

# **Strategic Environmental Assessment: A Concept in Progress**

*Annotated Training Module  
Prepared for the World Bank Institute*

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## SLIDE 1: Strategic Environmental Assessment: A Concept in Progress

**Strategic Environmental  
Assessment: A Concept in  
Progress**

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This training module is one of a pair developed as part of an agreement between the International Institute for Sustainable Development (IISD) and the World Bank Institute (WBI). The training modules build on IISD's experience in capacity building and training in environmental and sustainable development assessment and the development and use of indicators. This module focuses on the theory and use of Strategic Environmental Assessment (SEA); its companion addresses the use of indicators in policy analysis.

Specifically, these modules build on and complement some aspects of the World Bank's emerging Country Environment Analysis (CEA) methodology, IISD's multi-year collaboration with the United Nations Environment Programme (UNEP) under the Global Environment Outlook (GEO), and IISD's work with the Tata Energy Research Institute (TERI) in India on the sustainable development of the energy sector funded by the Canadian International Development Agency (CIDA). They also build on lessons from an early pilot testing of various aspects of the modules, which took place in November 2003 in Moscow in the context of a World Bank Institute training event.

Primary audiences for this module typically include national or state/provincial government officials and experts in countries that are in the early phases of introducing and implementing Strategic Environmental Assessments and thus require an introduction to the concept, an overview of approaches, and a broader perspective on potential applications.

## SLIDE 2: Session overview

### Session overview

- What is strategic environmental assessment (SEA)?
- Why analyze the environmental implications of policies?
- Guiding principles
- The SEA process and products
- Two alternative approaches to integrated policy assessment
- Questions & answers

This training session covers the following aspects of strategic environmental assessment:

- First, it notes the prevalence of numerous similar and associated terms, provides definitions for them, and discusses more fully the meaning of Strategic Environmental Assessment (SEA);
- It demonstrates the need for Strategic Environmental Assessment in the context of assessing policies for sustainability;
- The module then outlines the guiding principles of SEA, helping to further define and describe the process;
- The SEA is described as both a process that includes those people and organizations undertaking the assessment and those who are subject to it, and as a product of the analytic assessment;
- To illustrate the use of SEA, the session then highlights two alternative approaches to integrated policy assessment;
- The training module concludes with a period of questions and answers.

## SLIDE 3: Diversity in assessment terminology and approach

### Diversity in assessment terminology and approach

- ...
- IA: Integrated assessment
- IEA: Integrated environmental assessment
- SA: Sustainability assessment
- EIA: Environmental impact assessment
- CIA: Cumulative impact assessment
- SEA: Strategic environmental assessment
- ...

There are numerous approaches to the process of assessing the potential or actual environmental impacts of decisions or actions.

- **IA: Integrated Assessment** is an analytic process that explores the dynamic linkages between baseline conditions in the ecological and socio-economic domain and main driving forces. It provides the overall basic framework and method of analysis for more specific environmental assessment approaches.
- **IEA: Integrated Environmental Assessment** uses this framework to assess the key driving forces and policies that have influenced the status of the environment. The second example in this module describes the United Nations Environmental Programme's (UNEP) Global Environment Outlook (GEO) training program's approach to assessing the impacts of policies on environmental conditions and the effectiveness of specific policies. One of the main goals is to improve sustainable development decision-making from the environmental perspective.
- **SA: Sustainability Assessment** is an emerging concept and practice that takes place at a broader level of impact assessment, analyzing the short and long-term consequences of policies and projects not only on the state of the environment but on social, economic and often institutional pillars of sustainability.

The IA framework can also be used to help predict the environmental consequences of planned policies, plans, and initiatives (*ex ante* analysis) so as to improve them during the planning stage.

- **EIA: The Environmental Impact Assessment** process is used to predict the environmental effects of proposed projects and initiatives before they are carried out. It recommends measures to mitigate adverse effects and assess the potential impacts of alternatives. It also helps to incorporate environmental factors into decision making.

EIA is generally project- and site-specific, however, and does not capture the full combined direct and indirect environmental effects of all past, present, and foreseeable future actions on the wider environment. EIAs typically do not focus on policies related to the projects being assessed, although they may do so.

- **CIA: Cumulative Impact Assessment** (or CEA, cumulative environmental assessment) is the analysis of all effects and the synergistic interaction of different effects from one or more activities on a project's immediate and extended environment as they accumulate over time and space.
- **SEA: Strategic Environmental Assessment**, the topic of the first part of this training module, focuses on analyzing the potential environmental consequences of proposed policies, plans and programs, and their alternatives.

## SLIDE 4: Definition of SEA (*one of many*)

### Definition of SEA (*one of many*)

The systematic and comprehensive process of evaluating at the earliest possible stage the environmental effects of a policy, plan or program and its alternatives.

(Adapted from R. Thérivel and M. R. Partidário. 1996. *The Practice of Strategic Environmental Assessment*)

Various users define the term Strategic Environmental Assessment (SEA) in different ways. The definition provided here is from a commonly referenced source and covers the fundamental aspects of the term.

The key concept is that the SEA process focuses on assessing the potential environmental impacts of all types of proposed policies, plans, or programs, and seeks to incorporate environmental considerations into the development of public policies. Its basic function is to facilitate policy learning and adaptation in an early phase, before policies are formalized, interests are entrenched and potential significant and irreversible damages occur.

It is systematic in that it can be undertaken before the policies, plans, and programs are put in place and extends the analysis to alternatives that may be proposed as a result of the assessment process, including the impacts of withdrawing the proposed policy. It also considers the environment as part of a system, looking at the impacts on the interface between the environment and socio-economic conditions.

The SEA approach is comprehensive because it broadens the policy target from individual decisions to the sequence of associated plans and programs; it identifies and involves all the major actors on multiple scales; it assesses the potential direct and indirect impacts; and it considers the short and long-term environmental consequences.



## SLIDE 5: Why SEA?

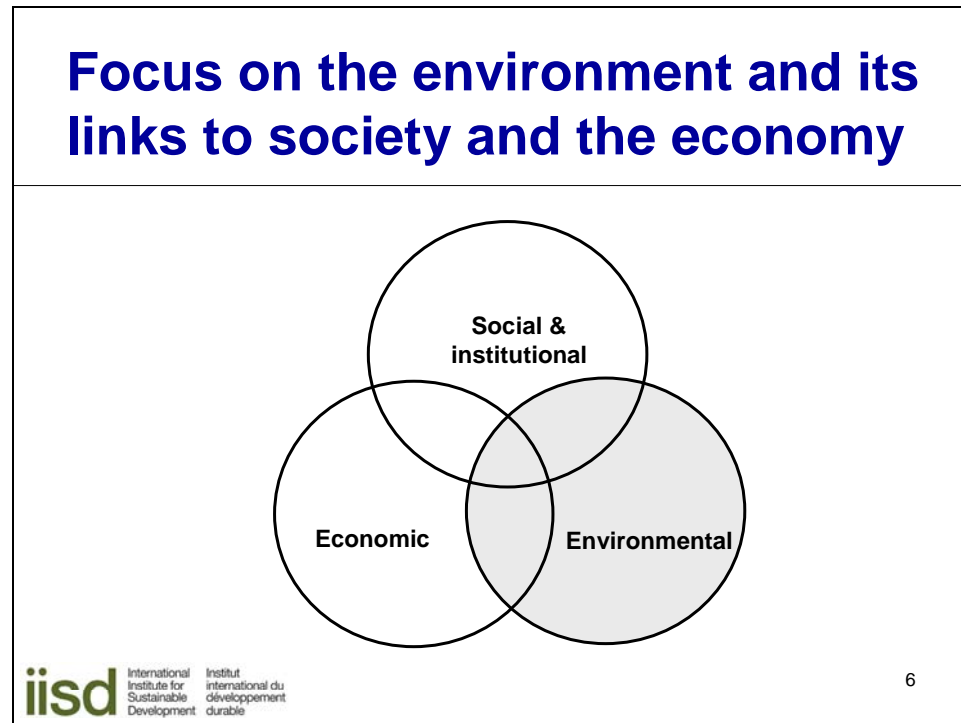
### Why SEA?

- Essential in the design, implementation and evaluation of sustainable development strategies on the organizational, sectoral or regional level
- Projects are guided by underlying policy processes
- These policy processes are not subject to routine environmental analysis
- EIA alone therefore cannot address systemic sustainability concerns
- Need for early warning mechanism to identify cumulative and long term effects

Strategic Environmental Assessment fills a gap in assessment approaches:

