

**Environmental Assessment in
Policy and Program Planning:
A Sourcebook**

Federal Environmental
Assessment Review Office

June, 19 1992

PREFACE

This preface, which should likely be signed by the head of FEARO (i.e., the new agency, once legislation is approved), will set the context and tone for the sourcebook. It might cover the following points:

- signal the creation of the agency, and the joint commitment of the agency and Environment Canada to promote and support the environmental assessment of policies and programs
- highlight the sourcebook as an important means to achieve the above objective
- highlight the flexible approach adopted in the sourcebook
- encourage refinement of approaches, and sharing of ideas and experiences within the federal community

CONTENTS

PART A: INTRODUCTION AND OVERVIEW

I	Introduction	1
	Background	1
	Purpose of the Sourcebook	2
	Some Things to Keep in Mind	3
	For Further Information and Help	4
II	A Commitment to Policy and Program Assessment	6
	Context	6
	The Objectives of Environmental Assessment	7
	The Government's Commitment to Policy and Program Assessment	8
	Rationale for Assessment at the Policy and Program Planning Stages	10
III	How Policies and Programs Can Affect the Environment	13
	Key Terms and Concepts	13
	The Range of Federal Policy Areas with Potential Environmental Effects	20
IV	Nature of the Assessment Process	22
	Key Questions Addressed in the Assessment	22
	Sources of Information for the Assessment	23
	The Basic Steps in a Typical Assessment	24
	Some Tools and Techniques	27
	Designing the Assessment Approach	30
V	Some Final Words	31

PART B: STEP-BY-STEP DETAILS

I	Pre-Assessment	34
II	Assessment	36
III	Post-Assessment	51

ACKNOWLEDGEMENTS

In developing this sourcebook, the Federal Environment Assessment Review Office (**FEARO**) has benefited from the insights **and** experiences of a wide range of academics and practitioners in the field of environmental assessment. More than 1 000 articles on the subject were reviewed. In addition, many environmental agencies in Canada, the United States, Europe, Australia and New Zealand were consulted to gain a better understanding of how environmental assessment might apply at the policy and program planning levels.

The project was coordinated on behalf of FEARO by **Kristina Pleszczynska**, Ph.D., who also participated in many of the conceptual development and consultation sessions.

J. Phillip Nicholson, M.A.,M.C.P., directed the research and is the principal author. His firm, **J. Phillip Nicholson Policy and Management Consultants Inc.** undertook the design, editing, translation and production of the sourcebook. Under Mr. Nicholson's direction, a number of experts provided research and analytic support: **Professor Hok Lin Leung** of the School of Urban and Regional Planning at Queen's University helped develop some of the concepts and principles upon which the sourcebook is based. **Dr. Andrew Reamer** and staff of Mount Auburn Associates, based in Somerville, Massachusetts, reviewed more than 20 state-level agencies responsible for environmental planning and assessment, and also provided comments on early drafts of this sourcebook. **Dr. Elizabeth Street** and **Dr. Grant Ledgerwood** of Street/ Ledgerwood Associates, located in London, England, provided information on selected UK and continental European approaches to environmental assessment of policies and programs.

A federal **Interdepartmental Committee on Environmental Assessment** (and corresponding Working Group), representing more than a dozen departments and agencies of the Government of Canada, provided useful suggestions throughout the development of the sourcebook.

A number of **US federal agencies** — most notably the **Council on Environmental Quality** (an agency of the Executive Office of the President), the **Environmental Protection Agency**, the **Department of Energy**, and the relevant sub-committees of the **Senate** and the **House of Representatives** — generously shared their insights on American experiences.

An **International Working Group on Environmental Assessment of Policies**, under the aegis of the **Economic Commission for Europe** and comprised of representatives from some 20 industrialized nations (including Canada), shared results of their work, and provided helpful comments to a presentation, in Washington, of some of the core concepts and principles in this sourcebook. In addition, the author benefited from participation in two **international workshops** on the subject — one a trilateral session with Canada, Australia and New Zealand, and the other a bilateral conference involving representatives from Canada and the Netherlands.

The valuable contribution of all of the above to this important initiative is hereby gratefully acknowledged.

PART A:
INTRODUCTION AND OVERVIEW

I INTRODUCTION

Background

Most federal departments and agencies have considerable experience in using environmental assessments as a tool to identify and assess potential impacts of specific **projects** under their purview. However, few have extensive experience at the **policy and program** levels. Indeed, the art and science of environmental assessment at the policy and program planning levels is not particularly well established in any jurisdiction in the world. At the same time, there is a growing recognition that conducting environmental assessments only at the **project** implementation stage is often a case of too little, too late. Accordingly, government agencies in **industrialized** nations around the world have, in recent years, placed heavy emphasis on the establishment of new mechanisms and processes to ensure timely environmental assessments in the early stages of planning and design of their policies and programs.

In June of 1990, the Government of Canada outlined a package of reforms intended to strengthen and complement the federal Environmental Assessment and Review Process (EARP). The package introduced legislation to establish a new **Canadian Environmental Assessment Act**, that would, among other things, enhance **current** provisions for the federal government's environmental assessment of **projects**, and create a new Canadian Environmental Agency (formerly FEARO) that would operate at arms-length from Environment Canada. At the same time, the package announced a new, non-legislated environmental assessment process established by Cabinet that applies to a range of **policy and program** initiatives (i.e., as distinct from **projects**). This new policy and program assessment process promotes the early consideration of environmental factors in the planning and design of relevant policies and programs of the federal government. (See the following chapter for details on the application of this process).

Purpose of the Sourcebook

This sourcebook is designed to assist any federal manager, policy planner, program analyst, evaluator or other official who may be required to conduct or participate in an environmental assessment of a policy or program. While the primary emphasis is on the assessment of new policies or programs, the concepts and suggested processes in this sourcebook are equally applicable to the assessment of *existing* policies or programs (e.g., as part of a policy review or program evaluation study).

More specifically, Part A of this sourcebook is designed to provide an introduction and overview to the environmental assessment of policies and programs. It does so by:

- highlighting the **importance of environmental assessment as a critical element of policy and program planning**, in particular as a means to:
 - support the achievement of the government’s environmental objectives; and
 - promote informed choice on policy and program options that involve trade-offs amongst various social, economic and environmental factors
- explaining the government’s decision on **which types of policies and programs are to be subject to an appropriate environmental assessment**, and the **rationale for assessment at the policy and program stages**
- highlighting **how assessments at the *policy and program* planning stages can link to *project* assessments**
- providing an **explanation of how federal policies and programs can affect the environment**, including an explanation of **key terms and concepts**
- providing **some examples of federal policy and program areas that might have appreciable environmental impacts**
- providing an **explanation of the assessment process, and how it applies at the policy and program levels**, including the **key questions addressed, the major sources of information and advice**, and the **basic steps in a typical assessment process**
- reviewing some **tools and techniques** that may be useful to managers in various stages of the design and conduct of an environmental assessment of policies and programs
- providing some **cautionary notes** that help place some practical limits and realistic expectations on what can and cannot be achieved in the environmental assessment of policies and programs

Part B of the sourcebook provides **more detailed suggestions** regarding actions that can or should be considered in **each step of a typical assessment**, together with some **cautionary notes on key factors** to keep in mind at each stage of the process.

Some Things to Keep in Mind

1. **This is a sourcebook of helpful concepts and ideas from which managers can pick and choose. It is *not* a prescriptive manual or directive.** Departments and agencies are encouraged to *customize their* approaches, to meet their own particular needs and circumstances, and to seek advice and expertise from others as needed.
2. **The early *integration of environmental considerations should be seen as an essential and integral part of normal policy and program planning and review.*** Environmental assessments help make policy and program analyses more comprehensive and complete by supplementing social and economic considerations with an environmental perspective. This is vital for the proper consideration of impacts and trade-offs.
3. **While this sourcebook is designed primarily to help with assessment of *new policy and program initiatives*, many of the concepts, approaches and techniques may be relevant to the assessment of *existing policies and programs*.**
4. **Environmental assessments need not always be *laborious*.** Many assessments can be done relatively quickly and informally. This sourcebook stresses the importance of keeping assessments simple, focusing on the most *pertinent* factors and data.
5. **Environmental assessment is a *tool to enhance decision-making*; it is not the decision-making process itself. The** primary goal of the environmental assessment process is to ensure that potential environmental impacts and their consequences are given proper consideration. The findings do not automatically result in a specific decision, but are taken into account in the decision-making process.
6. **Policy and program assessments do not exist in isolation; they complement, and are complemented by, *project assessments*.** Policy and program assessments focus primarily on the basic *feasibility* of a proposal. More detailed issues related to *implementation*, especially on a site-specific level, are often best left to the *project* stage. A policy or program assessment can help anticipate implementation issues, and set consistent terms of reference for more detailed assessments at the project stage.
7. **There can be a great deal of uncertainty in identifying and assessing impacts at the policy and program level.** The absence of hard data should not stand in the way of *qualitative* assessments. The important thing is to anticipate the potential form, direction and general magnitude of any impacts.
8. **Assessment of policies and programs is relatively new. The concepts, tools and techniques are still evolving.** Managers are encouraged to experiment with *various* approaches and to share insights on effective approaches with their colleagues and with their counterparts in other agencies. They should also **recognize** that the proper positioning of environmental assessment procedures in their organization's policy and program planning processes will take time, effort and a **spirit of cooperation**.

