The main problems are uncontrolled expansion of agricultural land-use threatening protected areas and biodiversity, food security by competition between biofuels and food production and expansion of large-scale agro-commodities at the expense of smallholder production systems. Thus, various stakeholders have direct and indirect interests in biofuels production, and key stakeholders are therefore to be found in a range of different sectors:

- Government ministries/agencies: Environment (climate change), energy, agriculture, security;
- Private sector: Energy companies, companies involved in the market chain of potential biofuel

products (e.g. palm oil, sugar-ethanol, jatropha);
- Civil society: Environmental and human rights organizations, especially those involved in land rights issues, poverty and food security; and
- Research institutes involved in the analysis of carbon costs and benefits of different biofuels.

Example from Integrated Assessment of rice sector in Senegal

An IA, supported by UNEP (UNEP 2005a), was carried out in Senegal of the impact of trade liberalization on the rice sector. The following are some of the organizational aspects that characterize the assessment process:

- The study was launched at a national seminar and took an open and participatory approach. Three additional national stakeholder workshops involving rice producers, decision-makers, consumers, importers and traders were convened.
- Five working groups, including trade unions, NGOs, community-based organizations and associations, the private sector and parastatal bodies, as well as government and local authorities, reviewed and refined the different reports submitted by the team.
- A Steering Committee, chaired by a representative from a key stakeholder, was established to supervise the national study process.
- The research team consisted of an international trade specialist, an environment and trade specialist, an economist, a civil engineer, a sociologist and an environmentalist.
- The project benefited from a scientific committee made up of academics and researchers.

Box 3.3: Public consultation

Checklist

- **Objective (what you want to achieve):** Finding new ideas (brainstorming); collecting factual data; validating a hypothesis; etc.

- **Consult on what (different elements of a policy problem):** Nature of the problem, objectives and policy options, impacts, comparison of policy options or whole draft proposal.

- **Who to consult:** General public, restricted to a specific category of stakeholders (any member in the selected category can participate) or limited to a set of designated individuals/organizations (only those listed by their name can participate). Always include all those target groups and sectors which will be significantly affected by or involved in policy implementation.

- **How to consult:** Consultative committees, expert groups, open hearings, meetings, consultations via internet, questionnaires, focus groups, seminar/workshops, etc.

- **When to consult:** Should start as early as possible in order to maximize impacts on policy development, should be seen as a recurring need in the policy development process rather than "one-off" event, useful to arrange a series of consultations as the proposal develops along the various stages of the policy cycle.

Minimum standards

- Provide consultation documents that are clear, concise and include all information.

- Consult all relevant target groups.

- Ensure sufficient publicity and choose tools adapted to the target group/s.

- Leave sufficient time for participation.

- Publish the results of public consultation.

- Provide acknowledgement of responses.

- Provide feedback. Report on the consultation process, its main results and how the opinions expressed have been taken into account.

Pitfalls

- Do not be unduly influenced by the views of one particular group, no matter how professionally their views may have been presented.

- Consultation can never be a substitute for analysis of an issue.

- Do not repeat consultations unless additional opinions and/or information is being sought, or unless there is new information to present.

Source: The EC IA Guidelines

Table 3.1: Stakeholder participation during the six IA projects in the rice sector (UNEP, 2005a)

Participation by:	China	Colombia	Indonesia	Nigeria	Senegal	Viet Nam
Governments and ministries	+	+	+	+	+	+
NGOs	+	+	–	+	+	+
Local producers	–	+	+	+	+	+
Private sector	–	+	–	+	+	+
Total number of stakeholder meetings	2	2	2	5	6	4

adapted to identify capacity-development needs in civil society. These should then be prioritized. An action plan would focus on expected roles and responsibilities of civil society to help assure that sustainable policy solutions are actually implemented. It may be achieved through improvements in any of the fields below:

- Capacity building;
- Improved coordination;
- Information supply on legal rights and responsibilities;
- Training on impact assessment; and
- Improved communication capacities, etc.

References and tools

See Annex 1 for the following tools: stakeholder analysis and mapping (Tool 1), expert panels (Tool 2), focus groups (Tool 3), household surveys (Tool 4)

See SEA Toolbox of World Bank for stakeholder analysis and public meetings and hearings (http://www.worldbank.org/seatoolkit)

B4: Evaluation and learning

Purpose: To review the effectiveness of the IA process and draw lessons as part of an institutional learning and improvement process.

Minimum requirements: Effectiveness of the IA process is determined, in relation to its set purpose, and lessons are identified as part of an institutional learning and strengthening process. The IA process contributes to institutional change and capacity building that benefits the implementation of more sustainable policy solutions by relevant institutions.

Guidelines:

1. *Establish the criteria and indicators for evaluating the IA process.* These typically cover cost-effectiveness, timely conclusion of IA tasks, the participation of stakeholders, inter-agency cooperation, capacity building, the quality of analysis, and the realized or expected effects on decision making and the entire policy process.

Example from Integrated Assessment of the rice sector in Viet Nam

An IA, supported by UNEP (UNEP 2005a), was carried out in Viet Nam on the impact of trade liberalization on the rice sector. Lessons learned from the assessment were documented, and include the following:

- The wide participation in the assessment study was largely due to the fact that the study involved combining a variety of methods and study tools such as quantitative models, qualitative participatory rural appraisal (PRA) and interview techniques. Each group or stakeholder may only be convinced to participate in the learning activities with certain facilitating tools or processes.

- The general findings indicate that, in Viet Nam, the capacity for undertaking integrated impact assessment is low. Data availability and accessibility ex-post is limited, making policy analysis difficult.

- One advantage enjoyed by the assessment team was that its members were familiar and experienced with participatory methods. Participatory tools have been used for involving rice farmers and local stakeholders in the assessment, but the application of these tools and methods such as PRA requires trained researchers. This implies that wider awareness building needs to start with capacity building for the researchers and extension agents.

2. *Review the IA process.* This can be done by going through documents produced during the IA, interviewing those who have participated and those who should have participated but have not due to various reasons; (including, for example, such areas as the choice of analytical tools, the type of information used, the way in which policymakers are engaged in IA, etc.). Important evaluation questions are listed in Box 3.4.

3. *Identity the lessons learned.* In doing so avoid bias in conducting the evaluation and foster a culture of learning. Ensure that the lessons learned are documented, stored and communicated within the

Box 3.4: Issues and questions for evaluation of IA process (UNEP, 2006)

Effectiveness

- Has the IA achieved its purpose?

- Has the IA been conducted in an efficient and participatory way?

Influence on the policymaking process

- Has the IA process influenced the policymaking process and its subsequent contents?

- What information provided and tools used within IA were most helpful, what tools and information were least useful?

- Are the expectations of policymakers and planners on benefits by IA being met?

Quality of information

- Is the information provided within IA reliable and rigorous enough to influence the decision-making?

Cooperation and communication

- Was cooperation and communication between the IA team and policymaking team effective?

- Was cooperation and communication between the IA team and the key stakeholders effective?

Constraints and opportunities

- What were the most significant constraints in undertaking IA?

- What were the most significant factors contributing to a successful IA?

- How could things have been done differently to achieve better results?

Capacity building

- Was capacity built through the IA process? If yes, how? Who benefited?

- What additional capacity needs to be built to conduct another IA?

institutions involved, so as to improve IA practices as part of integrated policymaking processes.

4. *Draw conclusions with respect to desirable institutional change.*

References and tools

UNEP Integrated Assessment and Planning Approach and Projects (UNEP 2006)

3.3 Building blocks associated with the IA contents

C1: Strategic framework and identification of key sustainability issues

Purpose: To identify key sustainability issues and associated indicators, based on an understanding of the interrelations and wider context, as a basis for setting the baseline, for comparison of options and for monitoring of impacts.

Minimum requirements: The strategic policy context, including sustainability objectives, is identified. This includes key sustainability issues with associated policy objectives and indicators, with a simple analytical framework to demonstrate the main interrelations and causal relations between key issues.

Guidelines:

1. *Identify key sustainability issues.* A mixed approach can be adopted with different entry points to identify key sustainability issues:

- *Make a full list of relevant sustainability issues associated with the policy process.* Review relevant policy documents. Then define a shortlist, based on criteria of urgency, risks and opportunities for sustainable development.

- *Interview key stakeholders.* Target those with an interest in the sector/s concerned, or better organize a round-table to discuss and agree upon key sustainability issues.

- *Undertake a brief diagnosis of the theme or sector.* Indicate the positive and negative interrelations, as well as underlying factors and root causes.

2. *Build up a simple analytical framework.* This can be done in a more or less detailed manner. Useful tools to do so are causal analysis and root causes analysis. Whatever tool is used, there should be participation and feedback by key stakeholders and the tool should be used in a simple way so that it identifies the main underlying causes, and is not just an academic exercise. The analytical framework can be based on the Millennium Ecosystem Assessment model (see Figure 3.3). Key sustainability issues are the main knots and levers in the analytical framework.

3. *Define policy objectives associated with identified key issues.* Understanding the key linkages and underlying causes will allow definition of policy objectives and associated policy options in order to effectively enhance sustainability. Instead of formulating new policy objectives, one should first review relevant policy documents from the associated public sectors and identify appropriate sustainability objectives, as well as relevant national and international agreements. Thus, policy objectives are associated with the previously identified sustainability issues and root causes. Policy objectives will need to be specific (i.e. really address the sustainability issues at stake).

4. *Identify sustainability indicators.* Review existing national sustainability frameworks and policy documents with sustainability indicators. For the purpose of use in the IA, and based on generic indicator frameworks, define more specific sustainability indicators to be used for assessment. Key sustainability issues and indicators must be associated with the three pillars of sustainable development: ecological, social and economic.

5. *Frame key issues in sustainability terms.* Define the issue in relation to the society's sustainable development priorities and list the different public sectors that have an interest in the issue. Linking the issue to the concerns of other sectors' or groups' concerns, as well as other related policy issues and processes, will generate wider commitment and awareness and build inter-sectoral linkages.

