



THE REPUBLIC OF UGANDA

MINISTRY OF WATER AND ENVIRONMENT

Training Manual

**Mainstreaming Ecosystem-based Adaptation
into the Policy and Financing Framework**

MARCH 2015





THE REPUBLIC OF UGANDA

MINISTRY OF WATER AND ENVIRONMENT

Mainstreaming Ecosystem-based Adaptation into the Policy and Financing Framework

*With support from
United Nations Development Programme*

March 2015

Supported by:



Federal Ministry
for the Environment, Nature Conservation,
Building and Nuclear Safety

based on a decision of the German Bundestag



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List of Acronyms

| | |
|-------|--|
| BFP | Budget Framework Paper |
| EbA | Ecosystem-based Adaptation |
| MAAIF | Ministry of Agriculture, Animal Industry and Fisheries |
| DDP | District Development Plan |
| DPSIR | Drivers-Pressures- State- Impact- Responses |
| SMART | Specific Measurable Aggressive Relevant Time-bound |
| TEV | Total Economic Value |
| MFPED | Ministry of Finance, Planning and Economic Development |
| SIP | Sector Investment Plan |
| LGDP | Local Government Development Programme |
| MWE | Ministry of Water and Environment |

1. INTRODUCTION

This training manual uses an understanding of the ecosystem trends and policy analysis as core elements for mainstreaming ecosystem-based adaptation (EbA) into the policy and financing framework.

The approach used in this module helps participants understand:

1. The ecosystem and the linked drivers of change.
2. The consequences for the ecosystem and humanity.
3. The status of policy actions, and how effective they are.
4. The available options for mainstreaming EbA into the financing framework.

In order for learners understand how to mainstream EbA into policy, the manual presents an analyses of trends and dynamics of the ecosystem and human well-being using the Drivers-Pressures-State-Impacts-Reponses (DPSIR) framework. This is because the DPSIR helps individuals broaden their knowledge of the ecosystem and the causes of change on how to deal with ecosystem issues.

The manual also presents an exploration of policy analysis which helps learners identify existing policy measures, both in terms of their effects and their effectiveness. This involves considering both the policy landscape to identify potential gaps, and an in-depth analysis of particular policies or policy mixes to determine their effectiveness in order to ensure mainstreaming into the policy process.

The mainstreaming of EbA into the policy and financing framework is based on the following steps:

1. Understanding the issues to help learners explore the ecosystem and the linked drivers of change.
2. Preparing policies to understand the strategies affecting the ecosystem
3. Conducting a policy instrument scan to identify the mix of policies influencing ecosystem issues, and the effectiveness of such a mix.
4. Performing a policy gap to determine areas appropriate for mainstreaming EbA into policy and financing framework.
5. Highlighting opportunities in budget processes to ensure the routine inclusion of EbA into the financing framework.

Time schedule: Depending on the Trainer- the training can be completed in Three to four days

2. UNDERSTANDING CHANGES IN THE ECOSYSTEM AND THEIR CAUSES

The first step in mainstreaming EbA into the policy and financing framework is to enable participations to improve their understanding of the ecosystem and the causes of change. Adopting from the Drivers-Pressures-State-Impact-Response (DPSIR) analytical framework, the aspects to use are as follows:

- The ecosystem caps, such as land management, water quality/quantity, air pollution and biodiversity.
- The STATE of the ecosystem for each facet and the key related TRENDS.
- The DRIVERS and PRESSURES that are causing ecosystem change.
- The INDICATORS necessary to characterise the drivers, pressures and states.

The following section represents an overview of the ecosystem and the causes of change.