For Further Information and Help

Individual ministers and, by extrapolation, their departments and agencies, will remain fully accountable for the environmental consequences of their policies and programs, for the quality of their environmental analyses, and for the content of any public statements regarding the environmental consequences of policies or programs under the purview. This does not mean, however, that they are left to their own devices. Indeed, there are a number of important sources from which they can obtain advice and assistance.

FEARO is responsible for monitoring and maintaining an inventory of federal environmental reviews and related public documentation, including public statements and press releases. All of these are available to interested departments or agencies, and can provide useful insights into different approaches to conducting environmental assessments and/or preparing related public statements.

FEARO, **in collaboration with Environment Canada**, will further help departments and agencies by:

- sharing information on appropriate methodologies and procedures for doing assessments
- providing training aids and advice (e.g., sample assessments, workshops and seminars) on methodologies and procedures for doing assessments

Environment Canada, which has more specific and technical expertise, can directly help departments and agencies in their assessments, by:

- explaining the government's sustainable development strategy and specific environmental objectives, and helping them identify and understand how their various policies and programs may relate to these objectives
- providing policy, scientific and technical advice on a case-by-case basis
- assisting in their preparation of public communications on the environmental implications of proposed policies and programs

Other sources of information and advice include:

- **colleagues in other branches or sectors** of the sponsoring agency, and in **other departments and agencies** of government, that may have relevant data, technical expertise or practical experience in comparable assessments
- **colleagues in other jurisdictions throughout Canada and internationally**, that may have conducted (or are in the process of conducting) assessments of comparable policies or programs

-
- **academics and professionals** with **specialized** expertise or knowledge pertinent to the policy or program assessment at hand (**FEARO** and Environment Canada, as well as other departments and agencies can help by providing names and assisting in gaining contact with these experts)

(NOTE: This sourcebook might include a specific point of contact for further information, i.e., not by personal name but by name of organization and function, together with an appropriate telephone contact. This should be discussed further.)

II A COMMITMENT TO POLICY AND PROGRAM ASSESSMENT

Context

The impetus for the environmental assessment of policies and programs comes from the government's commitment to the achievement of its environmental objectives, as highlighted in the **Green Plan**, and as reflected in a wide range of more specific environmental policies and initiatives.

In the **Green Plan**, the Government of Canada set an important national objective: "**To secure for current and future generations a safe and healthy environment, and a sound and prosperous economy.**" This objective supports the achievement of the goals of **sustainable development** recommended by the **U.N. World Commission on Environment and Development** ("**The Brundtland Commission**") and the subsequent **National Task Force on Environment and Economy**, established by the Canadian Council of Resource and Environment Ministers (now the Canadian Council of Ministers of the Environment).

Sustainable development is defined as "**development that meets the needs of the present without compromising the ability of future generations to meet their own needs.**" As noted in the **Green Plan**, sustainable development "... is an activity in which the environment is fully incorporated into the economic (and social) decision-making processes as a **forethought**, not an afterthought ..." and where natural amenities and resources are treated "on the basis of their future, as well as their present value." Thus, the achievement of sustainable development requires the early integration of environmental considerations in all relevant areas of government policy and program planning.

At the same time, government policies in general are being subject to greater scrutiny, to ensure that they are based on defensible assumptions and address the concerns of all relevant stakeholders. Most, if not all, policy and program proposals involve options and choices. By definition, then, they also involve trade-offs: the costs and benefits of one option compared to the costs and benefits of another. In simplistic terms, these trade-offs may be between social or economic objectives on the one hand, and environmental objectives on the other. More practically, however, the social, economic and environmental objectives are so closely inter-linked that such distinctions are meaningless. In any case, many policy or program options even involve trade-offs amongst different environmental objectives.

All of this argues for the full and balanced consideration of the costs of the implications (i.e., the costs and benefits) of each option from not only a **social** or economic perspective but also from an environmental one. Even if purely environmental concerns (if, indeed, there is such a thing) do not carry the day in assessing trade-offs (and frequently they do not), an assessment helps to make clear all of the implications of each option so that decision-makers can make their choices on an informed basis.

The Objectives of Environmental Assessment

With the above context in mind, it is clear that the purpose of an environmental assessment at any level (including policies and programs) is to promote consideration of environmental objectives and in any case to contribute to informed decision-making by identifying and assessing the environmental implications of any options under consideration.

More specifically, the objectives of environmental assessment — especially at the policy and program planning stages — are to:

- identify **opportunities to enhance environmental objectives** (without unduly jeopardizing the social and economic objectives) through the appropriate modification of policy or program proposals at an early enough stage in the planning process to be meaningfully considered
- identify **potential negative environmental consequences** of any policy or program proposals in sufficient time that consideration can be given to means by which these negative consequences can be **minimized** or avoided, whether through adjustment of some features of the proposal or through the development of more environmentally friendly alternatives
- anticipate the **need for appropriate mitigatory or ameliorative measures** to deal with any unavoidable negative environmental effects, and to integrate these plans (and related budgets) into the overall policy or program initiative
- support **informed decision-making** by providing decision-makers with an appropriate description and assessment of the known or likely environmental effects of any policy or program proposals, together with an assessment of their implications (i.e., to complement any social or economic analyses of the proposals)
- make explicit the **assumptions upon which any proposals and their assessments are based**, in order that these may be monitored and evaluated at subsequent implementation stages
- identify the **need for any follow-up monitoring or project-level evaluation**, including, where appropriate, any conditions under which an approved policy or program may be terminated, modified or subjected to a new assessment (e.g., in the event that key assumptions prove false during implementation)

The Government's Commitment to Policy and Program Assessment

As noted in the Background section of Chapter I, the government in 1990, announced a new, non-legislated environmental assessment process established by Cabinet that applies to a range of *policy* and *program* initiatives. This new ***policy and program assessment process*** promotes the early integration of environmental considerations in policy and program planning of the federal government.

More specifically, the new policy and program assessment process calls for:

1. the assessment of **proposals about policies or programs considered by Cabinet** for their environmental implications, where these are environmentally relevant, and the **release of a public statement** — at the time of announcement of the policy or program — regarding any anticipated environmental effects;
2. the **enrichment of environmental considerations** as part of the **existing *Regulatory Impact Analysis Statement* process** applicable to proposals for **consideration by either Cabinet or Ministers on their own authority, regarding the development of new regulatory instruments**; and
3. assessment of environmental implications of **proposals about policies and programs considered by Ministers on their own authority**, where in the view of the responsible Minister they are considered to warrant an environmental assessment and, if appropriate, a public statement.

Under the policy, **certain proposals may be *exempted*** from an environmental assessment, most notably:

- proposals responding to a **clear and immediate emergency where there is no time to conduct a normal assessment**;
- where the responsible Minister is of the opinion that an environmental assessment would be **inappropriate for reasons of national security**; or
- where the matter is of **such urgency that the normal process of Cabinet consideration is truncated** and even a simplified assessment is unable to be presented.

In the above cases, a follow-up assessment (i.e., after the fact) may be feasible to learn lessons for similar cases in the future.

In addition, no further assessment may be necessary for Treasury Board Submissions on matters already assessed under a previous proposal to Cabinet, under the EARP Guidelines Order or under the future ***Canadian Environmental Assessment Act***, and on corporate plans and budgets of Crown Corporations for their ongoing operations.

Where a policy proposal is inherently environmentally beneficial and is developed specifically for the purpose of environmental protection or improvement, an extra assessment and public statement under this process may not be required. However, assessments in such cases could be used as a tool to promote and enhance positive impacts and to ensure that the objectives are not achievable by other means. Also, an explanation of the manner in which the proposal contributes to the achievement of environmental objectives would be an appropriate linkage to this process.

The above provisions apply to proposals for *new* policy or program initiatives. **Recognizing** the important contributions that federal activities can make to improving the environment and/or avoiding or minimizing negative impacts, **many departments and agencies may wish to also conduct environmental assessments of *existing* policies,** pursuant to the Government's commitment to the ***Green Plan***. This might be integrated as part of the normal policy review and/or cyclical program evaluation process of the respective departments and agencies.

Rationale for Assessment at the Policy and Program Planning Stages

Until recently, environmental assessments have focused almost exclusively on the *implementation* stages of public initiatives, most notably the implementation of **projects**. Certainly, there is both a clear need and a ready opportunity to conduct appropriate assessments at implementation stages.

Projects typically have a finite and definable scope, timeframe, geographic location or boundary, and implementation mechanism or strategy. Furthermore, affected stakeholders can usually be readily identified, and the impact and implications of the project can usually be reasonably well identified and assessed. Assessment at the project or implementation stage is thus useful in addressing very specific and tangible issues and concerns. But it would be inadequate to rely solely on assessments of public initiatives at the implementation stage. Indeed, there are several compelling reasons why the environmental assessment of **policies and programs** is *vital* to good public decision-making, especially as a **complement** to project assessments:

1. **Environmental assessment at the policy and program formulation stage is needed to help determine the *basic feasibility* of a public initiative.** Assessment at the policy and program stage is necessary to help determine the overall acceptability of a given initiative (i.e., together with the consideration of social and economic implications). By contrast, project assessments address more specific concerns regarding how the policy is implemented within a specific timeframe and geographic context.
2. **Assessment at the policy and program stage represents the earliest (and sometimes best) opportunity to anticipate environmental problems and capitalize on opportunities that are likely to occur at subsequent project implementation stages.** Timely discovery of potential problems and opportunities at the policy stage **can help shape options** and **guide program and project implementation** to best satisfy environmental and other objectives. **Leaving assessment to the project stage may result in a foreclosing of attractive options.** Conversely, anticipating and responding early to problems that might otherwise become acute at the project level helps to gain public acceptance of chosen policies.
3. **Some important environmental opportunities and impacts can *only* be assessed at the policy stage, because there is no discrete program or project following directly on from the policy.** In these cases (such as immigration or procurement policies) the policies are not divisible into projects that might otherwise lend themselves to an appropriate environmental assessment at a later time or venue. Indeed, whatever “program” or “project” that may exist is essentially synonymous with the policy itself. Therefore, the only meaningful opportunity for environmental assessment is at the policy stage itself. In fact, any program that is so specifically prescribed at the **policy** stage that the form and nature of its **implementation** is essentially predefined, should be assessed at the policy stage.