References and tools

See Annex 1: Setting sustainability indicators and benchmarks (Tool 5); Causal chain analysis (Tool 6); Root cause analysis (Tool 7)

See critical factors analysis: Partidário M. (2007) Strategic Environmental Assessment, Good Practice Guide. Portuguese Environmental Agency, Amadora

Figure 3.3: Analytical framework based on Millennium Assessment Framework, applied to biodiversity impacts of trade policies
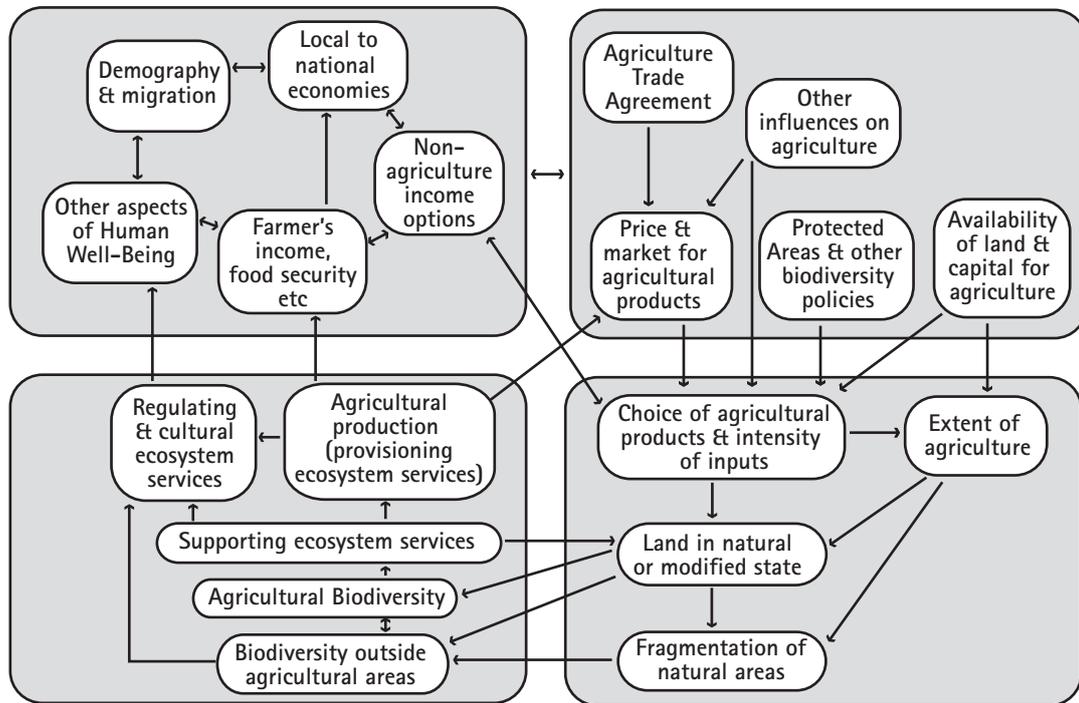

Figure 3.4: Analytical framework for biofuels policy dynamics (Faaij 2008)
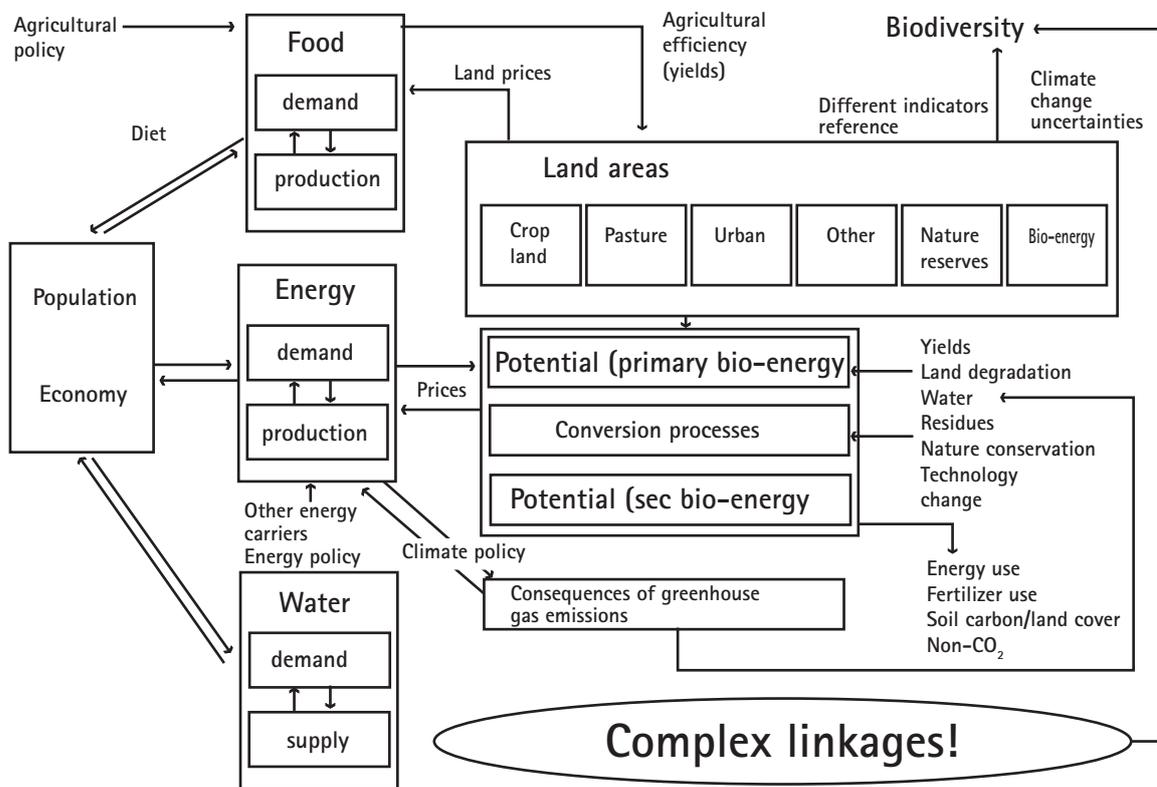
Application to Integrated Assessment of biofuels policy

Various sustainability issues are involved in the biofuels market chain, both in production countries and consumption countries. Standards for the assessment of the sustainability of biofuels have been developed in various countries, including a range of indicators and monitoring protocols. These protocols are complex, because of the range of sustainability issues involved, and because of issues of scale and uncertainties regarding indirect effects such as impacts on food security, biodiversity and household budgets.

Basically the following categories of sustainability themes have been identified, with associated criteria and indicators defined for each category:

- Carbon emissions from source or origin to consumption, with a comparison between biofuels and fossil fuels.

- Competition with food and other local use of biomass.

- Biodiversity as a result of changes in land-use as well as use of water for production and processing of biofuels.

- Environment: Impacts of the production process, e.g. use of agro-chemicals and large-scale production systems, on soils, water and air.

- Local economy: Does biofuel production generate employment and benefit local economies?

- Social wellbeing: Does biofuel production improve social conditions and respect labour conditions of workers on plantations, or involved in production and processing?

When dealing with biofuel policies, framing the underlying problem is of great importance, because of the wide range of interests, several of which may be conflicting, and the wide range of visions and possible solutions and/or strategies.

For many environmental groups, the basic problem is one of excessive energy use, and the promotion of biofuels is considered a temporary measure to postpone rigorous policy measures to stimulate renewable energy use. For them, subsidies for biofuels are a perverse incentive that encourages continuous high energy use and thus excessive carbon emissions.

While these groups would frame the problem of carbon emissions in per capita terms, others would do so in aggregate terms, i.e. the total amount currently emitted by each country, each with different implications for potential solutions. Other groups are more concerned that these subsidies do not reach the poor as the intended beneficiaries. Energy companies and governments consider biofuels as an opportunity to reduce carbon emissions and become less dependent on expensive fossil fuels. This includes issues of security and autonomy.

There are also considerations of scale: while some groups only look at the interests and sustainability issues within the countries using biofuels (and consider the production process as a given, e.g. by import from developing countries), others take a wider (global) look and compare sustainability in production and consumption across countries.

Analytical frameworks associated with biofuels

The first analytical framework focuses on the impacts of the production of agricultural crops for biofuels, and is based on the Millennium Assessment Framework for assessment of ecosystem impacts (Figure 3.3). The second analytical framework gives and overview of the various issues and linkages involved in biofuels production, and is derived from Faaij 2008 (Figure 3.4). Indicators would be associated with key issues in the respective boxes.

C2: Analysis of current trends and scenarios

Purpose: Understanding the current situation and trends of identified key sustainability issues and indicators, and their likely evolution without policy change, provides the basis for predicting sustainability impacts in the IA process.

Minimum requirements: Trends are determined for the key (environmental, social, economic – ESE) sustainability issues associated with the subject of the policy process, using state-of-the-art knowledge and stakeholder inputs, and simple scenarios are established that provide insights into future developments of key sustainability issues without policy change.

Guidelines

1. *Establish past and current trends of key sustainability issues.* The first step is to identify the time series of identified key issues and indicators (see C1) based on existing sources of data and information. Two key moments must first be considered for the analysis of trends of selected indicators: past history and current situation. Next, visualize the trends and analyse the trend time series, possibly using statistical methods. The description of the past and current trends can be made on the basis of data available from existing information sources or through expert judgements (in cases where data are lacking). IA experts should not embark on collecting raw data at this stage. They are required to accomplish this task while taking into account the available studies and considering the key driving forces behind these trends. When maps are easily available, these analyses may be supplemented by maps showing spatial dimensions and linkages between key environmental, social and economic issues. The most common deficiencies in analysing trends do not only arise from lack of data, but also from poorly targeted analyses that do not focus on key sustainability issues.

2. *Analyse past and current trends.* Analysis of trends is important in order to understand the causes of the evolution that has lead to the current situation. This

> **Possible sources of information**
> - State of the environment reports;
> - Data from other available policies or plans; and
> - Research projects or studies

is fundamental to being able to understand the current dynamics and driving forces, as these will also influence future values and trends. Trends may be especially influenced by:

- Changes in regulatory, institutional or economic factors,
- Policies and plans in the given sector or study area;
- Demographic factors;
- Market forces; and
- Environmental considerations, including ecosystem loss, desertification and climate change.

Understanding these driving forces may later help to analyse whether the policy change will positively or negatively influence these driving forces, and thus help to assess its impacts on sustainability indicators. To determine driving forces, it is useful to combine trends of sustainability indicators with trends of root causes or important policy changes in one diagramme.

3. *Establish future trends.* Outlining the expected future trends of selected indicators is important to establish a "baseline" or "zero alternative", i.e. the changes taking place without policy change. This is required to understand impacts of policy change. Many sustainability issues may improve and many may get worse in the future irrespective of any policy change (e.g. some biodiversity values may be lost anyway).

It is also important to consider that some environmental trends may be in the near future affected by climate changes (e.g. extreme temperatures, droughts, floods, or sea level rise) which are predicted to be particularly severe in Viet Nam. The baseline provides an essential reference point against which various policy options can be compared. By neglecting the baseline the option of "let present trends continue" would be left out, leaving the door open for policy interventions that

Application to Integrated Assessment of biofuels policy

Trend analysis helps build evidence to justify a biofuels policy, build up scenarios and then assess the impacts of the increasing use of biofuels. Trends are generally established for such indicators as energy use, carbon emissions, the use of different types of energy sources and their origins.

To assess impacts, trends are required for indicators on issues of land-use, food security, price of agricultural products, energy prices, incomes for different social groups and categories of households. Various statistics are available with data on these trends.

Scenarios are commonly established to deal with the following uncertainties:

- Global fossil fuel energy prices;
- World demand for energy and foodstuff; and
- Climate change affecting food production and land pressure.