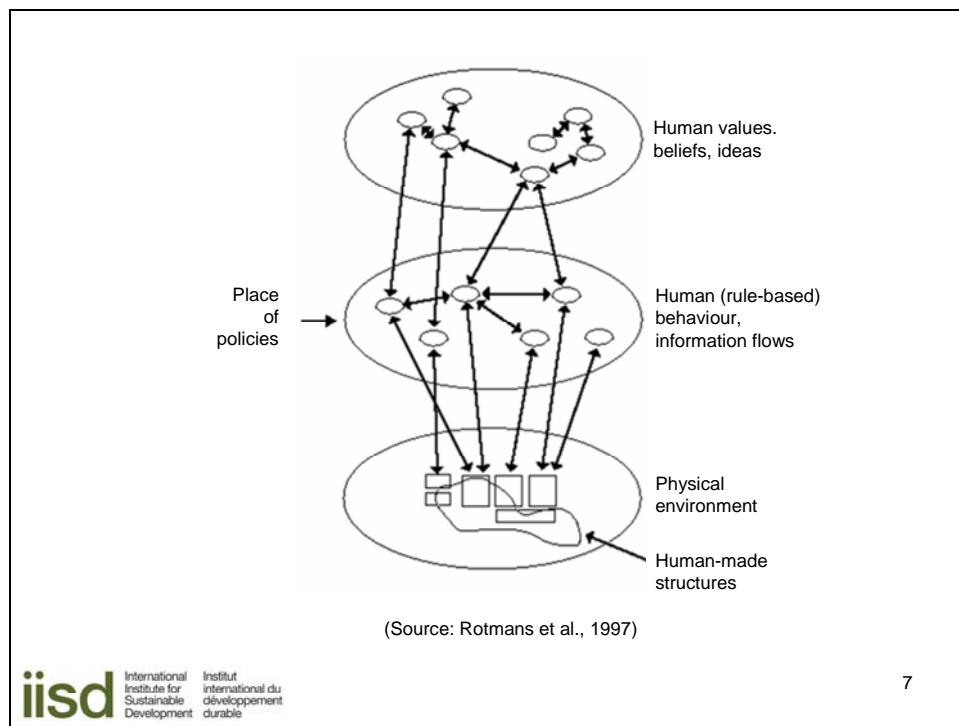
- Policies, plans, and programs related to sustainable development at organizational, sectoral, and regional levels need to be assessed with the systematic and comprehensive approach taken by SEAs;
- SEAs should not be limited or even primarily focused on environmental policies, *sensu strictu*, since other policies, especially economic ones, often have more far-reaching environmental consequences. Candidates for SEAs may include, among others: trade policies, sectoral subsidy regimes, tax policies, etc.
- Projects on the ground are guided by underlying policy processes, so conducting an SEA at the policy level can eliminate the need to address some issues at the project stage. SEAs and EIAs can also influence each other in a feedback cycle to improve both sustainability decision-making and sustainable project development;
- Environmental Impact Assessments are limited to specific projects and sites; unlike SEAs, they are unable to address systemic sustainability concerns;
- Acting as early warning mechanisms, SEAs can help identify the potential cumulative and long term effects of proposed policies.

## SLIDE 6: Focus on the environment and its links to society and the economy



Strategic Environmental Assessment focuses primarily on the environmental impacts of policies, plans and programs. Its integrated approach, however, enables the process to identify and analyze potential interactions between the environmental aspect of sustainable development and the economic, social, and institutional elements.

## SLIDE 7: The place of policies in human mental constructs



In thinking about analyzing the impacts of policies, it is useful to reflect on the meaning of policies and their place in human mental constructs and world views.

One possible definition of policy comes from rule-based behavior in social systems and institutions. Policies don't exist in a vacuum. In this view, the policies we craft arise from fundamental or underlying human values. Like values, however, policies are synergistic and can be contradictory.

So environmental policies necessarily reflect the overarching value we place on the qualities of a clean, healthy, and protected environment. Both the natural and the human-built environments represent the physical foundation to which the policies apply.

## SLIDE 8: SEA involves...

### SEA involves...

- Evaluation process
- Reporting
- Consideration of the findings in decision-making on the same level with economic and social considerations


SEAs involve a multi-step *process* that yields new information on the environmental implications of policies. SEAs influence decision-making both through stakeholder involvement in the process and by producing information *products* or reports, to communicate results to key audiences.

- The environmental evaluation process is complex and should be undertaken by a lead agency or group of experts at the earliest appropriate stage of planning, and with the same rigor with which economic and social aspects are considered. It should be a consultative approach involving both lead experts and the public in a participatory process. It begins with a scoping exercise and data gathering, leading to an analysis of the policy proposal;
- The results of the process are documented in the reporting phase, which provides feedback to both policy makers and the public;
- Although not part of the formal SEA process, the effectiveness of an SEA is ultimately determined by the extent to which its findings are taken up by key audiences and contribute to the development of policies, plans, and programs on an equal basis with economic or social analysis.

## SLIDE 9: An SEA may be carried out on...

### An SEA may be carried out on...

- Subsidy regimes
- Trade agreement
- Sector programmes
- Departmental sustainable development strategies
- Country assistance programmes
- Etc.

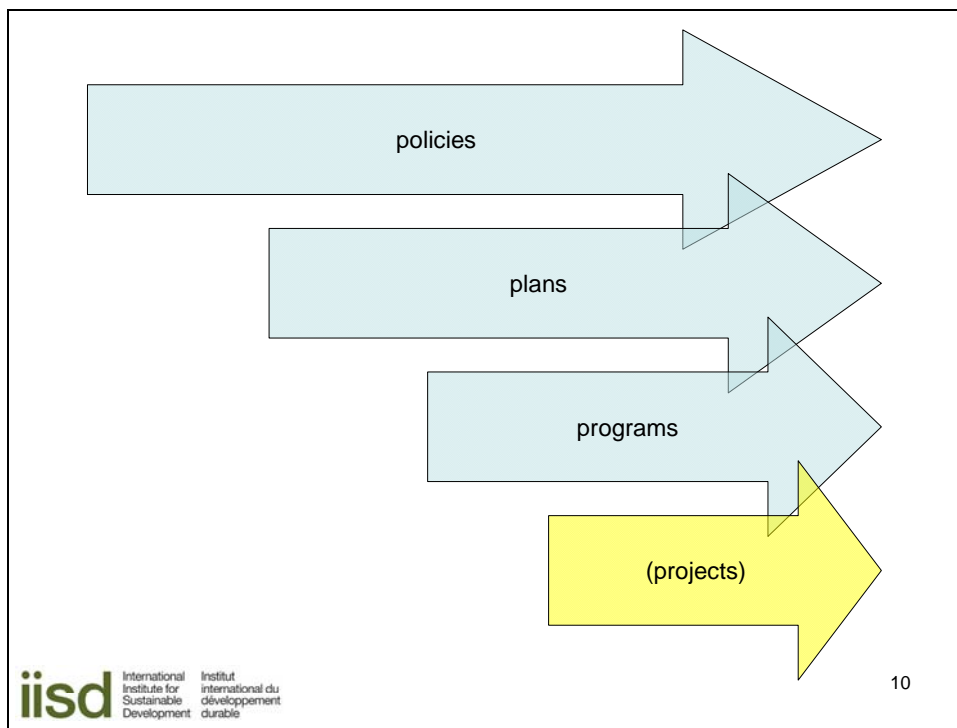
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There are many types of policies with environmental implications. These are all potential candidates for an SEA. Some examples are as follows.

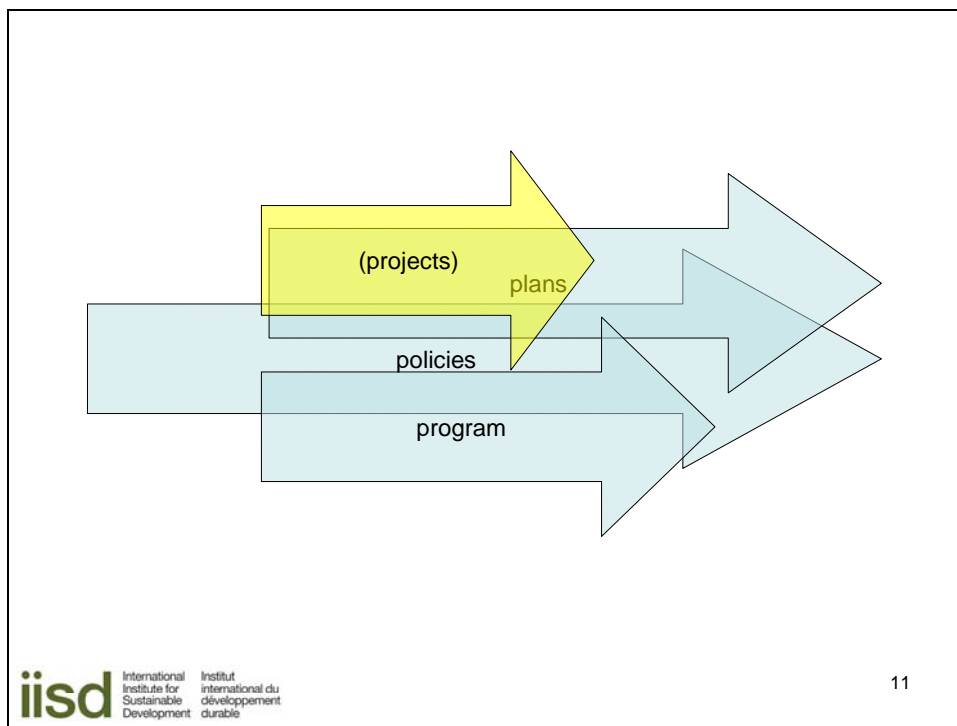
- Subsidy regimes: e.g., energy sector subsidies for the fossil fuel industry, with particular attention to policy effects on greenhouse gas emissions;
- Trade agreements: e.g., bilateral or multilateral trade agreements;
- Sectoral programmes: e.g., agriculture, fisheries, mining etc.
- Departmental sustainable development strategies: looking at the effect of SD strategies adopted by national or state/provincial government departments;
- Country assistance programmes: e.g., programs put in place by national governments as a conditionality attached to loans from international financial institutions such as the IMF.