-
4. **The *cumulative* environmental effects and socio-economic consequences of a public initiative can sometimes best (and occasionally *only*) be assessed at the policy or program stage.** Meaningful assessment of the combined or collective effects of a variety of discrete activities or projects (each with different timeframes and **scope** of application, and with a variety of initiators often spread across the country), is frequently difficult and often impossible. At the policy stage, however, **it is** sometimes possible to identify and appreciate — at least at a macro level — the collective impact of programs or projects under a common policy umbrella.
 5. **Assessment at the policy stage can help identify and define issues to be assessed in detail at subsequent project implementation stages. (The reverse is not true.)** The early assessment of a policy can be an efficient and effective means to establish **clear and consistent terms of reference** for the subsequent assessment of various programs or projects implemented under the general policy umbrella. This can help to minimize duplication of effort on subsequent program or project assessments, while ensuring a consistent and systematic examination of critical issues at the implementation stage of the policy.
 6. **The environmental assessment of policy helps bring environmental considerations into the mainstream of planning and decision-making.** By requiring a systematic and disciplined consideration of environmental factors at the highest and earliest levels of government decision-making, environmental assessment of policy helps to more **firmly** position environmental factors on the normal **policy** development and program planning agenda of government departments and agencies. By stimulating comprehensive planning even **before** assessments are carried out, opportunities for sustainable development can be accelerated. At the same **time**, untimely or costly surprises in subsequent program or project assessments can be minimized or eliminated.

Naturally, environmental factors can be considered **after** the basic social and economic factors of a policy or program have been addressed. But this is usually inefficient and counter-productive:

- **once a policy or program initiative is under way, it has a momentum of its own;** if environmental considerations are considered too late, many attractive options and opportunities may have been already foreclosed,
- **effort and resources may have been wasted exploring policy or program options that are clearly not viable once environmental factors are taken into account;**
- **the commencement of environmental analyses *after* social and economic analyses are completed may cause unacceptable delays,** especially if the environmental assessment identifies the need to re-examine basic policy or program design or options;

-
- **the separation of *social and economic* analyses from *environmental* analyses may cause duplication of effort** (for example, in consultations with stakeholders), and **may undermine the usefulness of each stage** because each deals with only a partial picture; and
 - ***integration is the new norm***; separation of social and economic analysis from environmental analysis is becoming an outmoded approach to public policy and program development.

III HOW POLICIES AND PROGRAMS CAN AFFECT THE ENVIRONMENT

Key Terms and Concepts

The environmental assessment of policies and programs involves systematic identification and analysis of the linkages between the policy or program under review (together with any alternatives or options that may be considered), and the specific means by which the policy or program will be implemented (i.e., implementation measures), and their ultimate effects, together with an analysis of the consequences of these effects in relevant terms. As will be explained below, environmental assessment focuses on known, likely or possible environmental effects of a policy or program, whether these are directly or indirectly the result of the policy or program.

Policy

For purposes of this sourcebook, a policy may be defined as any ***intention or commitment of the government — whether explicit or implicit — that establishes, or seeks to establish, the nature, tone and direction for government action within a prescribed area of interest or responsibility.*** A policy is usually designed to implement one or more objectives, i.e., the desired or intended end result of government action. Thus, a policy objective — whether explicit or implicit — **summarizes** the fundamental purpose or ultimate aim of the policy.

A policy may be formal, as in an explicit statement of government intentions or commitments approved by Parliament, Cabinet, the Treasury Board or an individual Minister. Alternatively, it may be relatively informal — even implicit. In any case, it reflects the basic strategies, approaches or intentions of a particular policy sector, department or agency, or even individual branch or program unit.

To varying degrees, policies govern the form, nature and direction of programs, and how they are implemented. In most cases, a policy applies directly to one or more specific programs under its formal purview (e.g., a policy of a particular department that guides programs within that same department). In many cases, however, the policy may be general in nature, covering an array of departments and programs. Whether specific or general in nature, a policy may in some cases directly control the program(s) under its purview. In other cases, it may merely be a partial influence on the program(s) or its(their) manner of implementation. Finally, there are situations where there is no specific or formal program directly corresponding to the policy. In these cases, the policy simply sets an overall climate within which individual decisions and activities take place, e.g., at the ***project implementation stage.***

Program

A program may be defined as ***an organized set of initiatives or functions carried out by government in pursuit of particular policy objectives, whether explicit or implicit.***

Programs operating under either the specific or only the general influence of a policy (whether direct or indirect as explained below) are implemented through one or more projects, activities, regulations and/or services. Some of these, such as procurement programs, construction activities, grants and contribution programs, and direct government services, are relatively tangible. Others, such as economic policy initiatives, regulatory programs, public information campaigns and intergovernmental and international relations initiatives, are sometimes less directly concrete or tangible. This does not mean, however, that they are any less relevant in terms of their potential for affecting the environment.

Implementation Measures

Implementation measures ***are the specific individual projects, activities, regulations andlor services that give force to or otherwise implement government policies andlor programs.***

As a matter of convenience in this sourcebook, the term “project” (hence “***project level***”) is used as a generic term to apply to the full spectrum of implementation mechanisms and activities. In the context of this sourcebook, therefore, the term is not limited to physical projects such as construction activities, but includes a wide range of fiscal, regulatory, information and technological outputs, activities and services. It also applies to government activities that may not be explicitly **organized** in a **formal** program activity framework, but which nonetheless are used to implement government policies and/or programs.

Environment

In the context of this sourcebook, Environment refers to the bio-physical environment, and means the components of the Earth, including:

- a) land, water and air, including all layers of the atmosphere;***
- b) all organic and inorganic matter and living organisms; and***
- c) the interacting natural systems that include components referred to in parts a) and b) above.***

Environmental Effects

Environmental effects are changes (either positive or negative) to the bio-physical environment that are, or can reasonably be, attributed to the policy or program and how it is implemented, whether these effects be direct or indirect (as defined below).

Ideally, environmental effects are viewed in a comprehensive way, i.e., in terms of changes to the **total ecosystem**, at an appropriate level of analysis (e.g., local, regional, or global). Thus, they involve a comprehensive and complex interplay of changes to fauna, flora and the bio-physico-chemical environment. For practical reasons, environmental effects are often examined on a more selective and focused basis, examining changes to **particular elements** of the total bio-physical environment or ecosystem. This includes, for example:

- changes to the **air** environment (e.g., release of effluents into the air, depletion of the ozone layer)
- changes to the **water** environment (e.g., alteration of watertable; pollution of waterbodies)
- changes to the **natural aesthetic** environment (e.g., noise pollution; despoliation of natural landscape and amenities)
- changes to the **soil** environment (e.g., soil erosion and degradation; soil pollution)
- changes to **habitats** (e.g., destruction of nesting areas; disruption of migration paths)
- changes to **natural resource bases** (e.g., depletion of non-renewable resources; non-sustainable use of renewable resources)
- changes to **natural heritage resources** (e.g., destruction or despoliation of natural sites and amenities)

Social Effects

Social effects are changes (either positive or negative) to the social environment that are, or can reasonably be, attributed to the policy or program, and how it is implemented, whether these effects be direct or indirect (as defined below).

Social effects can include changes to a wide array of values, conditions, processes or activities in the broad social sphere, including for example:

- changes in **health practices or conditions**
- changes in **demographic** characteristics such as population distribution
- changes in the nature of **work or work environments**
- changes in **recreation patterns**
- changes in public, industry or government **consumption** practices
- changes in **cultural traditions and values**

Economic Effects

Economic effects are changes (either positive or negative) to the economic environment that are, or can reasonably be, attributed to the policy or program, and how it is implemented, whether these effects be direct or indirect (as defined below).