In terms of building policy options there are generally three basic alternatives:

- The "baseline scenario", which depicts the expected impacts without promotion of biofuels;
- Biofuels without subsidies, with biofuel use resulting from energy markets and prices; and
- Biofuels with subsidies, thus aimed at promoting biofuels up to a certain policy target.

Apart from that there is a range of variables that can be incorporated in these policy options to develop more detailed policy options:

- The origin of biofuels: domestic production or imports, mainly from developing countries;
- Use of first, second and third generation techniques of processing stocks for bioenergy;
- Type of crops used for first generation techniques, as well as the management systems being used (e.g. palm oil, jatropha, sugar-ethanol, etc)
- The intensity and efficiency of crop production systems;
- Processing in the country of origin or elsewhere (e.g. sugar-ethanol); and

- Proportion of marginal lands being used to produce biofuels, thus avoiding land competition and clearing of natural ecosystems.

Example from Integrated Assessment of the rice sector in Viet Nam

An IA, supported by UNEP (UNEP 2005a), was carried out in Viet Nam on the impact of trade liberalization on the rice sector. It was one of a set of country studies on Integrated Assessment in the rice sector. One important element of the assessment was the understanding of the main trends. Figure 3.5 (opposite) highlights three important trends:

i) The increase in real income of the poor (by 27.7 per cent from 1993-98) resulted from increases in rice prices and the boom in rice production and exports, which in turn is partly due to the decrease of fertilizer prices or the rice: fertilizer price ratio.

ii) The poor benefited from the increase in the price of rice because they were the main rice producers.

iii) These impacts and other opportunities provide the incentive to continue implementing policies to promote rice production and rice exports.

However, there is also a direct relationship between the use of fertilizers and environmental pollution. Analysis showed that further liberalization would result in a reduction of the domestic price of urea fertilizer, which supports rice production and export, but also increases environmental damage.

It was also demonstrated that levels of fertilizer and pesticide use are not economically optimal, i.e. a lot of agro-chemicals are wasted, so a reduction in their use would make both economic and environmental sense. Measures to moderate the consumption level of agro-chemicals should therefore be developed. Suggestions coming forward from this study are

i) taxing or banning the most harmful agro-chemicals (pesticides), and

ii) providing technical support and research to promote organic rice farming for "clean" rice production (in the framework of WTO green box subsidies).

Box 3.5: Use of proper terminology

A "baseline", also referred to as "business as usual" scenario, describes what will happen to selected indicators if there were no policy change and if existing trends continue.

The current situation or status quo is different, because there can be changes from the status quo due to naturally occurring changes and effects of other policies in existence.

Scenarios are hypothetical situations that take into account uncertainties of certain driving forces, and are used to design policy objectives

Policy options are different sets of policy actions in order to realise a set objective. Usually there are: a zero policy option (no policy change), the proposed policy and alternative policy options. Different policy options are commonly referred to as scenario options, including the baseline scenario and different policy scenarios.

driving forces affecting future development. The most likely scenario, can be selected from established ones and, based on that, it is possible to define policy objectives as a response to the most likely scenario. Policy options are then designed to realize these objectives. Policy options that are good for every scenario are the so-called "no-regret options".

Scenario building is sometimes associated with forecasting, which is also used to predict future events, but uses calculations based on historical data. Forecasting typically uses data that have been collected on some events over time and uses them to project trends into the future. Forecasting takes into account forces that influence current trends and offers more sophisticated method of predictions then simple extrapolation of current trends.

5. *Adopt participatory methods.* Trends and scenarios can be established in a participatory way with different stakeholders, and their implicit knowledge should be combined with quantitative data to generate overall insights. Doing this jointly with key stakeholders will help build awareness on current and future trends. Also, using different sources of information may reveal various uncertainties.

References and tools

See Annex 1 for Tools: Trend analysis (Tool 8) and Scenario building (Tool 9)

might aggravate policy problems. Sometimes poorly designed policies can be worse than no policy at all.

4. *Build up scenarios.* Scenario-building is a process of dealing with uncertainties regarding driving forces. The aim is to design hypothetical situations that incorporate important uncertainties in terms of

Figure 3.5: Trend of real prices of paddy rice, urea fertilizer and poverty rate during the 1990s
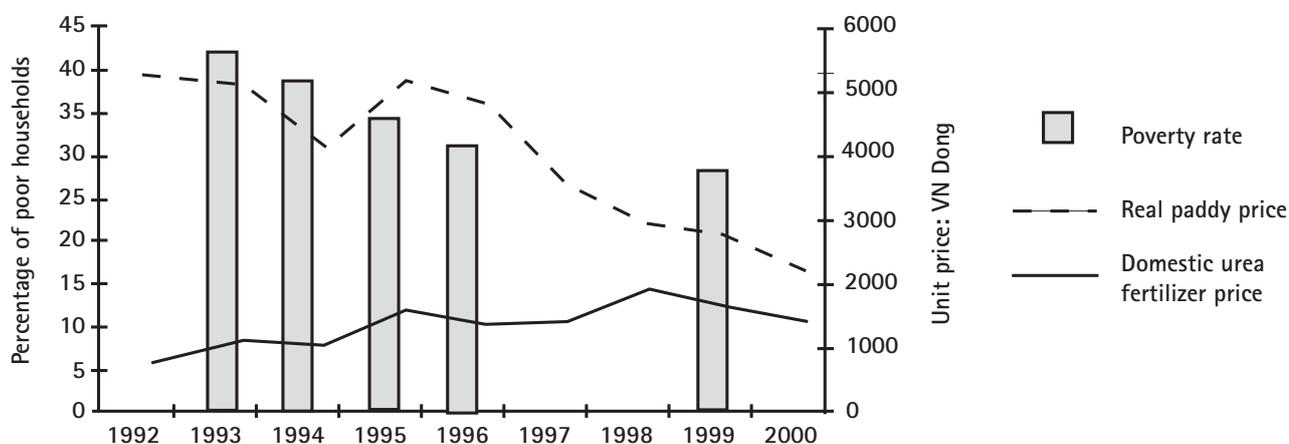
Application to IA of biofuels policy – the opportunity presented by jatropha

Places that struggle to feed populations, such as Mali and the rest of the arid Sahel region, can scarcely afford to give up cultivable land for growing biofuel crops.

Jatropha can grow on relatively poor quality land with relatively little rainfall. It can also be planted beside other crops without substantially reducing the yield of the fields. Other biofuels, such as ethanol from corn and sugar cane, require large amounts of water and fertilizer, and factory farming in some cases consumes substantial amounts of petroleum, making the environmental benefits limited, critics say.

In Mali a community-based system of generating biofuel from jatropha was set up. Jatropha plantations are indigenous and basically constitute hedges around croplands, providing protection against erosion. Thus, there is no competition with food crops. Farmers gain an income by selling the jatropha nuts while the local cooperation processes the nuts into biodiesel. Local small-scale projects aimed at local problems – such as the lack of electricity and rural poverty – are blossoming across Mali and many use the existing supply of jatropha to fuel specially modified generators in villages far off the electrical grid.

The above "solution strategy" meets several policy objectives including those of local rural energy supply and poverty reduction, while avoiding negative impacts on biodiversity and food security like many other biofuel crops.

C3: Identification of opportunities and formulating alternative policy options

Purpose: To formulate alternative policy options that can generate results in line with strengthening sustainability issues and positive outcomes.

Minimum requirements: Opportunities are identified in a proactive way and alternative policy options that enhance sustainability objectives are defined; these should be attractive to policymakers as they demonstrate how they can help achieve sustainability objectives and realize sustainability benefits.

Guidelines

1. *Identify opportunities and early actions.* A proactive approach to defining opportunities to realize sustainability benefits is attractive for policymakers, compared with focussing on mitigating or compensating negative impacts. Early actions may be useful to support alternative options, by generating quick results with limited preparation and inputs. Even if commitment has already been provided on a proposed policy option, an IA can contribute to improve the proposed policy by developing a policy package that includes opportunities or early actions for more sustainable outcomes.

2. *Use different methods to identify opportunities and early actions.* There are different ways of identifying alternative options that may enhance sustainability outcomes:

- Trend analysis and scenario work, which provides insight into required policy change;

- Assessment of the impacts of proposed policy options (see next building block);

- An inventory of ongoing promising initiatives and projects; and

- Consultations with private sector and civil society organizations, e.g. grassroot organizations.

3. *Design alternative policy options.* The identification of alternative policy options enables a wider range of possible ways of achieving intended sustainability objectives with the least risks from any ESE consideration. IA assesses alternatives at the national and sector levels in a proactive way. It can, for example, assess the convenience of using forests for economic activities that preserve the sector – such as ecotourism – instead of extractive or agricultural activities that reduce forest cover and its supply of environmental services. The aim is to elaborate policy options which combine "the best of all". Alternative policy options may be based on identified opportunities and early actions. Realizing sustainability outcomes may also require proper sequencing, focusing and combining a mix of policy measures.

Box 3.6: Examples of alternative policy options

1. **The cotton sector in Mali.** Following detailed modelling of the cotton production system in relation to land-use, a policy package was proposed consisting of the following measures: increased insecticide price, introduced biological engineered cotton (Bt cotton), optimized fertility management, taxed grazing rights, secured access to land and inputs for poor farmers, improved employment opportunities. While each of these measures by itself has positive impacts, only the combination of these measures will allow poor farmers to come out of poverty, while securing the export cotton market and assuring sustainable management of remaining natural ecosystems. This policy package should inform, inspire and influence policymakers.

2. **The soy sector in Brazil.** It is expected that the demand for soy will increase by 60 per cent by 2020. Two scenarios have been elaborated that sketch future developments. Under the business-as-usual scenario, soy continues encroaching on natural savannahs and existing pastures, "pushing" cattle ranchers and small farmers into the forest. This is expected to result in conversion of 22 million hectares of savannahs and tropical forests by 2020. Under the better-policies-and-practices scenario the expansion of soy production is met by intensification, integration with ranching and rehabilitation of degraded agricultural lands. The following policy measures are combined into one policy package: adoption of more sustainable soy production practices, local governments enforce existing legislation, integration of soy farming and cattle ranching, and rehabilitation of degraded agricultural lands. This policy package option is expected to reduce conversion for soy to 3.7 million hectares, and is able to accommodate 23 million heads of cattle on soy-growing land.

Box 3.7: Opportunities and early actions

An opportunity is an existing fact or situation, which has the potential to enhance sustainability objectives, by being further developed, expanded or replicated. Ideally, opportunities have potential positive benefits on triple sustainability dimensions (ESE issues and indicators), and thus form the basis for alternative policy options. Opportunities have long- or medium-term orientation. An early action or short win is interpreted as generating short-term benefits, and generally is a relatively simple technique, not requiring much financial support and having a high popularity or attractiveness (i.e. not open to debate).