## SLIDE 10: The theoretical sequence from policies to projects



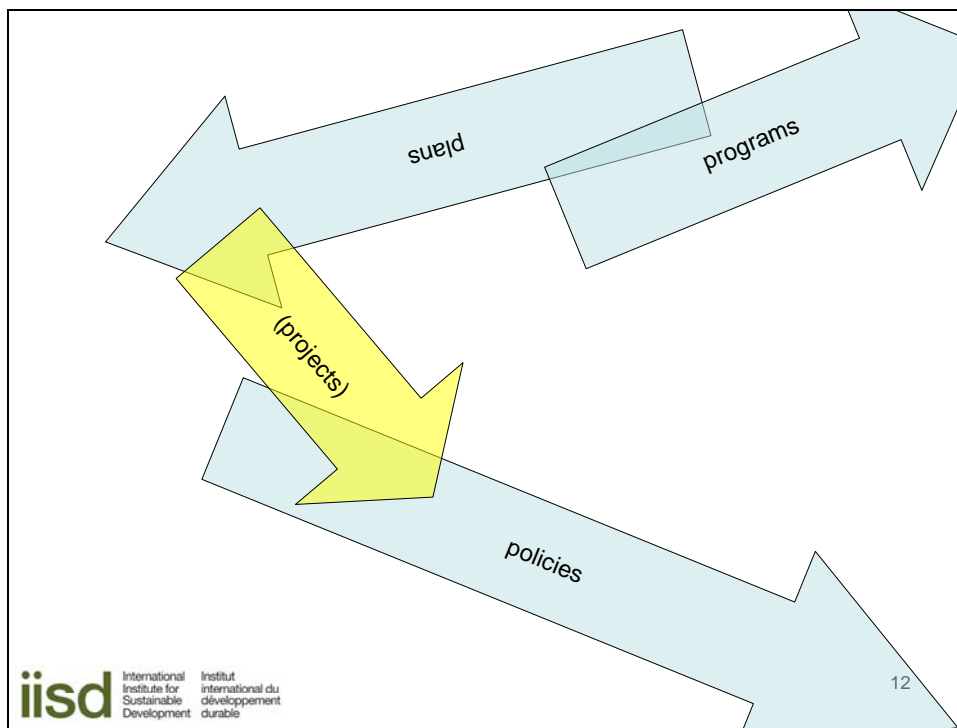
In theory, the formulation of policies, plans, and programs can be viewed as a logical process that follows a hierarchical sequence from broad policy principles to more detailed plans and programs. Ideally, on-the-ground projects are based on and neatly synchronized with the policies and plans.

## SLIDE 11: A more realistic process



But in reality, projects are not always realized in such a synchronized way with underlying policies and plans or in such a desirable sequential pattern. In fact, projects are often undertaken simultaneously with policy and program development.

## SLIDE 12: The need for context



Furthermore, projects can even develop in diametrically opposed directions to the policies, plans, and programs that are meant to guide them.

The point is that the overall Strategic Environmental Assessment process needs to include an awareness of the context in which policies are made.

The scoping phase of the exercise should situate the development of the policy instrument within its local historical and cultural context, taking into account the underlying values of society.

For example, in order to understand the effectiveness of a policy aimed at cutting greenhouse gas emissions from the transport sector through the retirement of inefficient, old vehicles, among the contextual issues one would also need to look at are economic policies that influence the cost of gasoline, the kind and amount of assistance provided for public transit, and so on.



## SLIDE 13: What is policy?

### What is policy?

“A set of interrelated decisions taken by a political actor or a group of actors concerning the selection of goals and the means of achieving them within a specified situation were these decisions should, in principle, be within the power of these actors to achieve.”

(Jenkins 1978)

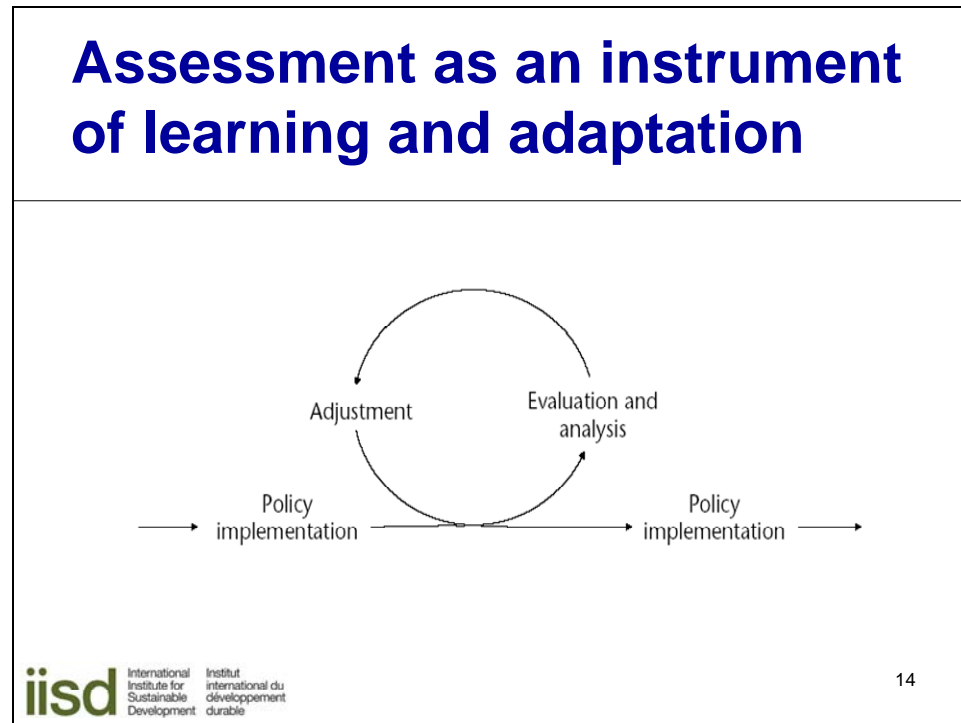
The elements of this definition of policy can be illustrated with an example:

Many countries, including Canada, have actively implemented policies and programs to prevent pollution and promote waste minimization. One of these is the Deposit-Refund System, which requires a front-end charge (deposit) combined with a refund payable when the item is returned to the vendor. The Province of Quebec has a soft-drink and beer container return policy that has been in place since 1984.

- The policy includes a set of **interrelated decisions** about instituting a market-based environmental policy instrument, in this case the decision to require drink producers to reclaim and reuse containers, vendors to charge a deposit fee and reimburse consumers for container returns, and regulated distributors to pay a fee.
- The decisions were taken by a **group of actors**, in this case the Quebec government, the Crown agency that oversees the program and the private sector that operates it.
- The policy concerns a set of **goals**. They are related to reducing solid waste, packaging materials, energy and water use, transportation, and other costs to both the environment and the economy. They may include goals to reduce greenhouse gas emissions, to create jobs, and reduce costs to taxpayers.
- The policy should include the **means of achieving the goals**. This policy instrument creates financial incentives for the program to work: fees charged to the regulated distributors finance Quebec's program, for example.
- The province has the **power to institute the policy**, but it must also have the power to make sure it achieves its goals.

(As a result of Quebec's deposit return program, there are no one-way soft drink or beer containers sold in the province that are not recyclable or refillable. Secondary markets have emerged in and around Quebec for the recycled containers and fewer soft-drink and beer containers are being sent for disposal or ending up as litter. This reduces the costs for taxpayers. A Crown agency oversees the program, financing it through fees charged to the regulated distributors. Over 200 full-time jobs were created in the areas of collection, transport and processing of containers)

## SLIDE 14: Assessment as an instrument of learning and adaptation



As environmental conditions and socio-economic priorities evolve, policies need to be continuously evaluated and adjusted.

This diagram illustrates the classic ‘action-reflection’ framework. Here, a policy is implemented and after a time its impacts are evaluated and its effectiveness analyzed. The policy is adjusted according to the results, and the new, better policy is then implemented. The term that perhaps best describes this process is *adaptive learning*.

This cycle happens routinely and can be a relatively informal and frequent occurrence. In the case of Strategic Environmental Assessment, it is institutionalized in a more formal process. Assessments become the tools with which to adapt and change policies, arresting and improving them in an early phase to help avoid failure.

## SLIDE 15: Two examples

### Two examples

1. SEA guidelines by the Canadian Environmental Assessment Agency (CEAA)
2. Analysis of policy effects and effectiveness building on the Global Environment Outlook (GEO) methodology of UNEP

Two examples will help to understand the SEA process. Both use the principle of Integrated Assessment. The first example uses the framework to assess proposed policies and the second example shows how it is used to help improve policies already in place.

The first example is a set of guidelines for conducting **Strategic Environmental Assessments** prepared by the Canadian Environmental Assessment Agency (CEAA) to be used at a national scale in the development of public policies.

The second example is taken from the United Nations Environment Programme's Global Environment Outlook reports. It uses the **Integrated Environmental Assessment** framework to assess the impact policies are having on the state of the environment at regional and national levels and to assess policy performance. The methodology is also strategic in that one key aim is that the information provided will help to improve policies in an iterative feedback cycle.

Both these examples have detailed methodological descriptions that merit some further examination.


## SLIDE 16: Example 1: CEAA guidelines

### Example 1: CEAA guidelines

**Reference:**

**CEAA. 2004. Strategic Environmental Assessment. Canadian Environmental Assessment Agency. View online at:**

[http://www.ceaa-acee.gc.ca/016/index\\_e.htm#](http://www.ceaa-acee.gc.ca/016/index_e.htm#).

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The Canadian Environmental Assessment Agency is a federal organization that supports other federal bodies in undertaking environmental assessments, including Environmental Impact Assessments (EIAs) and Strategic Environmental Assessments (SEAs).

## SLIDE 17: Cabinet Directive

### Cabinet Directive

- 1990 and 1999 Cabinet Directive on the Environmental Assessment of Policy, Plan and Program Proposals of the Government of Canada
- Clarifying the obligations of departments and agencies
- Linking environmental assessment to the implementation of sustainable development
- Role of SD Commissioner

- In 1990 the Government of Canada issued a Cabinet Directive, which was updated in 1999, stipulating that departments and agencies should consider potential environmental effects of policies, plans, and programs.
- The Directive clarifies the obligations of departments and agencies: they must consider the scope and nature of the likely environmental effects of each option developed for consideration and the need for mitigation to reduce or eliminate adverse effects. The decision should incorporate the results of the Strategic Environmental Assessment.
- Assessments are used to help implement sustainable development goals, which all government departments are directed to develop.
- In 1995, the Government established the position of Commissioner of the Environment and Sustainable Development with the mandate to ensure the federal government is accountable for greening its policies, operations, and programs. The Commissioner leads a specialized unit within the Office of the Auditor General (OAG) and conducts environmental audits of the government's activities.

## SLIDE 18: Expected effects of SEA on Government operations

### Expected effects of SEA on Government operations

- Optimize positive, minimize negative environmental effects;
- Consider potential cumulative environmental effects;
- Implement sustainable development strategies;
- Save time and money by drawing attention to potential environmental liabilities and other unforeseen concerns;
- Streamline project-level assessment by eliminating the need to address some issues at the project stage;
- Promote accountability and credibility among the general public and stakeholders; and
- Contribute to broader Governmental policy commitments.