Economic effects can include changes to a wide array of values, conditions, processes or activities in the broad economic environment, including for example:

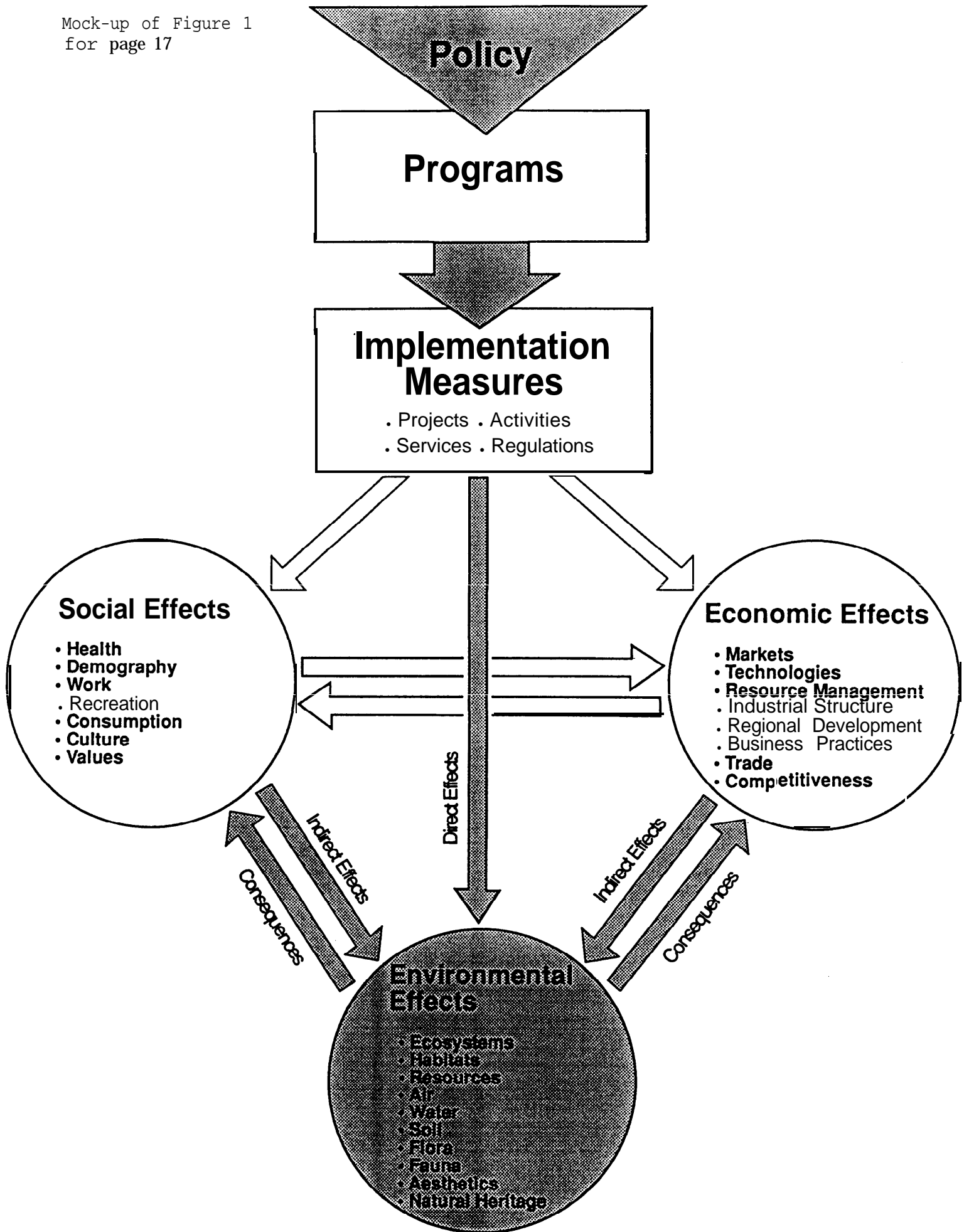
- changes in local, regional, national or global **markets** and related conditions
- changes in available **technologies**
- changes in **resource management practices**
- changes in the nature, size and form of the **industrial structure** and its geographic configuration
- changes in the nature and rate of **regional development**
- changes in **business practices** and related values, priorities and decision-making criteria
- changes in **trade patterns** and practices
- changes in a wide range of factors affecting **competitiveness** at all levels

***Direct* and *Indirect* Environmental
Effects of Policies and Programs**

Figure 1 below traces how policies and programs may result in either direct or indirect environmental effects.

Figure 1

**Direct and Indirect Environmental Effects
of Policies and Programs**



In many cases, the chain of actions and interactions leading from **policy** to **environmental effect** is **relatively clear** and direct. In some cases however, the progression **from policy to program to implementation to environmental effect** is more circuitous, and may even skip a stage (e.g., a policy that directly influences behaviour without a formal program of activities). The environmental effects themselves may be either **direct** or **indirect**. **The directness** of any environmental effects is not of prime concern. What really matters is whether the environmental effect is **intrinsic to the policy or program under review**, i.e., **a necessary consequence** of the policy or program.

In the case of **direct environmental effects**, the (biophysical) environment is altered (whether positively or negatively) as a direct result of the policy, through the programs and/or projects under its influence. Following are some examples of **direct** environmental effects of a policy:

- increased risk of marine pollution by off-shore drilling as a result of exploration incentives
- loss of wetland habitats through policies promoting agricultural land expansion
- destruction of natural heritage amenities as a result of public facility construction policies
- reduction in energy demand through conservation policies
- elimination of environmental hazards and enhancement of the natural landscape through site clean-up and restoration policies

In the case of **indirect environmental effects**, the policy initially affects the general social or economic climate (e.g., a change in values, market conditions or support mechanisms). Subsequent industry, consumer or government behaviour, in response to these social and economic changes, in turn leads to (biophysical) environmental effects. Some examples of **indirect** environmental effects of a policy are:

- non-efficient use of energy resources due to artificially low prices resulting from public subsidization
- loss of prime agricultural land due to urban sprawl accelerated by housing and mortgage policies
- more effective recycling and re-use of waste materials made possible by the development and transfer of appropriate technology
- increased environmental sensitivity on the part of consumers as a result of environmental awareness campaigns and government leadership by example
- reduction in wasteful and environmentally hazardous production and consumption through procurement policies that favour environmentally friendly products and services

Social and Economic Consequences of Environmental Effects

An environmental assessment (i.e., as opposed to a *social* or *economic* assessment) is concerned with the **social and economic consequences of any environmental effects that are intrinsic to the policy or program.** As shown in Figure 1 above, these social and economic consequences are in reality *indirect* effects of the policy or program. First, the policy or program — whether directly or indirectly — causes changes to the biophysical environment. Then, where applicable, these environmental effects in turn cause a change in the social or economic spheres. It is these social and economic changes that are identified, for purposes of an environmental assessment, as the social and economic consequences of the environmental effects of the policy or program.

The Range of Federal Policy Areas with Potential Environmental Effects

Through its various social, economic and environmental policies, programs and activities, the federal government has the potential to exercise considerable influence (intentional or otherwise) over the (biophysical) environment, both directly and through many of the forces that affect the environment. These effects may be either negative or positive.

Some areas of federal policy have greater and more direct effects on the environment than do others. However, there are few, if any, areas of federal policy that have absolutely *no* potential environmental effects. Indeed, there are many areas where careful examination reveals very significant (though often subtle and/or indirect) environmental effects.

The following examples reflect the *range* of federal policies, programs and activities that *could* have significant environmental effects, whether direct or indirect, positive or negative.

- **procurement policies** favouring the purchase by government agencies of environmentally friendly goods and services
- **waste management programs** governing the handling, re-use, recycling and disposal of wastes generated by federal agencies, including management of hazardous wastes
- **federal land management policies** affecting the use and stewardship of various types of land with ecological significance
- **resource development policies** (forestry, agriculture, mineral, energy, fisheries) affecting, for example, the rate and nature of resource development and land use conversion
- **transportation policies** affecting, for example, the pattern of transportation development (e.g., airport location and expansion, marine traffic flows) and the shipment of hazardous materials
- **housing policies** affecting, for example, the nature of urban growth and development and the energy efficiency of housing
- **immigration policies** affecting the overall size, rate of growth and distribution of population
- **defence policies** affecting, for example, the use of crown lands for military and testing operations
- **regional and industrial development policies** affecting urban growth patterns and the siting of industrial facilities
- **environmental policies** affecting, for example, consumer and industrial practices regarding resource consumption and environmental conservation

-
- **public works policies** affecting the location and nature of federal construction activities
 - **consumer policies** affecting, for example, public knowledge regarding the health and environmental hazards of consumer products
 - **Indian and native policies** affecting, for example, aboriginal resource rights and health hazards on reserves
 - **northern development policies** affecting the overall rate and nature of development in the north
 - **health promotion and protection policies** affecting the ability of Canadians, their institutions and communities to take action to improve environmental conditions conducive to good health
 - **labour policies** affecting environmental safety in the workplace
 - **foreign policy** affecting Canada's obligations, commitments and collaboration with other countries in environmental matters of mutual concern
 - **economic policies** affecting a wide range of government, industry and consumer practices which, in turn, affect the environment
 - **research and development policies** affecting knowledge about environmental hazards and effective remedies, and the development of technologies needed for environmental protection and enhancement

The above examples are not exhaustive, but are meant to illustrate the variety of linkages between public policy initiatives and the environment. Other areas of federal policies may have appreciable environmental effects and related consequences.