To systematically identify opportunities and early actions, the following questions are relevant:

- What are the natural resources with high potential but so far poorly exploited or managed? Are there sustainable initiatives to make economic use of these resources?

- What are the ongoing land-use changes with potentials to strengthen certain ecosystem functions or values?

- What are the promising initiatives to strengthen sustainability objectives? What are good practices in terms of poverty alleviation and strengthening ecosystem services?

- What initiatives are ongoing to overcome root causes? What policies are emerging to address the structural causes of sustainability problems?

- What sustainability initiatives are being taken by the private sector? What initiatives are being taken by civil society organizations? Do these initiatives strengthen sustainability, or tackle certain root causes? Are they relevant enough to be supported by the new policy?

- Where do we find financial resources available to strengthen sustainability initiatives?

Example from Integrated Assessment of the rice sector in Viet Nam

An IA, supported by UNEP (UNEP 2005a), was carried out in Viet Nam of the impact of trade liberalization on the rice sector. The alternative policy option being proposed is based on the impacts that have already been identified, and is aimed at the strategy to stimulate so-called "clean rice" production. This has also been triggered by the opportunity presented by increasing global demand for organic products. The most important elements were:

- Building awareness of environmental and other impacts resulting from rice intensification by including environmental education in public channels and extension systems;

- Sensitizing policymakers to the environmental impacts by initiating an appropriate policy dialogue that will encourage integrating environmental costs into the use of pesticides and chemical fertilizers in rice cultivation through bans or taxes;

- Enhancing policy dialogue to reduce and stabilize plans for rice production and export, and improve the quality and price of rice for export;

- Promoting integrated and/or organic rice farming including Integrated Pest Management (IPM), by providing research and technical support to diversify farm production and develop non-farm rural small businesses; and

- Continuing with further trade liberalization in the agricultural sector with specific measures and policies on purchase, stocking, and exporting rice.

References and tools

Strategic Environmental Analysis Toolbox: see http://www.seanplatform.org/, Steps 7 and 8 on analysis of opportunities.

Tools such as expert panel (Tool 2), matrices, scenario building (Tool 9) and MCA (Tool 10).

Participatory tools such as expert panel (Tool 2) and focus groups (Tool 3).

C4: Assessment of impacts (risks and benefits) of policy options

Purpose: To compare proposed and alternative policy options by assessment of impacts, including risks (negative impacts) and benefits (positive impacts), as a basis for decision making.

Minimum requirement: Compare and assess proposed and alternative policy options with respect to expected impacts (risks and benefits), based on best available knowledge including trends and stakeholder consultation; results are used to inform policymakers and formulate guidelines for implementation.

Guidelines

1. *Select assessment tools that are fit-for-purpose.* Selected assessment tools should primarily be fit-for-purpose; i.e. have the potential to generate timely and convincing results for policymakers. Tools are not primarily selected on the basis of their analytical rigour or technical qualities. To select appropriate tools, make an inventory of relevant assessment experiences in the country and make an overview of the tools and approaches that have been used. Select tools on the basis of the checklist (Box 3.9). It is important to ask which tools have generated convincing results for policymakers. It is recommended that IA teams select the simplest tools capable of providing the necessary information. In many cases a combination of quantitative and qualitative tools can be used, i.e. qualitative analyses, consultations and judgements, and tools delivering quantitative data.

2. *Develop a simple decision matrix.* A decision matrix shows proposed and alternative policy options down the rows and decision criteria/indicators across the columns (see Box 3.10). Any cell in the decision matrix contains the projected outcome of the policy option as assessed by reference to the column criterion/indicators. The general criteria in the decision matrix can be aligned along the ESE dimensions. Each can be reflected through one or more indicators, which can be qualitative, quantitative, or expressed in monetary terms.

Box 3.8: Scenario options

Different policy options are often presented as "scenarios", including uncertainties with respect to the expected policy measures that will be taken. These scenarios might be referred to as "scenario options", to distinguish these from scenarios used to assess different hypothetical futures. The following scenario options are often depicted:

- One scenario is the baseline scenario, which is the trend when no policy change occurs;

- The expected policy scenario, which takes as a basis the expected policy change; and

- The alternative policy scenario, which includes policy options aimed at optimizing sustainability objectives.

3. *Analyse impacts (risks and benefits).* An insight into cause-effect chains and analytical framework will help better understand and establish the linkages between the policy options and relevant sustainability issues and indicators. Particular attention should be given to cumulative effects, indirect effects and distributional effects. Relevant questions are: Where is the entry point of the policy option and how does it work through the cause-effect chain? Make sure to understand the causalities, the extent of the impacts and which associated social groups will be affected. Make a distinction between short- and long-term impacts. What is typically missing, however, is the application of system tools and techniques that consider the interactions across the ESE domains over a long period of time, beyond 5-10 years, a major characteristic of sustainability concerns. Elements of an approach that can help undertake this Integrated Assessment task are the following:

- Build up a good analytical framework with the interaction between ESE issues;

- Build up profound insight in the current situation and a baseline alternative;

- Gain insight in driving forces of current trends and how policy options influence these;

- Use methods for understanding complex system dynamics.

4. *Analysis of policy options.* Relevant questions to ask about the baseline and other policy options are: How will they influence current trends? How will they influence driving forces? What are their expected positive and negative impacts on trends? Which of these trends represent risks? Which are opportunities? Who are the winners and who are the losers? What are the cumulative impacts?

Box 3.9: Guidance on assessment tools and impact assessment

Many tools and techniques are available for assessing the implications of policy options against sustainable development criteria and indicators. Cost-effective analysis, cost-benefit analysis, multi-criteria analysis, CGE models, for example, have been used to measure the efficiency of policy options, surveys to gauge the potential equity implications, and spatial modelling to depict environmental changes. These tools can be applied for a variety of purposes, not only for causal analysis of the issue in question and financial feasibility analysis at the policy formulation stage, but also for projecting the ESE implications of policy options at the decision-making stage. Natural resource valuation is another approach to enable the comparison between different policy options.

Primary criteria for selection of IA tools:
- Fit-for-purpose;
- Acceptable by decision-makers and stakeholders involved in the planning process;
- Complementary to tools already used in the policymaking process; and
- Applicable (i.e. the IA team has access to persons with experience in using this tool).

Secondary criteria for selection of IA tools:
- Demand for data (inputs);
- Costs and time requirements;
- Ability to deal with uncertainties; and
- Transparency (of the process and outputs).

Where can feed-back loops be expected? A sensitivity analysis can be conducted in order to deal with uncertainties.

5. *Quantify impacts where needed.* For quantifying impacts, economic tools such as cost-benefit analysis, cost of environmental degradation and economic valuation of ecosystem services are recommended. Economic valuation attaches monetary value to ecosystem services as a basis for evaluating these in economic terms with other costs and benefits of policy options. Multi-criteria analysis could be used as a systematic semi-quantitative approach to this building block (see Annex 1).

6. *Deal with uncertainties.* Each IA process is constrained by numerous uncertainties. These may be caused either by the lack of data or by limitations in analytical approaches and tools. It is important to ensure that uncertainties are properly understood and acknowledged, which is a sign of an advanced professionalism and solid judgement. Thus, well documented uncertainties or limitations in the IA will increase the quality and credibility of the entire IA.

7. *Draw conclusions relevant for decision making.* The assessment may demonstrate policy options with unacceptable sustainability risks or "no-gos", where norms or thresholds are being surpassed. On the other hand, alternative policy options may have good potentials to strengthen certain sustainability objectives and generate benefits.

References and tools

Annex 1 : Multi-criteria analysis (Tool 10)

Tools for sustainability assessment: http://ivm5.ivm.vu.nl/sat

SEA Toolbox of World Bank for cost-benefit analysis, cost of environmental degradation analysis, multi-criteria analysis (http://www.worldbank.org/seatoolkit)

Example from Integrated Assessment of the rice sector in Viet Nam

An IA, supported by UNEP (UNEP 2005a), was carried out in Viet Nam of the impact of trade liberalization on the rice sector. A range of methodologies was adopted, including both quantitative and qualitative ones, as well as ex-post and ex-ante analyses:

For qualitative analyses, a field survey was conducted in the Red River Delta (northern Viet Nam) and the Central Coast area, involving rice farmer households. A PRA exercise was conducted to validate available data and supplement it with primary data on rice production.

For quantitative analyses, the assessment quantified the impacts of trade liberalization on rice production, rice exportation, and rice price. The aim was to determine the economic impacts of the tariff reductions under various global and regional trade agreements.

A quantitative model was applied to quantify the impact of further trade liberalization on the use of urea fertilizer in rice production. The model allowed the incorporation of regression models for non-linear supply and demand functions as well as the simulations for trade liberalization with different trade factors. The quantitative framework included the following scenario options:

- A base scenario as a reference to compare other trade or policy options. In this scenario the studied indicators (rice production/supply, rice exportation, rice markets, fertilizer markets, fertilizer production) were simulated at the same rate as for the year 2002 without further trade liberalization.

- Alternative scenario options included the effects of further trade liberalization in quantifying the same indicators. Trade liberalization factors included in this study were the different options on the tariff reduction under current agreements; the participation of non-state enterprises in exports and imports (resulting in decreased transaction costs); and the reduction of rice growing areas as part of diversification from rice.

Box 3.10: Decision matrix applied to Integrated Assessment of biofuels policy

The following table is part of a decision matrix that brings together many of the insights and results of the IA of the biofuels policy. Wherever possible, indicators and scores must be quantified, e.g. in economic terms according to economic valuation techniques.

Criteria and indicators	Option A: Large-scale sugar–ethanol	Option B: Small-scale local jatropha
Carbon emission balance comparison		
● Production	Negative	No effect
● Processing	Positive	No effect
● Consumption	Positive	Positive
Competition with food		
● Land-use change	Negative	No effect
● Food crops volume	Positive and negative	No effect
● Food prices	No effect	No effect
Biodiversity		
● Deforestation rate	Positive and negative	Positive
● Impact on protected areas	No effect	No effect
● High conservation value areas	No effect	No effect
Local economy		
● Employment	Positive	Positive
● Local processing	Positive	Positive
● Rural energy	No effect	Positive

C5: Monitoring and evaluation

Purpose: To monitor implementation of the policy and its sustainability implications.

Minimum requirement: A record of performance is made throughout the policy life cycle, using monitoring systems, of policy implementation and IA recommendations, including performance on key sustainability issues, risks and benefits. Results are evaluated to enable timely intervention and correction of problems.

Guidelines

1. *Define indicators associated with defined key sustainability issues.* Normally, indicators for key sustainability issues have been defined at an earlier stage of the IA process in order to assess impacts of policy options. However, a selection may be made for monitoring purposes. Indicators should preferably be measurable and relatively easy to monitor.