The expected benefits of performing a Strategic Environmental Assessment on Government operations include:

- Optimizing positive, and minimizing negative environmental effects;
- Considering potential cumulative environmental effects;
- Implementing sustainable development strategies;
- Saving time and money by drawing attention to potential environmental liabilities and other unforeseen concerns;
- Streamlining project-level assessment by eliminating the need to address some issues at the project stage;
- Promoting accountability and credibility among the general public and stakeholders; and
- Contributing to broader Governmental policy commitments.

## SLIDE 19: Applicability

### Applicability

- Policy proposal submitted to Cabinet
- Likely significant environmental impacts (positive or negative)

Obviously, it would be paralyzing to analyze every prospective policy. There are two filters or conditions that help Ministers determine whether or not a policy needs to go through an assessment. A Strategic Environmental Assessment of a policy, plan, or program proposal is mandatory when the following two conditions are met:

1. the proposal is submitted to an individual Minister or Cabinet for approval; and
2. implementation of the proposal may result in important environmental effects, either positive or negative. Strong public concerns about possible environmental consequences also stimulate carrying out an SEA.



## SLIDE 20: Guiding principles

### Guiding principles

- **Early integration** before irreversible decisions are made
- **Examine alternatives** to identify opportunities for reducing negative environmental effects
- **Flexibility** in the conduct of SEA according to circumstances
- **Self-assessment** conducted by departments
- **Appropriate level of analysis**, reflecting scale of anticipated effects
- **Accountability** through stakeholder participation and reporting
- **Use of existing mechanisms** in conducting the assessment, involving the public, evaluating performance, and reporting the results

The Cabinet Directive includes a set of guidelines for officers responsible for developing policies, plans, and programs and implementing sustainable development strategies; for environmental assessment practitioners in the department; and for senior departmental managers responsible for policy and operations. The guiding principles include:

- **Early integration** before irreversible decisions are made
- **Examine alternatives** to identify opportunities for reducing negative environmental effects
- **Flexibility** in the conduct of SEA according to circumstances
- **Self-assessment** conducted by departments
- **Appropriate level of analysis**, reflecting scale of anticipated effects
- **Accountability** through stakeholder participation and reporting
- **Use of existing mechanisms** in conducting the assessment, involving the public, evaluating performance, and reporting the results

## SLIDE 21: Preliminary scan

### Preliminary scan

- Proposal affects natural resources
- Known direct or indirect negative environmental impact
- Impacts on the achievement of an environmental quality goal
- Impact on projects subject to EIA
- New process or technology with environmental implications
- Scale or timing could result in significant environmental impacts

As early as possible in the development of a proposal, the analyst will use a number of tools to determine if an SEA should be conducted, including the following considerations:

- The proposal has outcomes that affect natural resources, either positively or negatively.
- The proposal has a known direct or a likely indirect outcome that is expected to cause considerable positive or negative impacts on the environment.
- The outcomes of the proposal are likely to affect the achievement of an environmental quality goal (e.g., reduction of greenhouse gas emission or the protection of an endangered species).
- The proposal is likely to affect initiatives that would be subject to project-level environmental assessments, as required by the *Canadian Environmental Assessment Act* or an equivalent process.
- The proposal involves a new process, technology, or delivery arrangement with important environmental implications.
- The scale or timing of the proposal could result in significant interactions with the environment.

If this preliminary scan identifies the potential for important environmental considerations, or if there is a high level of uncertainty or risk associated with the outcome, then a full SEA is called for.

## SLIDE 22: Key questions

### Key questions

- What are the potential direct and indirect outcomes of the policy proposal?
- How do these outcomes interact with the environment?
- What is the scope and nature of these environmental interactions?
- Can the adverse environmental effects be mitigated?
- What is the overall potential environmental effect of the proposal after opportunities for mitigation have been incorporated?

A Strategic Environmental Assessment generally addresses the following five questions:

- What are the potential direct and indirect outcomes of the proposal?
- How do these outcomes interact with the environment?
- What is the scope and nature of these environmental interactions?
- Can the adverse environmental effects be mitigated? Can positive environmental effects be enhanced?
- What is the overall potential environmental effect of the proposal after opportunities for mitigation have been incorporated?

Take the idea of introducing a policy taxing energy consumption. The potential **positive direct outcomes** should be a decrease in fossil-fuel use and a decline in emissions and ambient concentrations of greenhouse gases. **Indirect consequences** are likely to be reduced acid rain and smog and maybe fewer hospital admissions for respiratory ailments. The policy could have **adverse effects** on the economy, however, by increasing economic costs for those unable to adapt by reducing consumption or passing on the increased costs to others. **Mitigation** for employment losses could be incorporated into the policy in the iterative process, perhaps through incentives for introducing technology measures that lead to improvements in energy efficiency. The **environmental impacts** of these measures must also be considered. In looking at the **overall scope of impacts**, long-term environmental and human health gains could offset short-term economic losses, making the policy acceptable.

## SLIDE 23: Analyzing environmental effects

### Analyzing environmental effects

- Identify the scope and nature of potential effects, positive or negative
- Need for mitigation
- Scope and nature of post-mitigation residual effects
- Follow-up by monitoring effects and compatibility with SD goals
- Identify public and stakeholder concerns for decision-makers

Looking more closely at how the SEA should analyze environmental effects:

- It should build on the preliminary scan to describe the scope and nature of positive and adverse environmental effects, including cumulative effects, which could arise from implementing the proposal. These include potential changes in atmospheric, terrestrial, or aquatic resources, physical features, or conditions.
- It should consider the need for mitigation measures that could reduce or eliminate potential adverse environmental consequences of the policy and where possible, consider opportunities to enhance potential environmental benefits. Mitigation measures may include changes in the proposal, placing conditions on projects or activities arising from the proposal, or introducing compensation measures.
- The SEA should describe the potential environmental effects that may remain after taking into account mitigation and enhancement measures (these are called residual effects).
- The SEA should also consider the need for follow-up measures to monitor environmental effects of the policy, plan, or program, or to ensure that implementation of the proposal supports the department's or agency's sustainable development goals.
- Finally, the SEA should identify concerns about the remaining environmental effects among those likely to be most affected, and among other stakeholders and members of the public.

## SLIDE 24: Need for public involvement

### Need for public involvement

- Identify public concerns early in the process
- Utilize stakeholder input and expertise
- Build consensus
- Help communicate results with stakeholders
- Build public trust and credibility

The SEA process includes the requirement for public involvement throughout the process for a number of reasons:

- By involving interested parties at an early stage in the process, decision makers can identify and address public concerns about a proposal that could otherwise lead to delays, the need for further analysis later in the process, or unforeseen major and potentially irreversible damages later that may require fundamental changes or withdrawal of the policy.
- Stakeholders and the public can be an important source of local and traditional knowledge about likely environmental effects.
- Public involvement can help develop the credibility and trust in the decision-making process that is needed to build a consensus among different or opposing interests.
- Public involvement can help communicate the results of the process and decisions back to the stakeholders.
- Over time, a visible commitment to understanding and responding to public concerns can help build a sense of public trust and credibility in the decisions of the department or agency. Ultimately, public participation in an SEA serves to strengthen trust in democratic institutions and governance.

## SLIDE 25: Reporting

### Reporting

- Integrate SEA into existing mechanisms
- Recommended documentation
  - Memorandum to Cabinet (includes discussion of relationship with departmental SD strategy and Communications Plan)
  - Regulatory Impact Analysis Statement
  - Annual departmental SD reports, departmental Performance Reports, etc.
  - Any relevant decision document

When an SEA has been conducted, departments and agencies must prepare a public statement of environmental effects. In addition to or instead of a separate report, the document is integrated into existing reporting mechanisms to the fullest possible extent. The recommended mechanisms are the following:

- Submission of a Memorandum to Cabinet, which should specify how the policy, plan, or program affects or relates to the department or agency's Sustainable Development Strategy. It should detail how it addresses public concerns about the potential environmental effects of the proposal in the Memorandum's Communications Plan.
- If a Regulatory Impact Analysis Statement is prepared on an initiative, departments and agencies should reflect the findings of the strategic environmental assessment in the Statement.
- Departments and agencies may also report on Strategic Environmental Assessments as part of their annual reports on their Sustainable Development Strategies, Reports on Plans and Priorities, Departmental Performance Reports, and other such documents.
- If a policy, plan, or program does not require Cabinet approval, but is still assessed, the findings of the assessment should be reported in any relevant decision documents.

## SLIDE 26: Example 2: assessment of policy effects and effectiveness

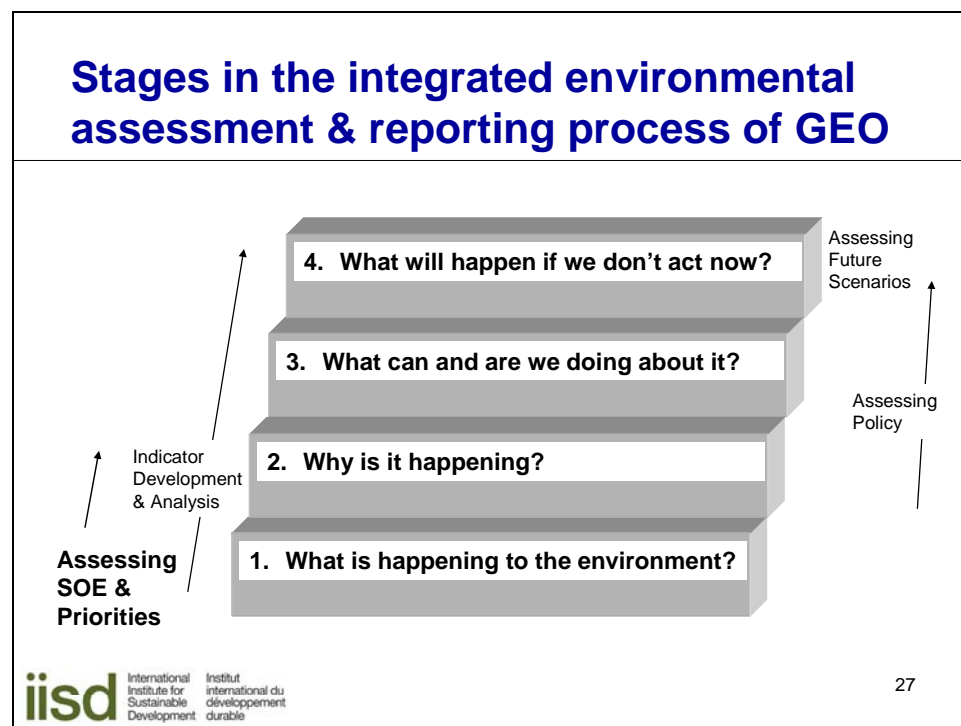
### Example 2: assessment of policy effects and effectiveness

- <http://www.iisd.org/measure/capacity/iear.htm>

The next example demonstrates how the same basic assessment framework can be used to assess the effects of policies on the state of the environment and to analyze the degree of policy effectiveness. One of the goals is to stimulate policy improvement in an iterative cycle of assessment and adjustment.