IV NATURE OF THE ASSESSMENT PROCESS

Key Questions Addressed in the Assessment

Environmental assessment is a systematic process to plan and consider the environmental effects (and related social and economic consequences) of a policy or program. It is designed to answer the following key questions:

- Are any of the policy or program options likely to have any ***intrinsic environmental effects*** (i.e., that are a necessary consequence of the policy), be they positive or negative, and direct or indirect?
- What ***are the likely environmental effects*** of each policy or program option?
- Are there any ***options that may be more environmentally friendly*** (i.e., options that are technically feasible and reasonably acceptable, and that have less negative environmental consequences and/or greater environmental benefits)?
- What are the likely ***social and economic consequences*** of these environmental effects?
- What are the ***potential implications*** of these effects and consequences, in terms that are useful for assessing significance and that are meaningful to ***decision-makers*** and stakeholders?
- How ***significant*** are the environmental effects and related social and economic consequences of each option?
- How do the ***options stack up?***
 - Which will have the ***least negative impacts*** on the environment?
 - Which will ***maximize opportunities*** for environmental enhancement?
 - Which may offer the ***best balance*** amongst various environmental, social and economic objectives?
- What ***measures*** could ***minimize*** or offset anticipated or potential environmental damage or hazards? ***How cost-effective*** are these likely to be?
- How can these findings best be ***summarized and reported***, to enhance informed decision-making?
- What, if any, ***monitoring or follow-up measures*** can be taken to:
 - check ***environmental predictions***
 - identify any ***need for intervention*** to respond to unforeseen environmental effects

Sources of Information for the Assessment

Environmental assessment draws upon inputs (concepts, knowledge, data, values and opinions) from one or more of the following kinds of sources. The relative importance of each of these sources will vary from one assessment to another, and in fact from one stage of an assessment to the next, based upon the level of knowledge already available, the availability of reliable sources, and other factors such as strictures of confidentiality that may limit choices.

- in-house **staff** of the organization responsible for the assessment, who may have specific knowledge and data about the policy or program and its likely effects;
- government **peers**, in appropriate federal and provincial agencies, who may have insights and experience from other relevant initiatives, or who may have complementary skills or knowledge to contribute to the assessment;
- **outside experts** in pertinent fields (e.g., environment, policy analysis, **socio-economic** issues, and applied research and consultation) who can complement the knowledge and skills within government;
- **stakeholders** potentially affected by the policy, whose opinions and preferences are vital to informed decision-making, and whose local knowledge offers important insights into likely environmental effects, and the feasibility of alternatives and proposed ameliorative measures;
- **literature** in relevant fields and disciplines, that may document known or postulated effects as well as the feasibility of alternatives and proposed ameliorative measures; and
- **customized studies** pertinent to the policy in question and/or its related environmental effects and consequences, that can test ideas and/or gather data not otherwise available.

The Basic Steps in a Typical Assessment

Following are the basic steps in a typical assessment, which consists of three distinct phases: **Pre-Assessment**, **Assessment** and **Post-Assessment**. The steps are designed to obtain answers to the key questions outlined above, make sense of the findings, communicate results to appropriate decision-makers, and stakeholders, and ensure appropriate follow-up.

Pre-Assessment

1. **Lay the Basic Foundations:** Ensure that your organization is committed, equipped and ready to conduct environmental assessments as an integrated element of the early planning of policies and programs.
2. **Prepare for the Assessment:** Anticipate the need for specific assessments of emerging or existing policies and programs, and organize the required data, expertise and other supporting materials.

Assessment

NOTE: The assessment phase is an iterative process seeking answers to a logical series of questions. Where warranted, the sequence may be repeated — in whole or in part — to provide more detail or to examine new factors or options as they are discovered in earlier assessment rounds. It is useful to conduct a very quick first round, or **preliminary** assessment, to get a general feel for the range of possible issues and their potential significance. This can help determine the detail, level of effort, timeframe, resources and approaches that may be appropriate for any subsequent round(s).

1. **Scope out Options:** Determine and clarify the basic objectives, scope and general nature of the policy or program initiatives being examined; identify all options to be assessed; and determine the latitude and receptiveness for alternatives or adjustments to these options.
2. **Design the Assessment Approach:** Select the tools and techniques, data sources and consultation approaches (where relevant) for the assessment of all options.
3. **Map out Cause and Effect Linkages:** Trace known, likely and potential connections from the policy or program through to environmental effects (whether direct or indirect), and their related social and economic consequences.
4. **Describe Likely Environmental Effects and Their Social and Economic Consequences:** Estimate the scope, nature, direction and magnitude of known, likely or potential environmental effects and their social and economic consequences, whether quantitative or qualitative.

-
5. **Synthesize and Interpret Findings:** Translate findings about the environmental effects and their consequences into terms that allow an assessment of their relative significance and that will make sense to decision-makers and stakeholders.
 6. **Assess Significance:** In light of findings regarding environmental effects and their consequences, and the scope for alternatives and potential mitigatory measures, assess the relative significance of the environmental effects and consequences of all options.
 7. **Identify Possible Mitigatory Measures:** Outline and assess the implications of any measures that could minimize or offset undesired environmental effects of the policy or program under review; and assess the likely effectiveness of these mitigatory measures.
 8. **Determine the Need for Further Assessment:** Identify the need for, and feasibility of, a subsequent round of assessment to either explore issues in greater detail or assess new options, mitigatory measures or other adjustments, and prepare appropriate terms of reference.
 9. **Present Findings and Recommendations:** Produce an appropriate report **and/or** public announcement summarizing observations, conclusions and recommendations (where relevant), and ensure that the findings are communicated clearly to appropriate decision-makers and stakeholders, subject to any strictures of confidentiality.

Post-Assessment

1. **Monitor and Follow-Up:** Establish a process to monitor and follow up on the policy or program and its implementation, to confirm the validity of the assessment, to intervene in the event of any adverse or unanticipated effects, to initiate a re-assessment of the policy or program, if appropriate, and to learn lessons that may be applicable to future assessments.
2. **Share Knowledge and Insights:** Make data available to appropriate colleagues, experts and/or academics to enrich the knowledge base about environmental assessment in general and the specific effects and consequences of the policy or program under review.

Figure 2

The Basic Steps in an Environmental
Assessment of Policies and Programs

Pre-Assessment

1. Lay the Basic Foundations
2. Prepare for the Assessment

Assessment

1. Scope out Options
2. Design the Assessment Approach
3. Map out Cause and Effect Linkages
4. Describe Likely Environmental Effects and Their Social and Economic Consequences
5. Synthesize and Interpret Findings
6. Assess Significance
7. Identify Possible Mitigatory Measures
8. Determine the Need for Further Assessment
9. Present Findings and Recommendations

Post-Assessment

1. Monitor and Follow-Up
2. Share Knowledge and Insights

(final artwork will show appropriate feedback loops)

Some Tools and Techniques

To a greater or lesser extent, an environmental assessment will typically involve elements of the following four complementary and inter-related activities. The relative importance of these will vary from one assessment to another, and from one step to the next. For each basic activity, there are several choices in the specific tools and techniques that may be used. Some examples are provided below.

A. Modelling

The tracing of cause-and-effect linkages between the policy and its known or likely environmental effects and consequences, and forecasting and/or estimating the nature and magnitude of these effects and their consequences under a variety of assumptions and circumstances.

- **logic model mapping**, tracing either theoretically or on the basis of extensive practical experience, the linkages between a policy, its program and project outputs (where applicable), direct or indirect environmental effects and related consequences
- **scenario development**, involving the postulation of assumptions regarding the means by which and/or conditions under which a policy may be implemented and what results these may yield, e.g., under a “best case” or “worst case” situation
- **role playing**, involving adoption of particular perspectives by different individuals, to question and challenge the potential effects and consequences of the policy from the point of view of stakeholder groups or interests
- **optimization modelling**, a variation on role playing that involves determining the likelihood of and/or conditions under which specific outcomes or results might be achieved or **maximized**

B. Research

The gathering and synthesis of theoretical and/or empirical data, both quantitative and qualitative, that contribute to an understanding of the linkages between the policy and its potential effects and consequences, and/or the significance of these effects and consequences.

- **state of knowledge survey**, consisting of a review or survey of literature to identify known linkages between particular policies and environmental effects and/or between environmental effects and their related consequences
- **case comparison**, involving the analysis of examples from other policy domains and/or jurisdictions that can provide insight into possible effects and consequences of a policy

-
- **content analysis**, involving the review **and analysis of media** coverage and/or official government correspondence from the public and/or specific stakeholder groups, to gauge values and concerns regarding particular policies, their effects and related consequences (i.e., in lieu of surveys or direct consultation)
 - **public or stakeholder survey**, consisting of a structured canvassing of a representative sample of stakeholders to determine their ideas, views, values and experiences regarding a policy and relevant options
 - **Delphi survey**, a **specialized** form of survey used to elicit opinions and perspectives from **recognized** “experts” in pertinent fields
 - **pilot testing**, consisting of the limited implementation of a proposed policy prior to its final approval and/or blanket implementation, to test empirically the likely effects and consequences

C. Consultation

The exchange of information, ideas, values, concerns, expectations and experiences aimed at building an understanding of the known or potential effects and consequences of a policy, and, especially, their implications for and significance to various groups and interests.

- **interviews**, with experts, opinion leaders **and/or** representatives of various stakeholder or interest groups, to obtain knowledge about empirical conditions and experiences, canvass values and opinions, and pre-test alternatives
- **workshops**, consisting of a structured meeting of individuals facilitated by a leader or moderator and designed to “solve a particular problem” such as developing ideas for alternative approaches to a policy or mapping out possible effects and consequences
- **focus groups**, similar to a workshop but aimed at testing and providing reactions to a set of issues or alternatives that have been previously generated
- **public advisory panels**, a structured forum for a representative group of public stakeholders to provide guidance, advice and input throughout the assessment process

D. Analysis

The scrutiny, assessment and weighing of data, both quantitative and qualitative, to understand the scope, nature and significance of environmental effects and their consequences, and the confidence with which they can reliably and adequately be predicted.