2. *Define a monitoring system.* Important elements of an effective monitoring system are: selected indicators, frequency and methods of monitoring, responsibilities for data collection and analysis of results, available budget and capacities. The monitoring system also describes the communication channels that will ensure how results of monitoring are used by management and policymakers for decision making. Responsibilities for monitoring will vary depending upon the nature of the indicators that were defined.

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World Bank, 2005. Integrating environmental considerations in policy formulation: lessons from policy-based SEA experience. Report no. 32783. World Bank, Environment Department.

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Annex 1: Detailed guidelines on selected tools

Tool 1: Stakeholder Analysis and Mapping (SAM)

Purpose: Stakeholders are people, groups, or institutions with specific rights and interests in an issue or sector, and related powers, knowledge, and skills. SAM identifies and analyses stakeholders to enable decisions to be made on who to involve in addressing particular issues. It can be used when key stakeholders need to be identified. SAM is also an essential input to gender analysis and poverty analysis.

Description: There are hundreds of slightly different approaches to SAM, most of which are associated with project planning. The challenge in using SAM in IA is to carry it out in an effective and efficient way, knowing its specific purpose. The following typology of stakeholders may be relevant for an IA:

- Primary stakeholders are those likely to be affected, positively or negatively, by the issue or plan; here an IA aims to pay special attention to the poor and marginalized;

- Secondary stakeholders are intermediaries in the planning process and its implementation; they generally have critical interests, knowledge, and expertize;

- Key stakeholders are those who can significantly influence the planning process, and generally have much power.

SAM can be a social study in itself or a quick approach to gain useful insights. The following are some basic steps. Much of the following information is obtained from the Sustainable Development Strategies Resource Book Chapter 5 (see references).

1. Draw up a stakeholder table

Make a full list and, based on that, a shortlist of stakeholders, classified by primary, secondary and key stakeholder categories. Each stakeholder can be scored using the following criteria: their position, their interests, their level of power, their role in the planning process, their potential negative and positive impacts. This can be done through brainstorming, semi-structured interviews, use of existing data and information, or analysis of past events or policies. Make a shortlist by clustering and highlighting critical values for these criteria.

2. Analysing the relationships between stakeholders

Understanding the relationships between critical stakeholders is important to know how they influence each other, and thus provide insight in potential coalitions and conflicting interests. There are different ways of visualising these relationships.

3. Analysing power relations

It might be useful to analyse the power relations in greater detail in order to know who is in charge and how best the planning process can be influenced. Types of power to be considered are: managerial power, executive power, bargaining power, and positional power. Next, an overview may be made that indicates for each stakeholder: their numbers, their potential to influence the planning process in a positive manner, and their power to influence the planning process.

4. Drawing conclusions on appropriate approaches

Based on previous steps and outcomes, the next question would be: who to involve, when and how? Participation and consultations are costly, so it is critical to find out who are the critical stakeholders to involve, by what methods, and at what moment. These questions may be further elaborated with the following classification:

- Stakeholders to be represented in the steering committee;
- Stakeholders to be consulted in view of their expertise and interests;

- Stakeholders to be involved as partners or co-researchers;

- Stakeholders to be directly involved and kept well informed in view of their major powers; and

- Stakeholders to be considered as potentially affected by the new plan or policy.

Data, cost, and time: The requirements are small.

Uncertainties: Power relations may be difficult to judge.

Transparency: Social conflicts or power relations may be too sensitive to discuss in an open manner.

Pros:

- SAM is a well-established approach frequently used;

- Various tools and schemes exist for portraying the results of a stakeholder analysis in a visible and simple manner; and

- One can get good preliminary insights with limited time.

Cons:

- Every classification of stakeholders may be criticized, there is no perfect fit;

- Conflicting interests and power relations may be too sensitive to assess or discuss;

- One can easily spend too much time on SAM;

- SAM does not provide any solutions; and

- More detailed information requires social or cultural expertize.

References:

Most information was obtained from Chapter 5 in the Sustainable Development Strategies Resource Book (http://www.nssd.net/pdf/resource_book/SDStrat-05.pdf).

Other useful web-sites were found to be: http://www.euforic.org/gb/stake1.htm for general information, and

http://www.carleton.ca/~jchevali/STAKEH2.html for stakeholder analysis in natural resources management.

Tool 2: Expert Panel (EP)

Purpose: EP is a means of organizing expert opinions. It aims to synthesize complex information and provide a vision or recommendations for future possibilities for the topic(s) under analysis.

Description: EP is particularly appropriate for issues that require highly technical knowledge or are highly complex and require the synthesis of experts from different disciplines.

The preparation for an EP includes specifying the tasks, determining the desired composition of the panel, and then recruiting panel members, a panel chair and support staff. After agreement on the tasks has been reached the panel should be responsible for the approach to be taken and the substance of the report or other products. The EP is expected to investigate the topics assigned and set out its conclusions and recommendations in written reports, which then can be presented to a broader audience.

It is important to consider the composition (mix of expert knowledge and experience) and balance (representation of differing points of view). Members of the panel should serve as individuals, not as representatives of organizations or interest groups. The panel participants should be diverse with different types of players who do not normally meet. Panels need to be chaired and facilitated effectively to maintain motivation and morale, resolve conflicts, monitor timetables and external constraints, and prevent over-dominance of strong personalities. The main steps are:

- Define project (aim, tasks, limitations, and disciplines required);

- Recruit panel members and support staff (consider composition and balance, role of panel chair and technical writer, interview and select potential panel members);

- Conduct expert panels (set meeting objectives and agenda);

- Prepare expert panel report (decide on structure, writing assignments, coordination, editing);

- Present and disseminate expert report to broader public; and

- If accepted, implement recommendations.

Data, cost, and time: Information is needed to synthesize and form judgement, but there is a low requirement for quantitative data. Major cost items are personnel (mainly honoraria), travel, accommodation, food, facilities, and communication. There is a low time requirement.

Uncertainty: Assumptions dealing with uncertainty can be made as part of expert judgement.

Transparency: Information on panel members (and their background) is available, but the decision-making process within the panel is only known to those actually attending the panel. The public will have limited access to final report.

Pros:

- Relatively easy to organize (low cost and time requirements).

Cons:

- Result dependent on composition of EP and availability of relevant experts.

References:

Participatory methods toolkit, A practitioner's manual, King Baudouin Foundation and UNU/CRIS, 2003

(http://www.cris.unu.edu/pdf/ participatory%20methods%20toolkit.pdf) pp. 87–95.

Royal Society of Canada (1998) Expert Panels: Manual of Procedural Guidelines. Version 1.1. Ottawa (Ontario), Canada. (Source: http://www.viwta.be/ files/ToolkitExpertPanel.pdf).

Tool 3: Focus Groups

Purpose: A focus group is a form of organizing a planned discussion among a small group (4–12 persons) of stakeholders facilitated by a moderator. It aims to obtain information about various people's preferences and values pertaining to a defined topic by observing the structured discussion of an interactive group in a permissive environment. A focus group can be seen as a combination between a focused interview and a discussion group. Focus groups can also be conducted online. They are not designed to provide information to the general public or respond to general questions, nor are they used to build consensus or make decisions.

Description: Focus groups are particularly useful when the reasoning underlying participants' views is of interest. They are also useful for participants to influence each other's ideas and opinions in the course of discussion.

A focus group needs to build synergy and secure cooperation from its members. It is therefore crucial that communication be open and trust be built quickly. This helps encourage new ideas. It is necessary to choose the right focus group members, as well as a facilitator, in order to make the information flow positively.

To prepare for the focus group event, at least three staff members must first determine the questions to be addressed by the focus group and the targeted participants. Next, the focus group participants and a moderator are recruited. At the focus group event, which usually lasts for a few hours, the moderator leads the group through a semi-structured discussion to draw out the views of all participants and then summarizes all the main issues and perspectives that have been expressed. After the event the research staff analyses all results of the focus group(s) and produces a report. The main steps in this process are:

- Define the purpose of the focus group;

- Recruit the staff required (one moderator and two support staff);

- Determine the targeted participants and the characteristics of each of the focus groups;

- Determine the questions to be addressed (two to five questions of topics to drive the focus group discussion);

- Conduct the focus group: In the introduction explain what the results of the focus groups will be used for, emphasize that one person speaks at a time and that all point of view are important to the discussion. Open the discussion with a warm-up question and move to the other questions.

- Conclusions: Moderator briefly summarizes the main points. The session should be recorded to ensure that all opinions are taken into account;

- Prepare a report of the individual focus groups in a question-by-question format and compare the results of individual focus groups;

- Prepare a report (it could be structured by question or by theme); and
- Share the report with participants for verification and then revise the report.

Data, cost, and time: Data requirement is low. Cost includes the following items: personnel (particularly honoraria), travel, accommodation, food, facilities, and communication. The amount mainly depends on honoraria for participants, travel cost, and the number of focused groups). Focused groups require at least one month of planning plus the time required for writing the final report.

Uncertainty: N/A.

Transparency: Information on focus group participants is available, but the discussions and recommendations are only known to those actually participating in the group. The general public will only have access to the written report that summarizes the results of the individual focus groups.

Pros:

- Relatively simple and easy to organize.

Cons:

- The multiple voices of the participants and the flexibility may result in limited control over the focus group process. Sometimes group expression can interfere with individual expression and the results may reflect "groupthink".

References:

Participatory methods toolkit, A practitioner's manual, King Baudouin Foundation and UNU/CRIS, 2003(http://www.cris.unu.edu/pdf/participatory%20methods%20toolkit.pdf) pp. 87-95.

Dürrenberger, Gregor. Focus Groups in Integrated Assessment: A manual for a participatory tool.

Einsiedel, A., Brown L.,& Ross, F. (1996). How to Conduct Focus Groups: A Guide for Adult and Continuing Education Managers and Trainers. University of Saskatchewan: University Extension Press.

Gearin, E. and Kahle, C. (2001) Focus Group Methodology Review and Implementation.

ICIS Building Blocks for Participation in Integrated Assessment: A review of participatory methods.

Kruger, R. Analysis: Systematic Analysis Process. www.tc.umn.edu/~rkrueger/focus_analysis.html.

World Bank. Social Analysis: Selected Tools and Techniques. World Bank Social Development Paper Number 36, June 2001.

Tool 4: Household Surveys

Purpose: A survey generates detailed information. Its purpose is to enable investigation and description of a topic of interest. It describes phenomena in the original language of those surveyed in rich descriptive detail, establishes personal contact with stakeholder groups and enhances stakeholder participation in the process. It can be used when stakeholders need to be mobilized and basic qualitative data and information needs to be gathered.

Description: A survey can be anything from a short feedback form to an intensive one-on-one in-depth interview. Surveys can be divided into two broad categories: questionnaire and interview. Questionnaires are typically paper-and-pencil instruments that respondents complete. Interviews are completed by interviewers with the help of respondents.