The example is based on the Integrated Environmental Assessment methodology adopted by the Global Environment Outlook (GEO) initiative of the United Nations Environment Programme (UNEP), and incorporates generalized elements from IISD's methodology work on analyzing policy effects in the context of India's energy sector. **Integrated Environmental Assessment** is a process of producing and communicating policy relevant information on key interactions between the natural environment and society.

## SLIDE 27: Stages in the integrated environmental assessment & reporting process of GEO



Policy assessment has been beyond the scope of many traditional State of the Environment reporting (SOE) initiatives. Traditional State of the Environment reports have focused on describing environmental trends and conditions. SOE analysis, however, needs to be integrated with the assessment of key driving forces and policies that cause or influence those environmental trends. A conscious and explicit link to policies and policy performance can add much weight and relevance to the assessment. The GEO reports incorporate integrated policy assessment into the state of the environment reporting process to point out key leverage points to decision-makers.

We need to know what is happening to the environment to answer why it is happening. And we need to have a clear idea about the driving forces and root causes to begin addressing what can be done better or to discover the potential consequences of inaction.

**Integrated Environmental Assessment** reporting answers four consecutive questions as shown in this slide.

Assessing environmental policy helps to answer:


- **Why is environmental change happening;** that is, how are policies affecting the state of the environment? Policies can be the driving forces behind either desirable or undesirable environmental outcomes.
- **What are we doing about environmental changes, particularly negative ones;** that is, what policies are in place that intend to deal with the current environmental issues? Some policies may have already been formed to influence current environmental conditions, although there may be a lag time before effects are visible.



## SLIDE 28: Policy effects and effectiveness

### Policy effects and effectiveness

1. **Effects:** the impact of *policy mix* on a given environmental issue
2. **Effectiveness:** actual vs. planned or desirable performance of a *single policy*

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Environmental trends are usually influenced by a wide range of policy measures – in other words the changes observed in an environmental trend are the combined effect of many policies, some of which may have direct effects on the issue in question and others indirect ones. Looking at the changes from the perspective of a specific policy, the question primarily concerns the policy’s effectiveness in bringing about a positive change on the trends observed. Therefore, to identify the underlying policies that drive environmental trends, analysts need to understand both the effects of policies and policy effectiveness. Integrated Environmental Assessment looks at both **effects** and **effectiveness**.

**Effects** refer to the actual impacts of a policy mix on the environment. For example, greenhouse gas emissions in a given country may be influenced by a series of policies, including:

- subsidies to the fossil energy sector;
- measures to facilitate the introduction of energy conservation technology either at the supply or the demand side;
- regulatory policies aimed at reducing methane emissions from agriculture;
- incentives to phase in renewable energy production;
- etc.

The **Effectiveness** of a policy refers to weighing the actual policy impact against the goal or desired performance of a single policy. Policy is meant to guide or influence human activities to achieve particular desired outcomes. But what actually occurs in the environment does not necessarily follow the policy intent. For example, countries that are signatory to the Kyoto Protocol adopted national, time-bound targets for reducing greenhouse gas emissions compared with baseline values. Looking at current trends from the perspective of a given policy instrument, retrospective analysis would need to reveal (a) the contribution of a given policy to the observed changes in emissions; and (b) any other intended or unintended major effects the policy may have had on socio-economic and environmental issues of concern.

## SLIDE 29: 1. Analysis of the policy mix and its effects

### 1. Analysis of the policy mix and its effects

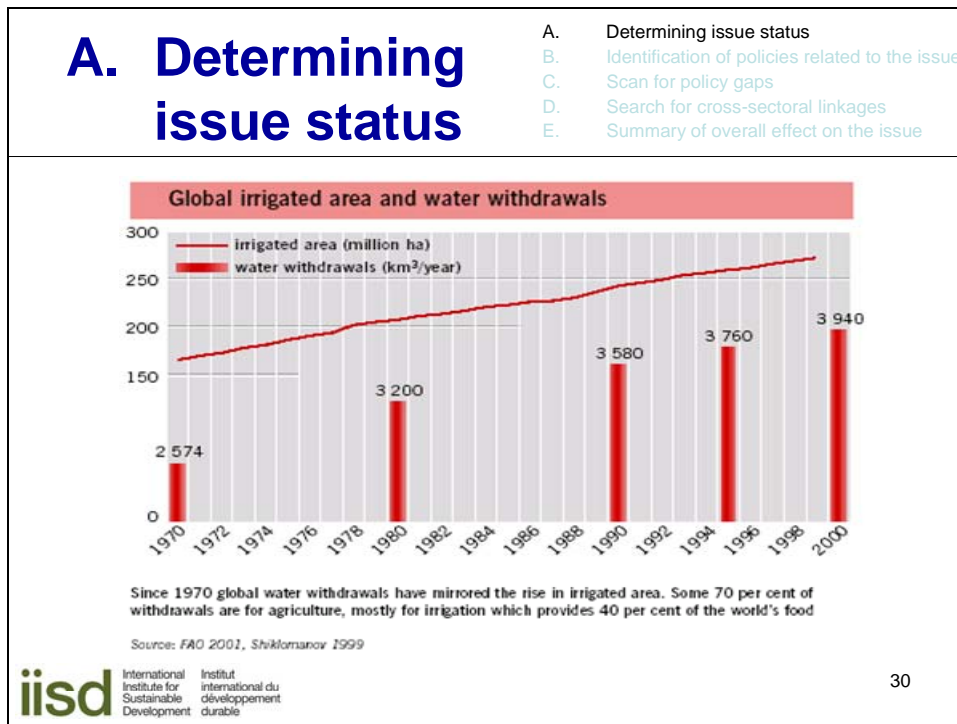
- A. Determining issue status
- B. Identification of policies related to the issue
- C. Scan for policy gaps
- D. Search for cross-sectoral linkages
- E. Summary of overall effect on the issue

The integrated process to analyze the effects of a policy mix on the environment involves a number of steps related to discovering what is happening to the environment and why.

1. First, it determines the actual status or condition of the environmental issue in question. This should answer the first question: What is happening to the environment?
2. The analysis then tries to uncover policies that may have links to the issue. This step and the following ones address the question: Why are the changes happening?
3. The next step is to scan for any policy gaps the effects on the issue may reveal; identification of policy gaps may identify opportunities for introducing policy measures not yet in force in that particular country or in the context of the given issue;
4. The process includes a search for links with other sectors and an analysis of potential multiple benefits;
5. Finally, a summary of the overall effect of policies can be drawn from the integrated analysis.

Examples and details are given in the next few slides to help to understand these steps.

## SLIDE 30: A. Determining issue status

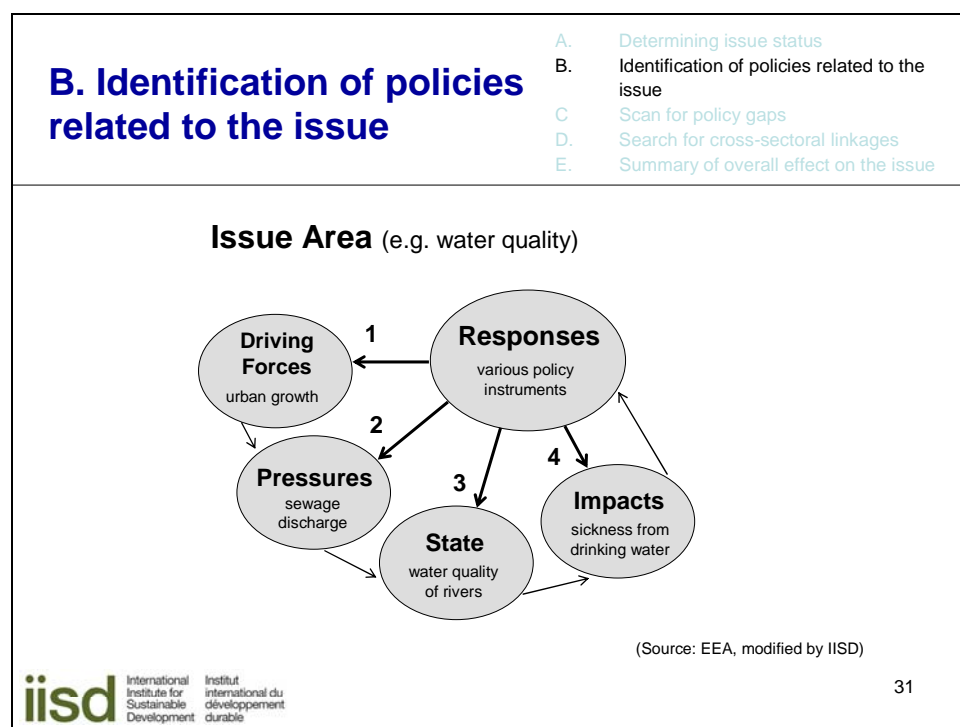


The first step in assessing a policy mix and its effects on the environment is to determine the status of the environmental issue in question.