- **cross-impact matrix**, a tool that helps to highlight linkages between environmental effects and relevant social, economic and ecological consequences, by providing a checklist of standard factors and considerations
- **weighting/scaling**, a complement to basic cross-impact analysis, that enriches the assessment by adding a dimension of magnitude and **relative** impact or significance (hence “weighting/scaling”) (e.g., a scale of 1 to 10 from **insignificant** to very **significant**)
- **goals achievement matrix**, a variation on a simple cross-impact matrix, to help identify how a policy may potentially contribute to (or detract from) a set of specified environmental and/or socio-economic objectives (i.e., by seeking to determine the extent to which, and conditions under which, the policy may affect the achievement of the defined goals)

Designing the Assessment Approach

In selecting the various approaches, tools and techniques that are to be used at various stages of the assessment process, the following key considerations should be kept in mind:

1. Will this technique or approach help achieve the objectives of this step of the process? What is the best technique at this stage for:
 - identifying linkages?
 - estimating and forecasting effects and consequences?
 - assessing significance?
2. Does the magnitude and potential significance of the impacts warrant the level of effort required by the technique?
 - **cost?**
 - timing?
 - involvement of key personnel?
 - involvement of peers, outside experts and public stakeholders?
3. Is it possible and practical to utilize the techniques under consideration?
 - are peers, experts and stakeholders available and willing to participate?
 - do adequate and reliable data exist?
4. Are there any other factors that may influence selection of approaches and techniques?
 - strictures of confidentiality?
 - skill levels and capacity to design and implement given techniques?
 - personal preferences of parties involved?

V SOME FINAL WORDS

1. Environmental Assessment is a means to an end, not an end in itself.

Environmental assessments need not be exhaustive. The object is not to provide **the most comprehensive profiles and analyses possible** of the policy or initiative being studied. Rather, the object is to provide **sufficient** information and analysis to inform decision-makers on the relative merits of options being considered. The assessments should be **strategically selective**. They should focus on the **most relevant** issues and factors, and on the **essential differences** amongst options. The level of effort and the amount of detailed information required should be commensurate with the scope, scale and nature of the initiative and the potential significance of its likely impacts and effects. It should also be consistent with the degree of definition and level of specificity of the policy itself.

2. There can be no single, standard method for policy or program assessment; nor can there be universal criteria for judging the significance of findings. A flexible approach is required.

There is no single approach and no single set of criteria that can be universally applied to the assessment of all public policy initiatives. Each initiative involves a unique set of factors and circumstances. This includes not only the types of effects and their potential significance, but also the level of knowledge and understanding of the issue, the availability of data, the array of stakeholders affected, and the values, priorities and circumstances of those stakeholders. Each assessment calls for a degree of **customization** in its general approach, and in the specific processes, techniques and criteria utilized.

3. Policy assessment is the first, **but** not the only (and certainly not the last) opportunity to anticipate and influence environmental impacts.

Policy provides the first, and often the best, opportunity to minimize negative and maximize positive impacts of government actions on the environment. But it does not pre-empt or replace program and project assessments; rather, it complements them. Assessment at the policy stage helps to define issues and establish a focus for subsequent evaluations at the program and project implementation stages, where more specific and precise assessments can often best be made.

4. Primary accountability for assessment rests with the initiator.

Responsibility for the assessment of a policy or program proposal rests with the initiator. The department or agency that assumes primary responsibility for the initiation of a proposal is also accountable for the quality and timeliness of the environmental analysis and the assessment of its significance. Environment Canada and the Federal Environmental Assessment Review Office can advise on how to conduct proper assessments, and can provide information on linkages between a policy and environmental concerns and objectives. Each department or agency, however, can choose how best to initiate and implement an assessment, beginning with the definition of the initiative to be assessed. However, Cabinet has directed that the assessment results must be presented, at the latest, together with the policy or program proposal submitted to it for consideration.

Thoroughness, rigour and discipline in the assessment will go a long way toward ensuring that the analysis is **defensible**, taking into account the state-of-the-art of environmental assessment and the availability of reliable and meaningful data.

5. Imperfection does not mean irrelevance.

The assessment of a policy or program initiative may call for a high degree of speculation and extrapolation. Typically, data will be imperfect, and assumptions open to challenge. Quantification may be difficult (and, in some circumstances, **impossible**). Assessments of policy may be highly subjective. Nevertheless, lack of **perfect** information and insight should not stand in the way of conducting environmental assessments with the **best available** knowledge and data. Indeed, exposing the limits and inadequacies of knowledge, data and interpretation, can help stimulate improvements in the understanding of environmental issues and accelerate the provision of reliable information to support informed decision-making.

PART B:
STEP-BY-STEP DETAILS

/ PRE-ASSESSMENT

1. LAY THE BASIC FOUNDATIONS

- **clarify basic objectives, roles and responsibilities for environmental planning and assessment within your organization**
- **help establish environmental considerations on the normal “agenda”** of key individuals and units responsible for policy planning and program development
- **acquire appropriate knowledge, reference materials and/or training** that can enhance your organization’s appreciation of environmental issues and their linkages to your core policy objectives
- **build networks** with other branches and departments as well as outside experts who can provide useful knowledge or support
- **prepare appropriate checklists, criteria and frameworks** for environmental assessment that meet your unique needs and circumstances
- **ensure that performance on environmental planning and assessment is built into your policy/program evaluation and performance appraisal criteria and processes**

Considerations:

- The investment of time and effort in laying the foundations for environmental planning and assessment can improve prospects for timely and efficient assessments, by promoting cooperation and fostering a knowledgeable and receptive audience.
- It is not enough to simply extoll the virtues and necessities of policy assessment. The challenges and difficulties should also be realistically **recognized** and addressed. Environmental assessments **can** avoid costly and **time-consuming** surprises and problems downstream, but they **do impose** new responsibilities and workloads in the policy planning stages.
- It is important to **recognize** the ***non-environmental*** objectives and dimensions of policy and to appreciate the bureaucratic and political realities facing policy planners — especially in areas where social and economic objectives remain at the core of the policy.
- Integrating environmental considerations into normal policy and program planning processes requires adjustments in your organization’s corporate culture, organization and working relationships.

2. PREPARE FOR THE ASSESSMENT

- identify needs and opportunities for environmental assessments of both emerging and existing policies and programs
- determine priorities for environmental assessments, over your planning horizon
- anticipate the scope and complexity of the assessment, and the need for **specialized** resources
- build requirements for upcoming assessments into your workplans; secure the expertise and resources required
- commission background research at the earliest possible moment, to help ensure data are available when required

Considerations:

- Timing is critical, and time is of the essence. Once a policy initiative is under way, it has a momentum of its own, and leaves little room for catching up. **Pro-**active planning and organization can help ensure that data and resources are available when required.

II ASSESSMENT

1. SCOPE OUT OPTIONS

- **develop a clear understanding of the core objectives and rationale** of the policy or program being addressed, and of any underlying assumptions
- **determine, to the extent possible, the basic form and nature of the policy or program and how it is expected to be implemented** (including program delivery methods, timing, target audiences, and linkages with other existing or planned policies)
- **identify, clarify and refine, where appropriate, all relevant options** that can be readily identified
- **identify and clarify any limitations** or constraints on the range of options or adjustments that might be considered, and on the timing and confidentiality of the assessment itself
- **establish objectives, terms of reference and a timeframe for the assessment**

Considerations:

- In initial phases of policy development, the policy and related options may be relatively fuzzy, unfocused and ill-defined. The assessment, therefore, may be relatively “broad-brush” and speculative in nature.
- In some cases, such as certain very broad and general policy initiatives, it may not be appropriate to assess the full spectrum of factors. Instead the assessment should focus only on the most relevant specific issues within the general policy umbrella.

..

2. DESIGN THE ASSESSMENT APPROACH

- **from the array of options to be assessed, identify:**
 - **the kinds of technical issues involved, their** scientific complexity and the level of existing knowledge concerning effects and consequences
 - **possible linkages to other policies or programs**
key stakeholders affected (including their distribution, organization and level of knowledge)
the general nature and level of public interest
- **select appropriate tools and techniques to conduct the first round of the assessment,** taking into account the relative potential importance of the issue, the availability of data and knowledge, the level of scientific and public interest, and other factors such as priorities, timing and available resources
- **for subsequent rounds, where warranted, review the methods previously used,** to identify any gaps and weaknesses
- **identify any new (or modified) tools and techniques required for the next round**

Considerations:

- The selection of tools and techniques for assessment is a strategic decision. It must be made on the basis of an educated guess (tempered by experience) regarding the scope, complexity and relative importance of the issue under consideration. At each round, you must take into account the nature and potential significance of the environmental effects of the policy, the availability and reliability of data, time and budgetary constraints, and the state of knowledge concerning the policy, environmental and socio-economic linkages. This also requires a balancing of the need for greater detail and accuracy with considerations such as costs, timing, and the reliability of assessment results, given technical and data limitations.
- The scope and level of effort of even a preliminary round of assessment can vary considerably. In general, the more *certain* one can be about the linkages between the policy and its environmental effects and socioeconomic consequences, and the more **significant those effects** and consequences are likely to be, the more detailed and rigorous the preliminary assessment should be. Conversely, if there is good reason to believe that the policy will have *no* significant environmental effects or related consequences, then a relatively cursory preliminary screening and assessment may be all that is required (i.e., to help confirm initial assumptions and tentative conclusions).