Types of questionnaires:

- *Mail survey* (inexpensive to administer, can reach a wide number of people, allows the respondent to fill it out at own convenience, but usually low response rates);
- *Group administered questionnaire:* A sample of respondents is brought together and asked to respond to a structured sequence of questions (high response rate, possibility for clarification);
- *Household drop-off survey:* A researcher goes to the respondent's home/business and hands the respondent the questionnaire (the respondent can work on the instrument in private, establish personal contact, possibility for respondent to ask questions about the study and get clarification).

Types of interviews:

Personal interview: (opportunity to probe or ask follow-up questions, easier for the respondent, but

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very time-consuming and resource-intensive, interviewers have to be well trained);

Telephone interview: (enables a researcher to gather information rapidly, allows for some personal contact and the asking of follow-up questions, but many people don't have publicly-listed telephone numbers, sometimes not even telephones).

Selecting the type of survey to be used is a critical decision and should be guided by a few simple guidelines:

- *Population and its accessibility*: Enumeration, literacy, language or cultural issues, willingness to cooperate, geographic restrictions;

- *Sampling issues*: Data availability and completeness – addresses/phone numbers/contact lists, ability to locate respondents, persons to respond (head of household, adult members who open the door, company director or staff member, taking into account response rates;

- *Question issues:* Types of questions to ask – personal or professional questions, level of details, length, complexity, knowledge of respondent, sequencing of questions;

- *Content issues:* Knowledge of the respondents about the issue, necessity to consult records;

- *Bias issues*: Social desirability – to "look good", interviewer's distortion and subversion, possibility of false respondents; and

- *Administrative issues/feasibility of the survey method:* Costs, facilities to process and manage the study, time, personnel.

Main steps to undertake a survey:

- Define a topic for research and design the research;

- Select an appropriate type of survey using the above guidelines (considering the objectives of the survey and the circumstances);

- Determine the content, scope and purpose of the questions;

- Choose the response format for collecting information from the respondent (structured or unstructured questions);

- Work out how to word the questions to get at the issue of interest (how well do the questions address the content, are they necessary, useful, needed, too

general, too specific, biased, loaded, do the respondents have the information, and can they answer truthfully?);

- Decide how best to place questions in the survey (opening questions and placement of sensitive questions, possible influences between questions);

- Undertake survey and compile responses (send out questionnaires, conduct interviews);

- Prepare data for analysis (checking the data for accuracy, entering the data into the computer, transforming the data, and developing and documenting a database structure that integrates the various measures);

- Describe the data (simple summaries about the sample and the measures, simple graphics analysis);

- Write up research results in a report (consider audience, the story to tell, the format); and

- Present and disseminate report to audience (including respondents).

Main steps to be taken for interviews:

Interviews require sensitivity and adaptability as well as the ability to stay within the bounds of the designed protocol.

Step 1 – Preparation

- *Define main tasks for the interviewer:* Locate respondents and secure their cooperation, motivate respondents to do a good job, clarify any confusions and concerns, observe quality of responses, conduct a good interview.

- *Train the interviewers:* Main topics – background, importance and sponsor of the study, rationale of the survey, sampling logic and process, interviewer bias, walk through and rehearse the interview, respondent selection procedures, supervision, and scheduling.

- *Prepare interviewer's kit:* Notebook, maps, sufficient copies of the survey instrument, official identification, cover letter from the principal investigator or sponsor, and a phone number that respondents can call to verify the interviewer's authenticity.

Step 2 – The interview

- *Opening remarks:* Gaining entry, create atmosphere of professional confidence and trust, introduce

yourself and the organization, show your ID, explain the study, mention confidentiality and voluntary participation.

- *Ask the questions:* Use the questionnaire carefully, but informally, ask questions exactly as written, follow the order given, ask every question, don't finish respondents' sentences for them.

- *Obtain adequate responses:* Allow silence, encourage, elaborate, ask for clarifications, and repeat.

- *Record the response:* Record responses immediately, include probes, use abbreviations where possible to capture more of the discussion.

- *Conclude the interview:* Thank the respondent, give a date for expected results, allow time for winding down the conversation, write down any notes about how the interview went immediately after leaving.

Data, cost, and time: Primary data will be gathered but it is also necessary to have contact details of respondents of the desired sample (addresses, telephone numbers, information about location). Cost and time requirements depend on the type of survey selected: it will be relatively lower for questionnaires sent by mail, higher for interviews as interviewers need to be employed (including training and travel).

Uncertainty: N/A.

Transparency: All primary data gathered will be documented in a structured way, but there are risks of bias (selection of sample, interviewer bias, and social desirability). During analysis and report writing, it is possible to interpret and present results giving rise to certain tendencies.

Pros:
- Stakeholder participation with detailed analysis of an issue (possibility to establish personal contacts and outreach to wider audience);

- Possibility to gather data on complex and sensitive topics in a structured manner, including opinions and feelings.

Cons:
- Data need to be compiled and analysed in order to find entry into the decision-making process;

- Interview-based surveys require a lot of time

and, depending on circumstances, can turn out to be costly;

- Results of the survey depend on the selection of the sample and the willingness of the participants to cooperate.

References:

Description based on Trochim, William M. The Research Methods Knowledge Base, 2nd Edition. See: http://www.socialresearchmethods.net/kb/

Tool 5: Sustainability Framework and Indicators

Purpose: Sustainability frameworks present indicators and benchmarks to enable the measurement of sustainability performance and the assessment of impacts of projects and policies against a reference framework. To be practical, general sustainability principles must be translated into concrete indicators. Generally, sustainability frameworks can enable decision-makers to identify problems, track trends, set priorities, understand policy trade-offs and synergies, target investments, and evaluate policies and programmes.

The IA process can identify existing sustainability frameworks, assist in developing these, and evaluate options and assess subsequent trade-offs against established frameworks.

Description: There are many different types of sustainability frameworks. All of these show a systematic structure, which may include the following elements in a logical hierarchy: vision, goals, objectives, rules, principles, criteria, indicators and variables. Indicators must be measurable and may be accompanied by different types of target values:

1. Standards, bottom-line or threshold values which indicate the minimum indicator value in order to avoid undesirable or irreversible change;

2. Target values which indicate the optimum indicator value to be reached in order to meet certain objectives or societal aspirations;

3. Target values that reflect current benchmarks in terms of sustainability performance in other countries or regions.

Steps:

1. Designing a sustainability framework

Sustainability frameworks should come from wide consultation. In the absence of such consultation, countries often use standard indicators such as those developed by the United Nations Commission on Sustainable Development (CSD) or the Global Reporting Initiative (GRI). However, the development of country-specific sustainability frameworks with indicators, or even at regional (provincial) or local (municipality) level, are preferred because i) their development is a participatory process that contributes to increased awareness, and ii) indicators and benchmarks will be more relevant and realistic. Similarly, specific sustainability frameworks can be developed for certain sectors.

The design of a sustainability framework normally starts with agreement on a vision and overall sustainability objectives. In particular this should take into account issues of intra- and inter-generational equity. From there on, one needs to identify practical indicators to measure the level of sustainability. These should first of all address the critical environmental, social and economic sustainability issues within the country, region or sector. Indicators must be relevant, measurable, cost-effective to measure, focus on the longer term and yet be easy to understand. Bottom-line standards and target values may be based on best professional knowledge and science, expert judgements or public panels.

2. Evaluating options

Firstly, the objectives of a policy or plan can be evaluated against established sustainability objectives. Alternatively, sustainability objectives may be integrated into the new policy or plan. Secondly, concrete options or activities proposed can be evaluated against the sustainability indicators, and possible impacts can be assessed by comparing them against stated sustainability bottom-lines or target values.

3. Establishing sustainability indicators for monitoring

Based on the evaluation described above, and using the results from trend analysis, sustainability indicators relevant to the policy or plan can be identified. These indicators are used to monitor

whether the policy or plan will affect relevant and critical sustainability issues.

Data, cost, and time: These are variable, according to the scientific focus and whether consultations and research are extensive or simplified.

Uncertainties: May be covered in the sustainability framework

Transparency: Having the sustainable framework with indicators and benchmark values enhances the transparency of policymaking.

Pros:

- Sustainability frameworks are one way of putting sustainability into practice;
- Design of a sustainability framework through a participatory process enhances awareness;
- There are many new initiatives and examples for inspiration, within both the private and public sectors and at different levels of scale.

Cons:

- A sustainability framework is just a decision-support tool, without any obligation;
- The focus is on quantitative measurements, but some sustainability issues are difficult to measure;
- Threshold values and bottom-lines are extremely difficult to define; and
- Many systems tend to be system-oriented, instead of performance-oriented.

References:

UNEP: use of indicators and state-of-the environment reporting: http://earthwatch.unep.net/.

UN Commission on Sustainable Development: www.un.org/esa/sustdev/.

UNDP: Human Development Index as a measure of human development of individual countries based on a set of indicators: www.undp.org.

Environmental Sustainability Index report: www.yale.edu/esi.

Global Reporting Initiative: www.globalreporting.org.

Examples of local sustainability frameworks

can be found in Chapter 5 (p140) in the Sustainable Development Strategies Resource book http://www.nssd.net/pdf/resource_book/SDStrat-05.pdf.

Tool 6: Causal Chain Analysis (CCA)

Purpose: CCA identifies significant cause-effect links between a proposal and its economic, social, and environmental outcomes in a qualitative manner. CCA aims to enable decision-makers to consider the chain of effects that may be triggered by their decision. It can be used at an IA assessment stage.

Description: Kirkpatrick and Lee (Kirkpatrick and Lee 2002:32) use agricultural trade liberalization to illustrate the use of CCA. For example, assume there is a trade agreement to remove all import duties in all countries on a single agricultural commodity. Based on existing knowledge, the agreement is expected to increase, to varying degrees, both agricultural imports and exports in most countries.

There is therefore a cause-effect link between the agreement and foreign trade. This initial foreign trade effect will cause changes in the levels of production, income, employment, and investment (PIEI) in the agricultural sector in all the countries. These changes will have a feedback effect on foreign trade and, because of the links between the agricultural sector and other sectors in each country, there will also be changes in the levels of PIEI in other sectors, and these changes in other sectors will have a feedback effect on the PIEI in the agricultural sector.

The initial foreign trade effect, therefore, will have an effect on the overall PIEI in each country. This chain of effects does not stop there; environmental and social implications can be drawn out from each segment of the chain. These implications will produce additional feedback effects on the PIEI.

Data, cost, and time: These depend on the depth and scope of the effects to be traced and the extent to which the cause-effect links must be proven.

Uncertainty: Whether this tool is able to address uncertainty depends on the degree of ambiguity in establishing cause-effect links and feedback loops (theoretically and empirically).

Transparency: Medium to high; it depends on the extent to which the analyst is able to explain explicitly the assumptions and theories that help establish the cause-effect relationships.