For example, a global state of the environment report would provide information about the status of water quantity available for societal use. To get a full picture of the extent of freshwater resources it would provide a series of indicators. One indicator might show percentages of water withdrawn from surface and groundwater. Another could indicate total freshwater withdrawals for various uses such as irrigation, thermoelectric, industrial, municipal, and rural use. The indicator illustrated here shows trends in water withdrawals for irrigation. We see that both the amount of water withdrawn and the amount of irrigated land have increased from 1970 to 2000. But we don't know why.

Integrated Environmental Assessment seeks to link the issue status with policies that may have influenced the condition or trend.

## SLIDE 31: B. Identification of policies related to the issue

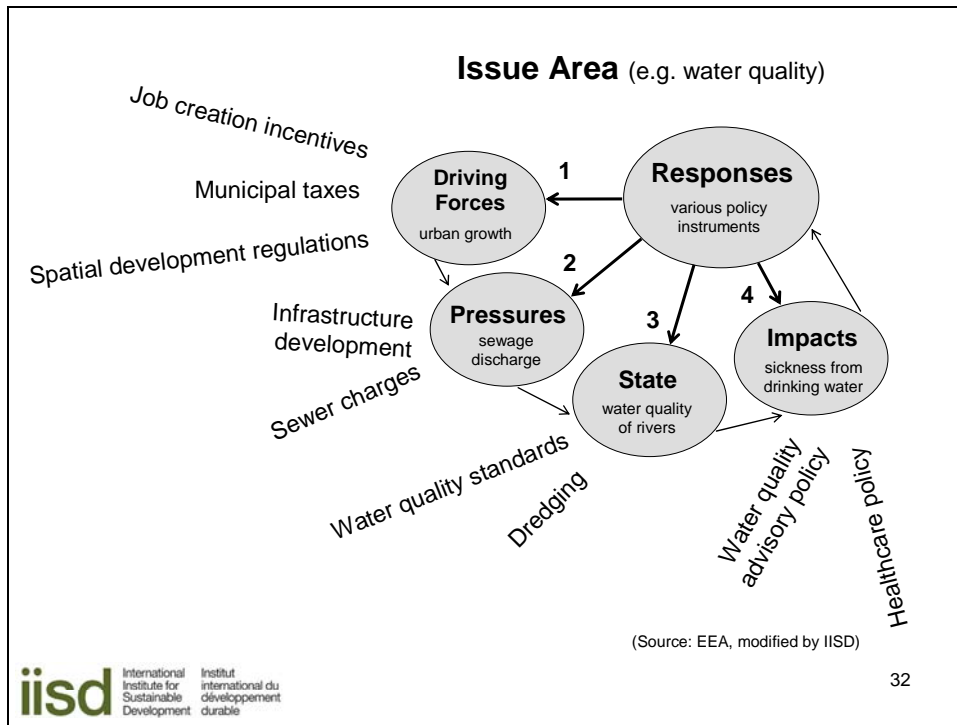


The second step in assessing a policy mix and its effects is to identify the myriad of policies related to the environmental issue in question. *A key message is that integrated environmental assessment needs to incorporate scanning the whole system for policy linkages.* The reason for this is that the intentional or unintentional consequences of policies are often dispersed over space, sectors of the economy, and environmental media. They can also be delayed in time. The consequences of policies can be incremental and cumulative and may represent root causes of environmental problems.

Integrated Environmental Assessment tries to uncover the web of these interrelated links to policies implicated in a given environmental issue. In GEO it uses a conceptual model based on the Pressure-State-Response framework originally developed at Statistics Canada.

**Pressures** can be both natural and anthropogenic. Direct pressures on the environment include polluting emissions and resource extraction. Underlying these pressures are agents of change, often referred to as **Driving Forces**. They include population growth, consumption, and poverty and are related to socioeconomic and political situations. **The State** refers to the condition of the environment resulting from these pressures. In this example, urban growth (the Driving Force) has led to increased discharges in sewage (the direct Pressure), which can affect the state of water quality. In turn, the state of the environment has impacts on human health and well-being as well as the socio-economic fabric of society. These are the **Impacts**. In our example, increased sewage could lead to water-borne disease. **The Response** refers to policies and actions taken by governments and civil society to mitigate or redress environmental problems, including various policy instruments.

## SLIDE 32: Using the PSR framework to uncover the effects of a policy mix



Still using water quality as an example of an issue area, this slide illustrates how IEA uses the PSR framework to uncover the mix of policy directives that could be related to the status and trends in water quality.

Underlying pressures, called *Driving Forces*, include policy instruments. For example, job creation incentives and spatial development regulations related to urban growth could stimulate the development of water infrastructure schemes to deal with the added *Pressures* of increased sewer discharges from a growing city population. Municipal taxes could be instituted to finance the projects. Policies to maintain water quality in rivers would include setting up standards. These would enable the measurement of the water's *State*. Policies that address the *Impacts* on human health and the environment from water pollution include water quality advisory boards and policies related to healthcare. Various policy instruments would be implemented to act as *Responses* to redress any causes of deficiencies in water quality.

It is clear from this model that **no policy exists in isolation**. It is important to consider the many other unintended links that exist, both among various environmental policies and between environmental and other types of policies.

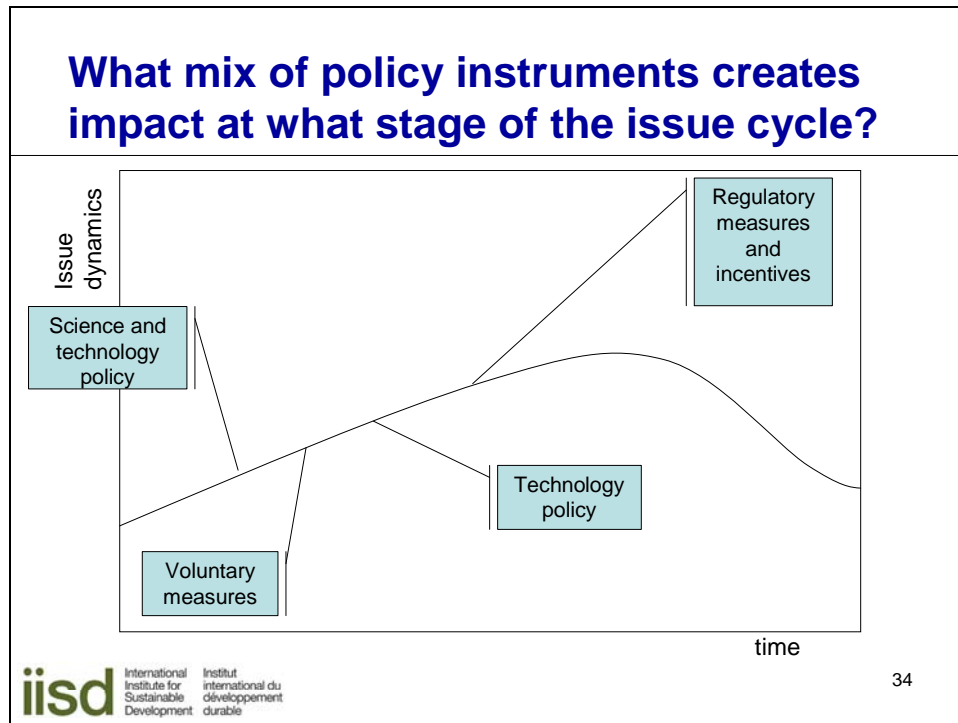
## SLIDE 33: C. Scan for policy gaps

<b>C. Scan for policy gaps</b>	A. Determining issue status B. Identification of policies related to the issue C. Scan for policy gaps D. Search for cross-sectoral linkages E. Summary of overall effect on the issue
<ul style="list-style-type: none"><li>• Relevant policy not in place</li><li>• Policy not implemented</li><li>• Policy malfunctioning</li></ul>	
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The third step in assessing the policy mix and its effects is to scan for policy gaps. Having assessed the policies that already exist, a scan should reveal:

- Relevant policies that could affect the environmental issue but that are not in place;
- Existing policies that haven't been implemented; and
- Malfunctioning policies -- that is policies originally designed to deal with the environmental issue in question, but not having the desired effect, or producing significant unintended negative effects.

## SLIDE 34: What mix of policy instruments creates impact at what stage of the issue cycle?



One way to find policy gaps is to look at the sequence of policies identified and the stage at which each one has an impact on the environmental issue.

For example, in the case of climate change, the policy objective of some countries is to reduce greenhouse gas emissions to earlier levels. The Y axis of this graph monitors the dynamics of the application of various hypothetical policies on the evolution of the issue.

# SLIDE 35: Using a policy review matrix to identify critical policy gaps

**Using a policy review matrix to identify critical policy gaps**

Policies \ Sectors	International mechanisms	National sustainable development policies	Financial and fiscal policies	Legal instruments	Economic instruments	Awareness raising and education policies	Voluntary standards and instruments	Social policies
Land								
Forest								
Water	+	+	?	+	?	?	+	?
Atmosphere								
Biodiversity								
Marine & coastal environment								
Urban & industrial environment								

Policy name  
 Implementing agency  
 Date since policy is in effect

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A policy review matrix is a useful tool that can help identify policy gaps.