3. MAP OUT CAUSE AND EFFECT LINKAGES

- **establish a conceptual framework, in the form of a “logic model,”** tracing all known or anticipated linkages from **policy to program to implementation** (project/activity/service/regulation) to **environmental effect** and **consequence**
- **flesh out the conceptual framework/logic model**, describing in appropriate detail the anticipated environmental effects that can be reasonably attributed to the policy, as well as their related social and economic consequences, including those that are:
 - **direct** as well as **indirect**
 - **intended** as well as **unintended**
 - **positive** as well as **negative**
 - **immediate** as well as **longer-term**
 - **discrete** as well as **cumulative**
 - **quantitative** as well as **qualitative**
- **review the identified environmental effects and related social and economic consequences**, to weed out those that are not **intrinsic** to the policy (i.e., are not a necessary consequence of the policy) as well as any that are **potentially trivial**
- **summarize the rationale supporting evidence for the identified cause-and-effect linkages**

Considerations:

- The development of logic models showing cause-and-effect linkages draws upon the **best available knowledge** concerning these linkages. In some cases this may be a matter of virtual **certainty**. In other cases, it may be more **speculative**, relying upon emerging theories and assumptions regarding correlations between the policy and the identified effects and their consequences.
- Wherever possible, the **rationale** for the linkages should be made explicit, and should highlight the approximate degree of certainty with which the assumed linkages can be held. This enables decision-makers to properly consider the relative strength of any arguments regarding the effects or consequences (whether positive or negative). It also enables the assessment to be revised as new data, knowledge or valid theories emerge.

-
4. DESCRIBE LIKELY ENVIRONMENTAL EFFECTS AND THEIR SOCIAL AND ECONOMIC CONSEQUENCES
- estimate and describe the nature, direction, scope and magnitude of all identified effects and consequences of each option, providing, where appropriate and possible, the following kinds of information on each discrete factor or issue:
 - nature/form (*What kind of environmental effects will there be? What kinds of social and economic consequences can be attributed to these effects?*)
 - aggregation (*What, if any, cumulative and/or cross-impact effects will there be, both amongst discrete programs or initiatives within the policy, and with other related policies?*)
 - direction (*Will this be a positive or negative effect and/or consequence?*)
 - magnitude (*How large will be the effect and how great will be its related consequences?*)
 - probability (*What is the likelihood of these effects actually taking place and, in turn, what is the likelihood of the identified social and economic consequences resulting from the environmental effects?*)
 - rate (*When will the effects take place and when will the social and economic consequences result? How rapidly will this take place?*)
 - timing/duration (*For how long will these effects and/or their consequences last? Will there be any cyclical recurrences?*)
 - area/geographic limits (*Which geographic areas and constituent communities will be affected? How might this differ amongst various regions or groups?*)
 - reversibility (*Are these environmental effects and/or their related social and economic consequences irreversible? Will decisions taken now preclude options for the future?*)
 - scope for mitigation (*Can any anticipated negative effects and/or their social and economic consequences be reasonably minimized or offset through countervailing initiatives or interventions? What are the implications of these?*)
 - compliance with applicable codes, standards and norms (*Will these options comply or conflict with relevant codes, standards or norms? How relevant are these codes, standards and norms to current and foreseeable technology, conditions and values?*)

— unknown factors (*What is the risk or likelihood that there are significant environmental effects that cannot, with current knowledge and/or technology, be estimated or predicted? How confident are we that our environmental assessment is comprehensive and identifies, at least at some level of detail, all of the pertinent environmental effects and their related social and economic consequences?*)

Considerations:

- The list of factors outlined above constitutes the **widest possible range** of characteristics by which environmental effects and their **socio-economic** consequences should **be** portrayed. In reality, certain aspects will be impossible to portray meaningfully. Others will be irrelevant for actual decision-making purposes.
- In providing information on anticipated effects and consequences, there is a need to be **reasonable**, and to distinguish between the significant and the trivial. This means placing greatest emphasis on the more important factors and linkages, especially those for which there may be some choice and flexibility in policy options. The object is to provide not the **greatest possible** information, but the **most essential** information. The volume and level of detail of information provided should be *just sufficient* for informed decision-making.

5. SYNTHESIZE AND INTERPRET FINDINGS

- **summarize the key findings** regarding the environmental effects of a policy or program, and related social and economic consequences, highlighting key issues, trends and themes
- **interpret and spell out the implications** of the findings, in meaningful terms

Considerations:

- Following are some major categories under which the implications of policy and program options can be meaningfully interpreted and portrayed:

• Health

Health is not simply the absence of disease or disability; rather it is a state of complete physical, mental and social well-being, as defined by the World Health **Organization** (WHO). Health is defined and measured at a variety of levels: individual, family and community.

Positive indices of health measure personal capacity, contentment, and sense of opportunity, control and fulfillment in relation to conditions in the physical, mental and socioeconomic environments. **Negative indices** of health measure such things as life expectancy, risk of premature death, and morbidity — including both short-term and chronic physical ailments, mental illness and restrictions on mobility and independence.

Examples of health consequences of environmental effects:

- **increased risk of cancer due to exposure to toxic materials**
- **improved physical and mental health as a result of improved access to natural recreational facilities**

• Economy

Economy is the composite of a range of financial, work and market factors-that affect the capacity of individuals, families, enterprises and society in general to meet their bio-physical needs and social and cultural aspirations. This includes, but is not limited to, conditions and prospects regarding access to meaningful employment (including both wage and non-wage pursuits), growth and distribution of wealth and income, cost of living and control over factors of production.

Examples of economic consequences of environmental effects:

- **local lay-offs and plant closings following forestry over-cutting**
- **reduced farm yields from soil degradation**

• Ecology

The state of the environment, the integrity of ecosystems, the viability of individual species and elements have an **intrinsic** value, i.e., they have significance in their own right, whether or not they translate into **human** values or concerns. Similarly, humans attach significance to ecological vitality and sustainability whether or not this materially affects such factors as health or the economy.

Examples of environmental effects impacting on ecology and ecological values:

- **loss of endangered species due to destruction of habitats**
- **reduction in genetic diversity and vitality due to despoliation and fragmentation of natural ecosystems**

• Culture

Cultural values include the individual and collective priorities that Canadians place on such factors as traditional activities and pursuits, heritage sites and amenities, individual and national identity, and a sense of independence and self-reliance.

Examples of environmental effects impacting on cultural values:

- **loss or degradation of longstanding natural sites and amenities due to exploitation or neglect**
- **undermining of national pride in Canada's pure environment as a result of continuing environmental degradation**
- **loss of traditional hunting and trapping pursuits due to reduction in wildlife population**

• Quality of Life

Quality of life is a measure of individual and collective satisfaction with current conditions and future prospects. While these are largely influenced by basic health and economic conditions, they also reflect contentment with less tangible factors and conditions such as the degree to which one has choice and flexibility in various aspects of business and home life, the degree to which life is convenient and comfortable, the degree to which one has access to natural amenities and aesthetic resources, the degree to which one has meaningful control over factors and conditions that significantly affect living conditions and prospects, and the degree to which one has a sense of general security, whether in a physical, mental, economic or social sense.

Examples of quality of life consequences of environmental effects:

- **increased stress and anxiety associated with heightened exposure to environmental hazards**
- **improved sense of well-being resulting from an enhanced natural aesthetic environment and improved access to natural amenities and leisure resources**

r • Costs of Mitigation, Compensation and Amelioration

The socio-economic consequences of an environmental effect include the public and private costs of any measures to eliminate, reduce or offset the environmental effects. This includes costs of mitigation (i.e., measures to reduce the incidence or risk of certain environmental effects), compensation (i.e., payment to those negatively **affected** by environmental effects) and amelioration (i.e., improvement measures to offset negative environmental effects).

Examples of financial consequences of mitigation, compensation and amelioration of environmental effects:

- ***costs of clean-up and restoration of toxic waste sites***
- ***compensation to those exposed to, or adversely affected by, environmental hazards***

6. ASSESS SIGNIFICANCE

- review the known, likely and potential environmental effects, their social and economic consequences, and implications
- consider the range of stakeholders affected and their relative values, concerns and priorities
- make a judgement regarding the *overall relative significance* and ranking of the effects and consequences of each option (Figure 3 below outlines key criteria that can be used to judge the relative significance of *various effects* and their consequences.)

Considerations:

- **There are** no absolute standards or criteria that can be used to determine precisely the significance of any identified environmental effect or its related socio-economic consequences. The significance of any environmental effect may vary considerably from one geographic, social, economic or cultural context to another. Public values and priorities regarding trade-offs amongst various environmental, social and economic objectives will often vary appreciably from one community, group, organization or region to the next, and are subject to change over time.
- The assessment of significance can, at best, result in a determination of **relative** significance, as opposed to **absolute** significance. There is typically no consistently definable threshold at which effects and consequences shift from being “insignificant” to “significant”? It is usually a question of degree. Furthermore, there are no practical units of measure that can meaningfully depict the **precise degree** of significance of any environmental effect or related socio-economic consequence. Thus, the assessment of significance requires a balancing of facts and values **on a case-by-case basis**, drawing upon input from both experts and stakeholders.
- The assessment of significance is particularly valuable when it helps place technical factors into some useful perspective (e.g., the **ecological** significance of any identified environmental effects; the *technical feasibility* of potential mitigatory measures; the **economic** repercussions of specific effects; etc.). It is also useful when it neatly synthesizes the values, priorities and concerns of stakeholders in ways that help decision-makers understand the implications and trade-offs of various options.