Pros:

- CCA is flexible with respect to the depth and scope of analysis and thus can meet the varying analytical needs.

Cons:

- There is a danger of drawing of cause-effect links that are not well-grounded and overloading the analysis with potentially negligible factors.

References:

Belausteguigoitia, J. C. (2004): Causal Chain Analysis and Root Causes: The GIWA approach, Ambio, Vol. 33 No. 1–2, pp. 7-12.

Kirkpatrick, C. and Lee, N. (2002): Further development of the methodology for a Sustainability Impact Assessment of proposed WTO negotiations. Final report to the European Commission, Institute for Development Policy and Management, University of Manchester. See: http://www.enterpriseimpact.org.uk/word-files/MethodIAWWTOSumm-AIntro.doc.

International Waters Programme, supported by the Global Environmental Facility (IWP 2000): A Review of the Transboundary Diagnostic Analysis (TDA) Approach to the Preparation of Strategic Action Programmes (SAPs), Annex 8, International Waters Programme Study.

Schlegelmilch, R. (2003): Towards joined up thinking – Sustainability Impact Assessment for trade agreements. Report of the Proceedings, European Commission – DG Trade, Brussels.

WWF (2001): Macroeconomics for Sustainable Development: the Root Causes Analytical Approach, WWF International, Washington DC.

Tool 7: Root Cause Analysis (RCA)

Purpose: RCA is a structured investigation that aims to identify the true causes of a problem, and the options or actions necessary to eliminate it. It is seldom properly done and often considered an academic exercise, as it does not directly lead to solutions.

However, knowing the root causes and the actors involved is an essential starting point for designing sustainable solution strategies. This knowledge can be used at the IA preparation stage when the target for assessment is described.

Specifically, when examining the objectives of a project, programme, or policy, RCA can be used to analyse whether it addresses the root causes or merely the symptoms of a problem. RCA can also be used when recommendations need to be justified for their potential to address the root causes.

Description: WWF has developed an analytical approach to explore how different factors driving biodiversity loss work at different scales, and how they are linked to one another and to biodiversity loss (see references). AIDEnvironment has developed a systematic approach of identifying root causes, which takes social factors into account.

There is some misunderstanding about what root causes really are. Without entering into an academic discussion, we would like to propose the following sequence of elements in a cause-effect chain: problems > direct causes or symptoms > indirect causes > root causes.

The following steps are based on literature reviews, expert consultations, stakeholder workshops and interviews with key persons.

1. Define the main problems

Problems must be properly defined before undertaking steps to identify their root causes. What may be perceived as a problem by one stakeholder, may not be seen as such by another. A problem is basically the discrepancy between the current situation and the desirable situation. The desirable situation may be linked to a norm or standard. Priorities among possible problems may be defined according to the risks involved, their scale, the urgency, the number of stakeholders affected, etc. Make a full list and, using well-defined criteria, establish a shortlist. Remember that some problems may be related to each other.

2. Analyse the direct causing activities of the problems

What are the activities that directly lead to the problem? These are usually found near the problem, at local level. Activities leading to environmental problems may be classified as depleting, polluting or destruction activities. Together with the causing activities it is important to define the primary actors and stakeholders involved, i.e. those responsible for the activities.

3. Analyse the underlying causes and root causes

From a social perspective, the primary actors undertaking the causing activities are always influenced by others, making them act as they do. It is therefore important to understand why the primary actor undertakes these activities. Underlying causes are often found at a local or sub-national level, and may be associated with local or regional institutions (secondary actors). Subsequently root causes are identified; these are mainly found at national level. Research in root causes has led to the conclusion that root causes can be classified into five different categories:

- Demographic change;
- Poverty and inequality;
- Public policies, markets, and politics;
- Macroeconomic policies and structures; and
- Social change and development biases.

For each problem and set of root causes a conceptual model should be established to explain how and why the problem is related to the root cause or causes. Root causes must be identified in a specific way, and not in general terms. For instance, it has no purpose to speak about "perverse subsidies", but the actual subsidy should be clearly identified and spelled out.

4. Identify alternative options

Along with the root causes in any of these categories, the actor (or institution) responsible for this root cause should also be mentioned. Alternative options that would solve the problem should then be explored. These will also be suggested by primary or

secondary actors. Alternative options can help solve the problem through the chain of secondary and primary actors.

Data, cost, and time: Most information can be acquired through expert consultations and workshops. The cost is low, but a minimum level of consummations is required.

Uncertainty: N/A.

Transparency: Some root causes, such as corruption or illegal practices, may be too sensitive to mention or be discussed in an open manner.

Pros:

● Simple, and yet it provides important insights, and can be used to simultaneously raise awareness and involve stakeholders.

Cons:

● May become an academic exercise, as the list of possible root causes is potentially very long.

References:

AIDEnvironment has developed a systematic approach for analysis of root causes, which can be applied to social or environmental problems. For guidelines and checklists see:

http://www.seanplatform.org/products/toolbox/full/Steps/Step%206.htm.

WWF has developed a method for root cause analysis of biodiversity problems:

http://assets.panda.org/downloads/1_4_situation_analysis_2007_02_19.pdf.

Stedman-Edwards, Pamela. 1998. The Root Causes of Biodiversity Loss: An Analytical Approach. WWF, Washington, DC.

Robinson, Doreen L. 1999. Assessing Root Causes: A User's Guide. WWF, Washington, DC.

A good example of a root cause analysis can be from the Pantanal region:
http://www.oas.org/usde/ALTOPARA/rca.htm

Tool 8: Trend analysis

Purpose: Trend analysis is a basic requirement for any assessment or planning exercise. Trend analysis is defined as "an analysis of the variation in data or values over time, with the major purpose of extracting relevant information about changes in time, and where possible expressing this quantitatively".

Trend analysis can be used at the IA preparation stage when basic data and contextual information are generated and presented. It can provide data and information to support the application of other tools at the IA assessment stage, such as forecasting and scenario development. Trend monitoring is a related tool aimed at systematic collection of data on well-defined indicators, to assess progress and raise awareness on undesirable changes.

Description: Trend analysis, when used in an assessment exercise, makes use of existing data and information to gain insights into recent changes in critical environmental, social and economic spheres. It is a starting point for finding critical problem areas and finding underlying causes. Trend analysis is part of the background study and describes the reference situation, which is essential in order to assess the impact of new policies or programmes. Comparison of quantitative data with expert judgement is always advisable, particularly where data are lacking or unreliable. The analysis of trends may make use of statistical methods in order to draw convincing and quantitative conclusions.

Key steps:

1. Identify critical issues, parameters or indicators

Determine what are the important issues, parameters, or indicators related to the target for assessment. Make a full list and then a shortlist of the most critical issues. For social and environmental issues it is useful to distinguish between trends in quantities or stocks (e.g. forest cover, number of educated people) and qualities (e.g. forest quality, level of education).

2. Identify a time series based on existing sources of data and information

Make an inventory of existing data sources for establishing trends on selected parameters. This can

be done through a brief workshop with critical stakeholders. Determine which of the of existing data sets are suitable, i.e. which meet your criteria for data quality. Note the methods that were used to collect data and assess their reliability. Try to establish a time series. Where possible note the variability and uncertainties of data sets, and whether different methods were used. Identify critical gaps of information.

3. Visualize the trends

Before deciding how to visualize the trends, make sure you know who is your audience. There are different ways of visualising trends: time series scatter plots, smoothed scatter plots, bar graphs, time series boxes with statistical information (see reference 1). Basically, the question is whether you can do with a "popular presentation" or you need a "statistically sound" presentation including all the primary data. You may decide to present different trends in one graphic in order to see possible relations.

4. Analyse the time series

Determine whether it is useful to apply statistical methods to analyse trends. This depends on the purpose of the trend analysis and the type of audience. The statistical method to apply depends on data availability and type of trend. Some possible methods are: Sen slope or Kendall-Theil method, or Wilcoxon-Mann-Whitney step trend method. Simple regression analysis is useful to be able to draw a "best fit" line as close to all the data as possible. Different types of trends may be: normal distribution, linear, exponential, parabolic, logistic, with or without abrupt changes.

5. Analyse consequences of trends

The direction of trends, possibly backed up by statistical values, leads to a conclusion on whether the trend is desirable or not. Undesirable trends move towards bottom-line standards or thresholds. Trends may be ranked according to the risks involved. IA should assure that the planning process being addressed takes measures to positively influence undesirable trends. Trend lines and analysis can be used as inputs for scenario development, to identify relevant indicators for monitoring, and to raise awareness among policymakers on undesirable trends.

6. Analyse causes of trends

Once trends have been established, and possibly backed-up by statistical values, it is important to determine the cause of the trends. This can initially be done through stakeholder workshops. Attention should be given to endogenous parameters (factors internal to the sector or resource, such as change of techniques) and exogenous events, such as natural or economic shocks.

In an IA exercise, it is important to know how the target of the assessment is likely to influence these causes, and thus also affect the trends.

Data, cost, and time: Data requirement depends whether the trend lines and analysis make use of large data sets and statistical analyses or mainly operate with expert judgements. Cost and time requirements depend on the extent of data sets and time periods for which series are developed.

Uncertainties: Uncertainties may be expressed through expert judgements. Results of data analysis may be compared with expert judgements.

Transparency: With a trend series, data sources, reliability, methods used and uncertainties involved should be mentioned, although this is not done in many cases.

Pros:
- Trend analysis is a basic tool that can be used in a simple and qualitative manner;
- Trend lines can be a powerful awareness-raising tool;
- Trend analysis can structure a large set of available data and information;
- Trend analysis can raise awareness on the need for proper monitoring.

Cons:
- Extrapolation and forecasting of trend lines is not reliable, although done in most cases;
- Statistical analyses are tedious, yet necessary in many cases to draw firm conclusions;
- Trend lines are often established based on poor data sets, without mentioning the uncertainties involved;

- Variable methods used to collect data are a major problem in establishing trends;
- Expert judgements on trends should be backed up with quantitative data, because human memory is unreliable.

References:

Trend analysis is well-known in social, economic and environmental disciplines. One useful overview article is provided by the OECD:

http://www.oecd.org/document/11/
0,3343,en_36702145_36702273_37214987_1_1_1_
1,00.html.

A Google search on names of statistical methods gives an array of more detailed descriptions.

Tool 9: Scenario-building

Purpose: Scenario-building is a process of designing hypothetical situations that incorporate the most uncertain and important driving forces affecting future development in a given sector or territory. This tool can be used when focusing on developing and describing alternative scenarios.

Description: Scenario-building tries to address the following questions: i) What are the driving forces? ii) What do you feel is uncertain? iii) What is inevitable? iv) How about this or that scenario?

Scenario-building is sometimes associated with forecasting. Forecasting is also used to predict future events, but it uses calculations based on historical data. Forecasting typically uses data that have been collected on some events over time and uses them to project trends into the future. Forecasting takes into account forces that influence current trends and offers a more sophisticated method of prediction than simple extrapolation of current trends.