## SLIDE 36: D. Search for cross-sectoral linkages

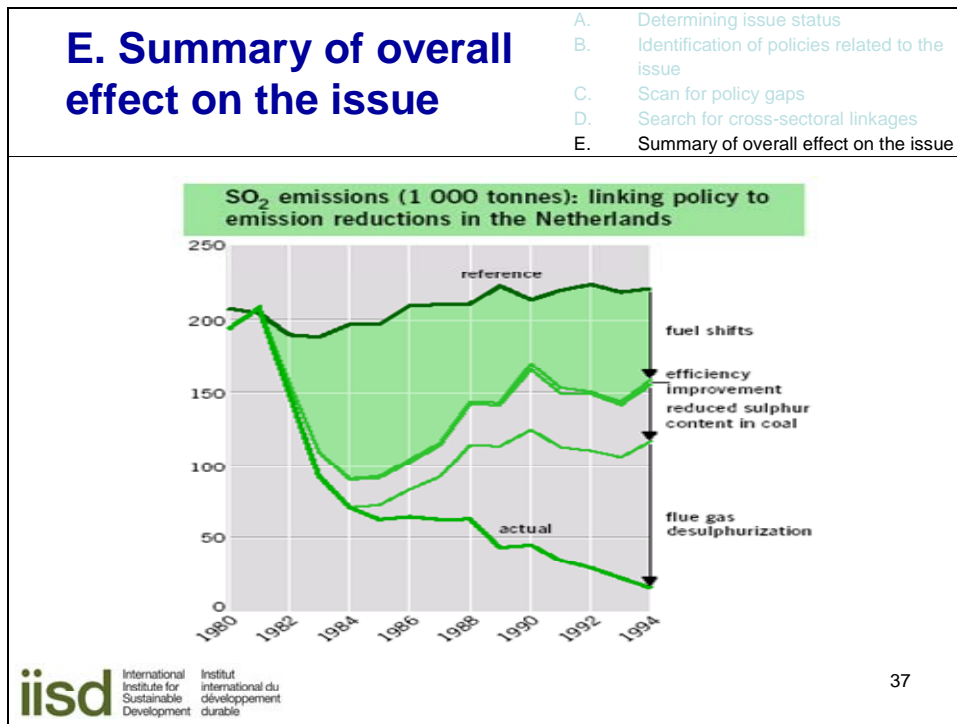
Policies								
Sectors	International mechanisms	National sustainable development policies	Financial and fiscal policies	Legal instruments	Economic instruments	Awareness raising and education policies	Voluntary standards and instruments	Social policies
Land		+	++		+			
Forest								
Water	+/-	+	?	+	?	?	+	?
Atmosphere								
Biodiversity								
Marine & coastal environment								
Urban & industrial environment								

- A. Determining issue status
- B. Identification of policies related to the issue
- C. Scan for policy gaps
- D. Search for cross-sectoral linkages
- E. Summary of overall effect on the issue

The next stage in an analysis of the policy mix and its effects is to search for cross-sectoral linkages.

The matrix shown on this slide is a useful way to summarize the existing environmental policies for a given region or country. It also links policies with specific issues of concern.

## SLIDE 37: E. Summary of overall effect on the issue



Finally, the analysis should put the results of these five steps together for an overall summary of the policy mix's effect on the environmental issue. This slide provides a graphic summary of sulphur dioxide emission trends and also explains the underlying policy drivers.

In the Netherlands, a shift in fuel from oil to natural gas produced a net decrease in SO<sub>2</sub> emissions until the mid-1980s when increased use of coal reversed the trend. Since 1983, the sulphur content of coal has been reduced, while flue gas desulphurization units began to be fitted to Dutch power plants in 1986, with 96 percent equipped by 1996.

Note: the reference line above is based on electricity produced

Source: EEA 2000

## SLIDE 38: 2. Analysis of specific policies and their effectiveness

### 2. Analysis of specific policies and their effectiveness

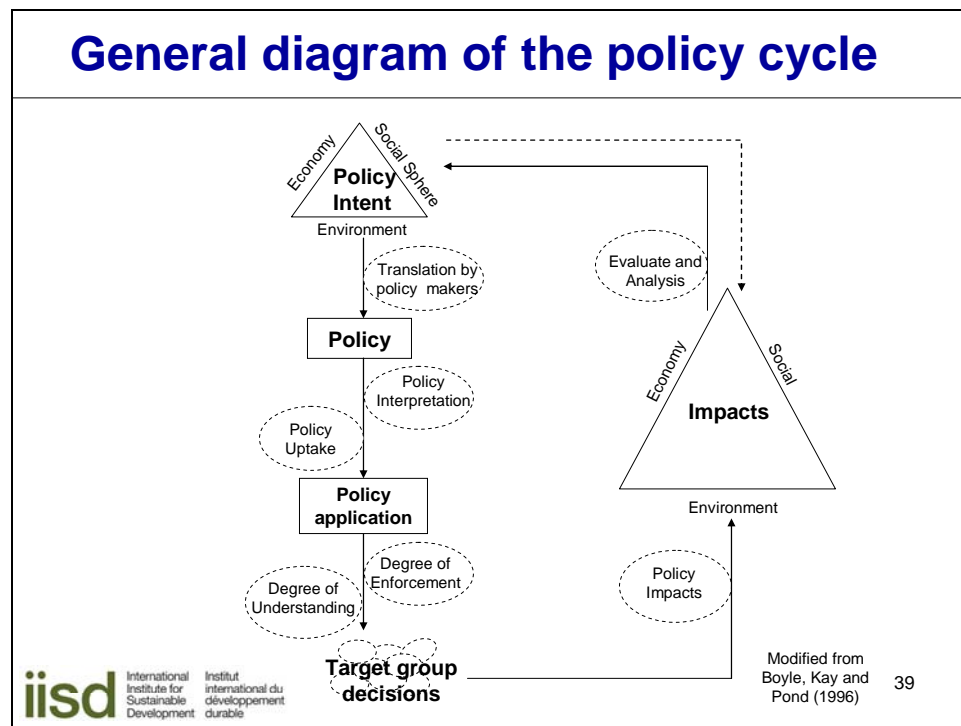
- A. Identifying priority policies
- B. Identification of performance criteria associated with the policy
- C. Selection of policy specific indicators
- D. Policy effectiveness analysis in light of expected and actual performance

Integrated Environmental Assessment not only looks at the **Effects** of a policy mix, but also at **Effectiveness**. In other words, it also assesses the actual performance of policies as measured against the planned or desirable goals iterated in a policy statement. The assessment of policy performance can only be conducted on a *single policy* at a time.

There are a number of steps in the analysis of the effectiveness of specific policies:

- A. Identification of priority policies
- B. Identification of performance criteria associated with the policy
- C. Selection of policy specific indicators
- D. Policy effectiveness analysis in light of expected and actual performance

## SLIDE 39: General diagram of the policy cycle




This diagram illustrates the process a policy intent goes through before it is analyzed for effectiveness and how the performance analysis feeds back to influence the original policy.

A policy intent or goal adopted by a government (whether related to the economy, the environment, or society) is formulated into a policy statement. The policy is then taken up, interpreted, and applied to the target group. Its character and strength are influenced by the degree of understanding with which it is applied and the vigor with which it is enforced.

Once enacted, the policy will affect the target, in this case the environment, and potentially other spheres as well, such as socioeconomic aspects related to the issue. Analysis of the policy's effectiveness will determine to what extent it is having the desired result and could lead to policy revisions to improve its performance.

## SLIDE 40: A. Identifying priority policies


<h3>A. Identifying priority policies</h3>	A. Identifying priority policies B. Identification of performance criteria associated with the policy C. Selection of policy specific indicators D. Policy effectiveness analysis in light of expected and actual performance
<p><b>Criteria for selecting policies to include in analysis:</b></p> <ul style="list-style-type: none"><li>• Relevance for public and decision-makers</li><li>• Link with key environmental priorities identified in the SOE section</li><li>• Affecting the health, income and well-being of a large number of people</li><li>• Importance of policy response to an environmental situation that is:<ul style="list-style-type: none"><li>– physically severe</li><li>– changing rapidly</li><li>– irreversible</li></ul></li><li>• Related to the country's international obligations</li><li>• Potential for policy to cause disruption or conflict</li><li>• Potential for easy and feasible solutions</li><li>• Uniqueness of current policy initiative for region</li></ul>	
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The first step in assessing policy effectiveness is to identify which policies have most significance for the specific environmental issue being examined. These will be the ones to assess for effectiveness.

This is a list of the criteria for selecting priority policies to include in the analysis:

- Is the policy relevant for the public and decision-makers?
- Is the link between the policy and key environmental priorities identified in the State of the Environment report?
- Does the policy affect the health, income, and well-being of a large number of people? (stipulating the use of non-leaded fuels, for example)
- Is the policy an important response to deal with an environmental situation that is
  - physically severe (a polluted drinking water source)
  - changing rapidly (soil erosion after flooding)
  - irreversible (species loss)
- Does the policy relate to the country's international obligations? (controlling chemicals that destroy the ozone layer)
- Is there the potential for the policy to cause disruption or conflict?
- Does the policy potentially offer easy and feasible solutions?
- Is the policy a unique initiative suitable to the region?

## SLIDE 41: B. Identification of performance criteria associated with the policy


<b>B. Identification of performance criteria associated with the policy</b>	A. Identifying priority policies B. Identification of performance criteria associated with the policy C. Selection of policy specific indicators D. Policy effectiveness analysis in light of expected and actual performance
<ul style="list-style-type: none"><li>• Ideally, performance criteria and requirement for evaluation are built into policies</li><li>• Usually, however, policies are designed without clearly defined and specific performance criteria or with criteria unrelated to environmental performance</li><li>• Range from general and descriptive to specific and quantitative</li><li>• Provide a basis for comparison between planned or desirable performance and actual performance</li></ul>	
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Performance criteria provide the basis for determining whether the results of a policy can be considered a success or a failure. Once a manageable number of high-priority policies have been identified, the next step is to determine criteria that help evaluate their performance from an environmental and sustainable development perspective.

- Ideally, performance criteria and requirement for evaluation are built into policies.
- However policies are usually designed without clearly defined and specific performance criteria or with criteria unrelated to environmental performance. (This is often so for economic policies related to taxation, trade, or investment. Although these may have very significant links to environmental issues -- in fact they may be the key drivers of environmental change -- their built-in evaluation criteria are usually limited to economic performance. This makes their evaluation particularly challenging from an environmental and sustainable development perspective.)
- Performance criteria range from general and descriptive measures to more specific and quantitative ones.
- Performance criteria provide a basis for comparison between the planned or desirable performance of a policy and its actual performance.