Figure 3

Criteria for Assessing Relative Significance of Environmental Effects and their Consequences

Factor	Low Significance	High Significance
. nature/form	low priority	high priority
. aggregation	non-cumulative, discrete	cumulative, compounded (cross-impacts)
. direction	stable/static	improving/worsening
. magnitude	small	big
. probability	low	high
. rate	slow	fast
. timing/duration	short, infrequent	long, continuous, frequent
. area/geographic limits	small, contained	large, uncontained
. reversibility	reversible	non-reversible
. scope for mitigation	easy, inexpensive, certain	difficult, expensive, uncertain
. compliance with applicable codes, standards and norms	compliant	non-compliant
. unknown factors	all key factors known, predictable	key · factors unknown, unpredictable

The relative significance (i.e., low or high) of each factor indicated in the figure above is based on the assumption of "*all other things being equal*". For example, *all other things being equal*, the smaller or more contained an environmental effect is, the less significant it is. Similarly, *all other things being equal*, the more difficult, expensive or uncertain it is to mitigate negative effects, the more significant these negative effects are.

-
- Many policy issues are complex, with a mixture of positive and negative effects and consequences. Some will be more critical than others. The assessment of significance involves drawing a generalized conclusion regarding the *net* environmental effects and their consequences.
 - The assessment of significance is not to be interpreted as imposing any final decision regarding the acceptability or non-acceptability of the options. Nor does it prejudge decisions regarding mitigation measures and/or monitoring and **follow-up** plans. Instead, it simply provides an independent “evaluator’s” perspective that can be balanced with the views and insights of the decision-makers and stakeholders.

7. **IDENTIFY POSSIBLE MITIGATORY MEASURES
AND ASSESS THE NEED FOR MONITORING**

- **identify possible mitigatory measures that could help to minimize or offset any anticipated negative effects and/or accelerate or enhance the achievement of positive effects identified in the assessment**
- **assess the implications of the mitigatory measures** (technical feasibility, financial implications, impacts on the implementation of the policy, etc.)
- **assess the need for monitoring and follow-up processes; develop terms of reference for these, including:**
 - key issues and factors on which to focus in the implementation of the policy
 - criteria for potential intervention (e.g., in the event of unforeseen negative environmental effects), whether to modify or adjust the policy or to initiate its reappraisal
 - priority areas for evaluation (e.g., to assist in building knowledge for future environmental assessments)

Considerations:

- The determination of possible mitigatory measures is a last resort to deal with anticipated negative environmental effects or insufficient achievement of positive environmental objectives. (The **first priority in the** assessment is to identify potentially acceptable policy alternatives that can **prevent** negative effects and/or **actively pursue** positive environmental benefits. When all viable and acceptable options have been identified, attention turns to identifying possible mitigatory measures.)
- The object of this step in the process is not to provide a detailed description and assessment of **all possible** options and/or mitigatory measures, just the **most relevant** ones that **best portray** meaningful choices for the consideration of decision-makers.

8. DETERMINE THE NEED FOR FURTHER ASSESSMENT

- review the findings of the assessment to date
- assess the strengths and limitations of the methods used, and the reliability of the data upon which interim observations and conclusions have been based
- identify any new factors, options, adjustments or input sources that might warrant a new or more detailed examination
- assess the potential implications of initiating a new or more detailed examination
- determine if a further round of assessment is warranted, taking into account the potential costs and benefits (i.e., the scope for discovery or verification of relevant findings, balanced against the time and cost of a further round)
- if a further round is warranted, develop appropriate terms of reference; if not, commission preparation of the final assessment report

Considerations:

A more detailed assessment is warranted, where:

- there is reason to believe that the preliminary assessment was insufficiently detailed or comprehensive enough to support meaningful decision-making; and
- the potential environmental effects and their social and economic consequences of the policy may be sufficiently significant to warrant more careful and thorough analysis; and
- a detailed assessment will contribute meaningfully to a better understanding of the environmental effects and/or their social and economic consequences, to warrant the extra time, effort and expense

Conversely, a more detailed assessment is **not warranted** where:

- the preliminary assessment reveals **no appreciable environmental effects**; or
- the preliminary assessment reveals **only modest potential environmental effects** but a more detailed analysis will not significantly enhance understanding of their nature or significance, and therefore the time and/or expense of such further detailed analysis is not warranted; or
- the preliminary assessment reveals major **potential environmental effects** but further analysis is either **not necessary** because the preliminary assessment was sufficiently detailed and accurate enough to enable proper analysis and interpretation; or is **not possible** because of technical limitations that prevent a more meaningful assessment from being undertaken (e.g., insufficient knowledge regarding linkages, lack of appropriate assessment or analytic techniques, and inability to generate reliable, useable data).

9. PRESENT FINDINGS AND RECOMMENDATIONS

- following the final round of assessment, **summarize findings and develop recommendations, with** supporting rationale, **including:**
 - implications of each option, and where possible, their ranking in terms of environmental significance
 - any preferred or recommended option, highlighting rationale, a summary of any trade-offs
 - any recommended mitigation measures
 - any recommended monitoring activity
 - any recommended guidelines for subsequent assessment at the implementation stage
- **prepare a written report, together with appropriate presentation materials**, in a format suitable for the intended decision-makers
- where appropriate, **produce a public statement** summarizing the above, in an appropriate format and level of detail, and including as much relevant information as possible within the strictures of confidentiality
- **organize and retain relevant background materials** that supported the above report, to document the rationale, sources, methodologies and related issues and impacts, and to serve as reference material if required, and to assist in any subsequent evaluation and assessment initiatives
- **provide a live briefing or presentation of the assessment findings for decision-makers and/or interested stakeholders**, where possible and appropriate, to:
 - explain, and ensure the proper interpretation of the observations, findings and recommendations of the assessment report
 - assist interested parties in understanding the implications of the assessment report, and translating them into possible policy adjustments and/or follow-up activities
 - foster a mutual understanding and respect between the producers and consumers of the assessment report (e.g., by building a better appreciation of different concerns, perspectives and needs) so as to enhance the environmental assessment process in the future

Considerations:

- The key challenge at this stage is to communicate findings in the most effective and meaningful way to decision-makers and stakeholders.
- The summary of findings should focus on the **most essential** factors, eliminating or downplaying trivial issues. Only data that help illustrate or explain a particular point should be included. Data that merely provide description without any linkage to effects or consequences should be avoided.

-
- The report should be structured and written to make clear distinctions amongst options, highlighting **essential differences**. Major issues and implications should receive the greatest attention, especially those for which there is meaningful choice or flexibility in approaches in the policy and/or how it is implemented.
 - Keeping in mind that most assessment reports are intended for a non-technical audience, they should be written in clear language, avoiding unnecessary technical terms and jargon. Illustrative examples can help explain key points. Writing should be concise; summary charts or figures can be useful.
 - The report should identify issues requiring immediate decisions or attention, as well as those where decisions can be deferred, pending more information or experience at the subsequent implementation stage. The report should, therefore, indicate where decision-makers can set directions or conditions on subsequent implementation, while allowing progress to be made on finalizing the policy itself.
 - The report should also identify issues requiring more specific assessment at subsequent implementation stages (i.e., the “project” level).

III POST-ASSESSMENT

1. MONITOR AND FOLLOW-UP

- **assist in the translation of approved policy assessment recommendations into appropriate program and project design and implementation guidelines**
- **monitor the implementation of the policy in** accordance with the monitoring and follow-up plan agreed to as part of the decision on the policy to:
 - determine if outcomes matched predictions;
 - assess the need for intervention to cope with unforeseen effects;
 - determine if a reappraisal of the policy is warranted, in light of unforeseen or adverse outcomes; and/or
 - ensure the capture of data and other information that can assist future policy formulation and related environmental assessments.
- **determine the potential need for intervention in the policy and how it is implemented,** in accordance with processes and criteria established in the terms of reference for monitoring and follow-up as part of the decision on the policy

Considerations:

- The monitoring should focus on the most critical elements of the policy (i.e., those with the greatest potential positive or negative effects and consequences). This includes items that were most subject to ***uncertainty*** in the assessment stage.
- Monitoring should make note of the specific conditions and circumstances within which the policy was implemented. This will allow a comparison with the underlying assumptions upon which the policy or program was based. It will also allow consideration of other factors such as the cross-impacts of other policies, the scope for intervention and/or mitigation, and the need for reappraisal of the policy itself in light of actual outcomes.

-

2. SHARE KNOWLEDGE AND INSIGHTS

- **synthesize data and findings at appropriate intervals throughout the policy implementation stage**
- **compare anticipated outcomes and effects with actual results**
- **summarize and analyze mitigating factors and circumstances that may explain any variances between anticipated and actual outcomes**
- **draw conclusions regarding:**
 - the accuracy and appropriateness of the environmental assessment, and any factors that contributed to its success or shortcomings
 - implications for future policy and program assessments, including:
 - new understandings regarding linkages between specific policies, their environmental effects, and socio-economic consequences (including the significance of these as evidenced by actual stakeholder reaction)
 - suggestions regarding improved processes and criteria for policy and program assessments
- **share the above with appropriate parties**

Considerations:

- An investment of time and effort in evaluating lessons learned can improve knowledge about environmental effects and about appropriate assessment methods and techniques. By sharing the results with other parties, organizations can build valuable networks with colleagues and partners whose knowledge, data and experience may help in future policy planning and assessment initiatives.