There are many ways of constructing scenarios. Perhaps the most applicable approach to an IA can be found in a method promoted by Global Business Network — a worldwide membership organization and scenario and strategy consultancy. Their

approach is based on eight steps that derive from the scenario-building approach described in "The Art of the Long View" by Peter Schwartz (see references).

1. *Identify the Focal Issue or Decision:* What do you really want to know? Define a specific decision or issue where having scenarios will be helpful.

2. *Key Forces in the Local Environment:* What factors influence the focal issue or decision? What will decision-makers want to know when making their choices?

3. *Driving Forces:* What are the major trends that influence the key forces?

4. *Rank by Importance and Uncertainty:* Rank the key forces and driving forces according to their degree of importance and degree of uncertainty with a help of the table below. Those key forces or driving forces that fall in the quadrant of high importance and high uncertainty should be looked at carefully as they are more critical to providing different scenarios that are important. Select two or three for further study.

5. *Selecting Scenario Logics:* Following the ranking, use the information to define the key variables for building scenarios.

6. *Fleshing out the Scenarios:* Flesh out the skeletal scenarios by looking at the key factors and driving forces developed in Steps 2 and 3. Each key factor and driving force should be given a role in the scenario. For example, if you had two key factors and two driving forces, there are four possible combinations that can be built into a narrative about the scenarios.

7. *Implications:* Once the scenarios are defined, look for implications — what could happen if the different possibilities occurred? Build these implications into your scenarios.

8. *Selection of the Leading Indicators and Signposts*: Relate the scenarios to real situations — given the trends underway some are more likely than others. Then, identify further indicators (e.g. leading indicators) that could alert you if this scenario plays out.

Key Considerations

- *Beware of ending up with three scenarios:* You end up with one of them as the middle or most likely and then treat it as a single forecast rather than several possible scenarios.

- *Avoid assigning probabilities to different scenarios:* Environments for the scenarios are different and it is not realistic to attempt estimating probabilities.

- *Pay attention to scenario names:* A good name goes a long way — make scenario names memorable and relevant.

- *Select the scenario-building team carefully:* Use three considerations when building a team — i) get support from the highest levels of management, ii) broad representation across functions and divisions, and iii) imaginative people with open minds.

Good scenarios are plausible and surprising – if the scenario gets you thinking, breaks old stereotypes, and the makers assume ownership and put it to work, then you have a good scenario.

Data, cost, and time: Data requirement depends on whether or not the scenario offers qualitative information (stories) or quantitative predictions (forecasts). Cost and time depend on the complexity of data gathering and analytic techniques chosen. This can range from qualitative methods (e.g. rigorous stakeholder consultations) to complex model-based techniques.

Uncertainties: This technique directly addresses uncertainties.

Transparency: While scenarios can outline key options of future developments based on uncertain factors, they present final results of an extensive collective thinking. Sometimes this means that external reviewers can find it difficult to examine or question all of the issues that have been internally considered by this process.

Pros:

- Scenarios provide a simplified version of reality against which to test ideas and explore consequences.

- The development of scenarios also provides a way of creating a shared understanding of complex systems among those working with them. This shared understanding can be of great value as an aid in collaboration.

Cons:

- Scenario development requires relatively high levels of technical skill for scenario construction and interpretation.

- Quality of the analysis resulting from a scenario is no better than the model itself and the data on which it is based. Careful testing and validation are necessary to avoid conclusions or actions based on a flawed model.

- Scenarios may involve complex mathematical operations or graphic images that are hard to understand and explain to non-technical audiences. A well-designed interpretation and presentation must accompany the explanation of scenarios to non-technical audiences and policymakers.

Key references:

A classic book on scenario planning –"The Art of the Long View: Planning for the Future in an Uncertain World" by Peter Schwartz – is available for sale from Amazon.com
http://www.amazon.com/exec/obidos/tg/detail/-/0385267320/002-4818763-2004853.

Information portals on scenario-building can be found at:www.plausiblefutures.com/index.php?cat=6691a www.well.com/~mb/scenario/.

Tool 10: Multi-criteria analysis (MCA)

Purpose: MCA evaluates alternative options against several, often conflicting, criteria, and combines the separate evaluations into one overall evaluation. It can be used to identify a single most preferred option, to rank options, to shortlist a limited number of options for subsequent detailed appraisal, or simply to distinguish acceptable and unacceptable options.

Description: MCA appeared in the 1960s as a decision-making tool used for comparing alternative projects.

With this technique, several criteria can be taken into account simultaneously in a complex situation. MCA helps manage that complexity by converting the evaluation to a numerical score. All MCA approaches incorporate judgements that are expressed in weights of criteria and in performance evaluations.

Usual steps in an MCA:

1. Identify assessment criteria

Identify a set of criteria that can measure key consequences of proposed alternative options. These can be established either on the basis of the relevant objectives or on the basis of their likely impacts. Carefully examine the proposed set of criteria to ensure that:

- The set of criteria is complete (no significant criteria is missing);

- There are no redundant criteria (these may include insignificant criteria or criteria where all options perform equally);

- Criteria are measurable (it must be possible to assess — at least qualitatively — how well each option is performing in relation to the criterion);

- Criteria are mutually independent (there is no double counting).

2. Analyse relative importance of criteria (weighting)

Most MCA techniques enable evaluators to determine relative weights of various criteria in decision making. The process of weighting is fundamental to the quality of an MCA and can be a key source of disputes. Methods of weighting vary from simple techniques (e.g. comparing criteria against each other to determine their relative weight) to complex methods (e.g. sociological surveys to determine importance of each criterion to the affected community).

3. Analyse performance (scoring)

Scoring performance always requires the exercise of expert judgements — even quantitative methods require experts to determine what constitutes best and worst performance in the given context.

Scoring performance may be done through three basic means:

1. Direct rating through expert judgements that assign scores to each option (e.g. scoring on scale 0-100).

2. Determining performance against a criterion-specific function that defines gradually progression from the worst to best performance.

3. Judging performance of options against each other. Methods vary — through simple ranking of options to determine order of their performance (e.g. on Criterion 1 option A scores best, C second and B third) to complex calculations (based on fuzzy sets) that enable evaluators to linguistically evaluate each option and then obtain a numeric score that reflects their average statement.

4. Multiply weights and scores for each of the options and derive their overall scores

Each option's performance on a criterion is multiplied by the weight of the respective criterion — this is done for all the criteria and the sum yields the overall relative score for the given option. This is done for all options and results are compared and discussed.

5. Analyse sensitivity to changes in scores or weights.

Sensitivity shows how changes in the scores or weight affect the results of MCA. Such analysis may be essential if:

- There are serious uncertainties about performance of some options against selected criteria; or

- If decision-makers or stakeholders argue about the relative weights of criteria used in MCA.

Data, cost, and time: Data requirement depends whether the chosen MCA approach operates with expert judgements only or if it incorporates qualitative predictions. Cost and time depend on the complexity of the chosen approach to MCA.

Uncertainties: An MCA can handle risk and uncertainties through sensitivity testing which can show how results in uncertain performance of a concerned option will affect the final results of MCA.

Transparency: While this method seems transparent, some decision-makers and stakeholders do not wish to shrink public debate about pros and cons of proposed options into weighting of criteria, evaluating performance and calculations of results.

Pros:

- MCA can take different criteria into account at the same time, which is impossible with the usual decision-making process based on only one criterion;

- If accepted by the wider community, it may be used to bring together the views of different stakeholders;

- Open and explicit — the scores and weights are recorded, providing a basis for external audits. Also open to analysis and change if they are felt inappropriate;

- May facilitate communication with decision-makers and sometimes with the wider community.

Cons:

- By presenting quantitative information (aggregated scores), MCA may create a false impression of accuracy even though its application heavily depends on value judgements;

- A disputed MCA may direct public discourse on the proposal towards ineffective discussions on how were the weights of criteria established and how was the performance of each option against these criteria measured;

- Does not facilitate consensus on very controversial decisions;

- Results may be manipulated by those who master the techniques.

Key references:

MCA Manual of the UK Government provides guidance on how to undertake and make the best use of MCA for the appraisal of options for policy and other decisions, including but not limited to those having implications for the environment. Can be downloaded at:

http://www.communities.gov.uk/publications/corporate/multicriteriaanalysismanual

The Journal of Multi-Criteria Decision Analysis (ISSN: 1099-1360) provides an international forum for the presentation and discussion of all aspects of research, application and evaluation of MCA. The Journal publishes material from a variety of disciplines and all schools of thought. Available by subscription only.

More information from the editor at val@mansci.strath.ac.uk or http://www.interscience.wiley.com/jpages/1057-9214/.

About the UNEP Division of Technology, Industry and Economics

The UNEP Division of Technology, Industry and Economics (DTIE) helps governments, local authorities and decision-makers in business and industry to develop and implement policies and practices focusing on sustainable development.

The Division works to promote:

- sustainable consumption and production,

- the efficient use of renewable energy,

- adequate management of chemicals,

- the integration of environmental costs in development policies.

The Office of the Director, located in Paris, coordinates activities through:

- **The International Environmental Technology Centre** – IETC (Osaka, Shiga), which implements integrated waste, water and disaster management programmes, focusing in particular on Asia.

- **Sustainable Consumption and Production** (Paris), which promotes sustainable consumption and production patterns as a contribution to human development through global markets.

- **Chemicals** (Geneva), which catalyzes global actions to bring about the sound management of chemicals and the improvement of chemical safety worldwide.

- **Energy** (Paris), which fosters energy and transport policies for sustainable development and encourages investment in renewable energy and energy efficiency.

- **OzonAction** (Paris), which supports the phase-out of ozone depleting substances in developing countries and countries with economies in transition to ensure implementation of the Montreal Protocol.

- **Economics and Trade** (Geneva), which helps countries to integrate environmental considerations into economic and trade policies, and works with the finance sector to incorporate sustainable development policies.

- **Urban Environment** (Nairobi), which supports the integration of the urban dimension, with a focus on environmental issues that have both a local and an international dimension.

UNEP DTIE activities focus on raising awareness, improving the transfer of knowledge and information, fostering technological cooperation and partnerships, and implementing international conventions and agreements.

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Recent international experience has demonstrated that Integrated Assessment (IA) can contribute to sustainable development outcomes by making assessment practice more integrated in terms of sustainability dimensions, more proactive and opportunity-oriented, less procedural and more an integral part of a policymaking process.

The purpose of this document is threefold: to document and share knowledge based on experiences, focused on practices to stimulate an integrated and proactive assessment approach; to enable the branching out of IA in order to stimulate and support wider application and address specific concerns such as climate change and biodiversity; and to support Integrated Policymaking for Sustainable Development, with a view to embedding sustainability within policymaking processes.

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