## SLIDE 42: Examples of performance criteria

<b>Examples of performance criteria</b>	
Type of criteria	Example
Benchmark	Highest percentage of households connected to sewage system in a comparable entity in the same jurisdiction
Thresholds	Maximum sustainable yield of a fishery
Principle	Policy should contribute to the increase of environmental literacy
Standards	Water quality standards for a variety of uses
Policy-specific targets	Official development assistance shall be 0.4% of GNP
Targets specified in legal agreements	Percent reduction in greenhouse gas emissions by target date


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Performance criteria can be based on a number of considerations and influenced by scientific and political factors. In the rather common case of criteria not being available, the analyst is left with the task of either adopting a more descriptive policy analysis, or selecting second-best or proxy criteria. Selecting criteria can be based on or informed by the following:

**Benchmarks:** The policy's performance is compared with a documented best-case performance related to the same variable within another entity or jurisdiction. *Example: highest percentage of households connected to sewage system in a comparable entity in the same jurisdiction.*

**Thresholds:** The value of a key variable that will elicit a fundamental and irreversible change in the behavior of a system. The policy is evaluated based on its role in making the system move toward or away from the threshold in any given period. *Example: maximum sustainable yield of a fishery*


**Principle:** A broadly defined and often formally accepted rule. If the definition of the principle does not include a relevant performance measure, the evaluator should seek a mandate to identify one as part of the evaluation. *Example: the policy should contribute to the increase of environmental literacy.*

**Standards:** Nationally and/or internationally accepted properties for procedures or environmental qualities. The policy is successful if it helps keep performance within specified limits. *Example: water quality standards for a variety of uses.*

**Policy-specific targets,** Determined in a political process taking past performance and desirable outcomes into account. *Example: development assistance shall be 0.4 per cent of national GNP.*

**Targets specified in legal agreements.** Determined in a legal process taking past performance and desirable outcomes into account. *Example: percent reduction in greenhouse gas emissions by target date.*

## SLIDE 43: C. Selection of policy-specific indicators

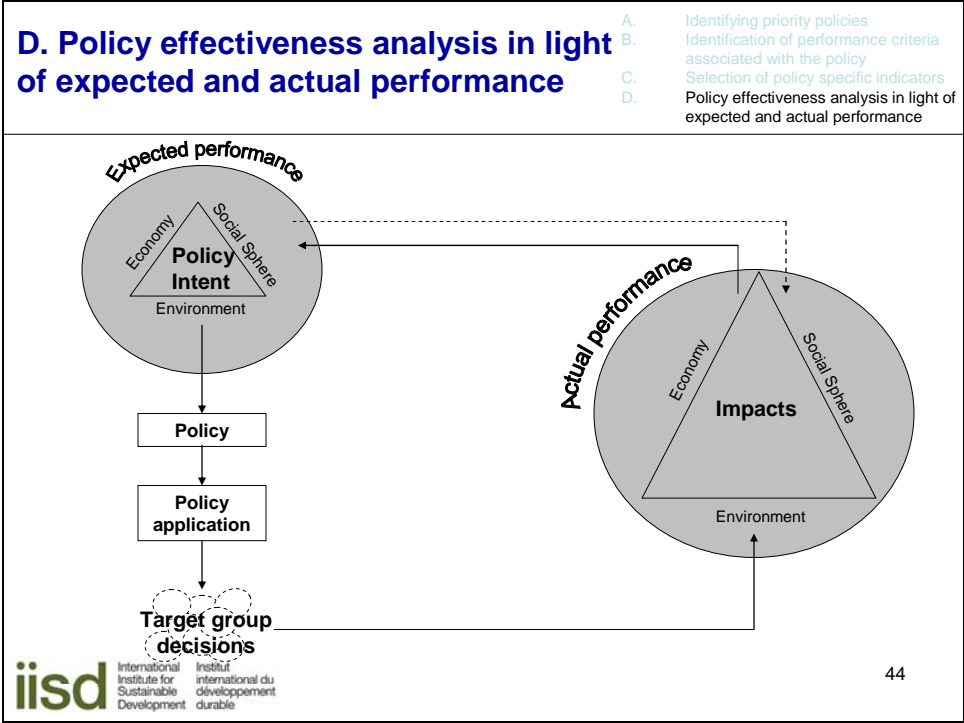
<h3>C. Selection of policy-specific indicators</h3>	<ul style="list-style-type: none"><li>A. Identifying priority policies</li><li>B. Identification of performance criteria associated with the policy</li><li>C. <b>Selection of policy specific indicators</b></li><li>D. Policy effectiveness analysis in light of expected and actual performance</li></ul>
<p>Issue: water quality Policy: WQ monitoring Indicator: number of WQ monitoring stations</p> <p> International Institute for Sustainable Development / Institut international du développement durable</p> <p style="text-align: right;">43</p>	

Once the priority policies for assessment have been identified and the performance criteria chosen, certain measures must be decided upon that indicate to what degree the performance criteria is being achieved.

Take the example of a policy mandating periodic water quality monitoring with the goal of ensuring a safe standard of water quality (As shown in the previous slide, standards are performance criteria). One indicator that helps to measure whether water quality monitoring is being carried out adequately would be data on the number of water quality monitoring stations.



# SLIDE 44: D. Policy effectiveness analysis in light of expected and actual performance



The final step is to compare actual performance with the results expected or desired by the policy intent.

## SLIDE 45: Recommended references


### Recommended references

- Sadler, B. and R. Verheem. (1996) SEA: Status, challenges and future directions. The Netherlands: Ministry of VROM
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## SLIDE 46: POLICY MIX AND EFFECTS ANALYSIS EXERCISE

**POLICY MIX AND EFFECTS  
ANALYSIS EXERCISE**

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### NOTES TO INSTRUCTOR:

The following are two interactive exercises designed to help participants test the methods they just heard about in this module. The first exercise is focused on the analysis of policy effects based on the policy mix, and the second on the analysis of policy effectiveness, focused on individual policies. You should introduce the exercise as a learning opportunity where participants are invited to try and apply these methods to practical issues they are familiar with in their regions. Point out that there are no right or wrong answers; the emphasis is on constructive and active dialogue within the groups and in plenary.

The introduction should be followed by the overview of tasks. Although you should mention that the exercise will have two stages, leave the detailed introduction of the second exercise to later. It is not uncommon that based on the results of the first segment, slight modifications in the course of the exercise are necessary.

When describing the steps in the exercise, try to have an example from the region as an illustration. Even better, try to approach a local participant before the workshop (e.g., the local coordinator) and invite him or her to take part by describing the local example as you go through the general steps of the process.

The exercises are carried out in small groups, ideally 5-7 participants, so the setup of the meeting facility is critical. Ideally, there are small meeting rooms, or at least the room can be configured

so that groups can sit down in separate corners and work without disturbing others. As an instructor, you should be ready to shuttle between small groups and answer questions. If possible, try to influence the choice of issues by the groups to ensure they focus on slightly different issues to have some diversity. Results of small group work should be captured by a rapporteur and reported back in full plenary, so you need either flipcharts, overhead transparencies, or some other means of capturing results.

The time requirement for the exercise is ca. 1.5 hrs per segment, depending on the number of breakout groups – and thus the length of report-back. Ensure that at the end there is time left for instructors to do a brief evaluation of what was heard, including confirmation of what was right and what could be improved and how. This is a critical part of the debriefing and learning process.

## SLIDE 47: GENERAL GUIDELINES FOR SMALL GROUP WORK

### GENERAL GUIDELINES FOR SMALL GROUP WORK

- Form groups of 5-7
- Select rapporteur to take notes and present key findings (always a different person, please)
- Give everyone a chance to speak
- Ask questions!

Instructor to go through general rules for the exercise.

## SLIDE 48: POLICY MIX AND EFFECTS ANALYSIS EXERCISE


### POLICY MIX AND EFFECTS ANALYSIS EXERCISE

1. Select either climate change or water as an important environmental issue and identify a small number of indicators related to its status
2. Identify a small set of key policies in force related to the issue (in positive or negative ways), using the DPSIR framework and the categories in the policy review matrix as guides if necessary
3. Analyze policy mix to identify policy gaps, policy options that would in your view have a major positive impact on the issue
4. Identify for illustration 2-3 policies in another sector (e.g. climate change, energy, agriculture sectors if you chose water); analyze existing or possible cross-sector linkages
5. Formulate statement related to the overall effect of the suite of policies on the issue
6. Help prepare your rapporteur deliver a *brief* summary presentation

Describe steps in the exercise.

## SLIDE 49: POLICY EFFECTIVENESS ANALYSIS EXERCISE

**POLICY EFFECTIVENESS  
ANALYSIS EXERCISE**

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Introduce the second exercise using a similar approach to the first: overview of steps, using a local example if possible; small group work; and, report back with evaluation at the end. Note that groups may want to identify a specific policy(ies) to analyze based on their results in the first exercise, thus having some continuity.

## SLIDE 50: POLICY EFFECTIVENESS ANALYSIS EXERCISE

### POLICY EFFECTIVENESS ANALYSIS EXERCISE


1. Select priority environmental issue (can be same as issue you worked with in the previous session)
2. Identify 2-3 policies related to the issue
3. Identify policy-specific indicator(s)
4. Identify performance criteria
5. Compare expected and actual performance and analyze; you may find it helpful to draw a table such as the one on the next slide
6. Formulate statement related to the overall effectiveness of the policy
7. Help prepare your rapporteur deliver a **brief** summary presentation

Instructor to describe steps in the methodology.



# SLIDE 51: PERFORMANCE COMPARISON TABLE

Issue:		
Policy	1:	2:
Indicator		
Expected status and performance		
Actual status and performance		
Conclusion		


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In order to keep track of results, participants may want to use a simple table where they identify and in a sentence describe the issue their selected policy or policies apply to; a small number (1-2) of indicators they use to characterize policy performance; expected level of performance, preferable expressed as a desired level of the indicators identified; actual status of the indicator(s); and, conclusions.