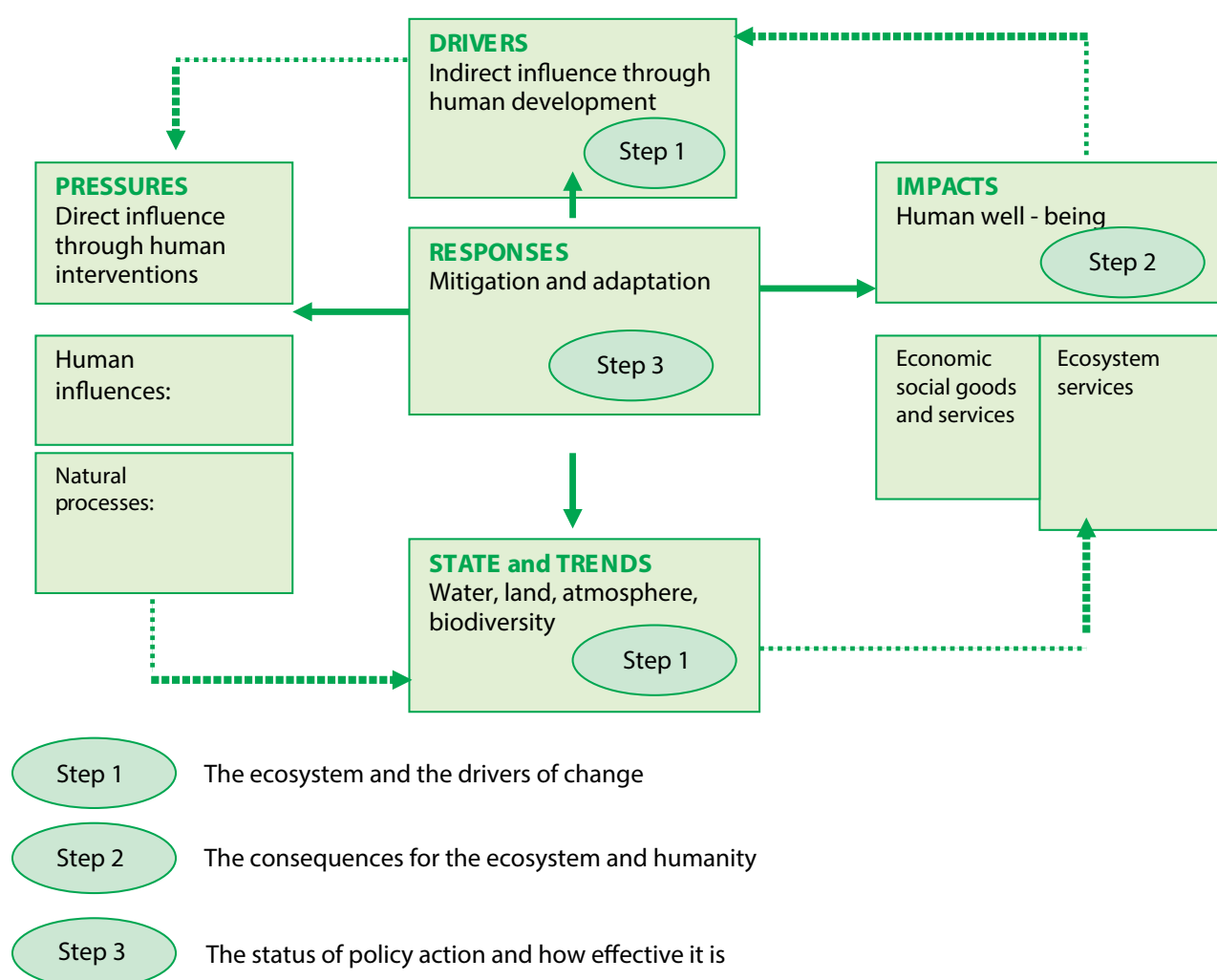


Figure 1: Analytical framework – The state of the ecosystem

Understanding the STATE and TRENDS of the ecosystem is central to mainstreaming EbA into the policy and financing framework (Figure 1). This involves identifying ecosystem facets and understanding changes retrospectively through space and time.

The variables of the ecosystem caps may be grouped according to categories, such as air, land, water and biodiversity. To effectively mainstream EbA into the policy and financing framework, key stakeholders (such as policy –makers and legislators) need to know at least the causes of change and appreciate the DRIVERS (driving forces or indirect drivers) and PRESSURES (direct drivers) affecting variables in the ecosystem (Figure 1).

Drivers (including demographic changes as well as economic and societal processes) lead to more specific pressures on the environment (including, for example, land use change, resource extraction, emissions of pollutants and waste, and modification and movement of organisms). These pressures lead to changes in the STATE of the ecosystem (e.g. climate change, stratospheric ozone depletion, changes in biodiversity and pollution or degradation of air water and soils), which are in addition to those that result from natural processes. These changes affect the ecological services that the ecosystem provides to humankind. Examples of these services include the provision of clean air, clean water and food, and protection from ultraviolet radiation as well as impacts on other aspects of the environment itself, such as land degradation, habitat quality and quantity and biodiversity.

As a result of changes in ecological services, and mediated by demographic, social and material factors, there are IMPACTS on the ecosystem and human well-being (health, economic performance, material assets, good social relations and security). Societal RESPONSES can influence the state of the ecosystem and their associated drivers and pressures (either intentionally or unintentionally). Societal responses essentially fall under two categories:

- (1) Responses directed at *mitigating* exposure to climatic impacts (e.g. through environmental restoration and enhancement); and
- (2) Responses which help society *adapt* directly to the impacts that occur and build the capacity to adapt to changes. Societal responses include formulating and implementing public policy and laws and establishing/strengthening institutions, as well as through advances in science and technology.

The *exposure* to changes in various states of the ecosystem, combined with the *ability of society to adapt* to these changes, determines the degree to which people are *vulnerable* or are *resilient* to change in the ecosystem.

2.1 Participants' understanding of priority ecosystem issues

EbA is a concern for development sectors, such as water and the environment; agriculture; education; health; gender, labour and social development; lands, housing and urban development; and finance, planning and economic development. In this way EbA brings organisations, institutions and individuals representing a range of sectors and disciplines into a joint process, and generates a richness of viewpoints and interests while also building ownership of results. Such a multi-stakeholder process presents challenges to reaching consensus because assessing ecosystem conditions can raise a large number of intertwined issues, themes and interests. Moreover, stakeholders often have divergent views on ecosystem issues.

In order to mainstream EbA into the policy and financing framework, it is essential to identify a list of major ecosystem issues, and then categorise them into a manageable number of themes. The desired result is a list that is comprehensive yet easy for participants to understand, and should be in a format in which contributions can be offered easily.

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The issues that are important for any given state-and-trend ecosystem analysis can be identified using a combination of methods. A good list often can be identified from a brainstorming session among participants focused on mainstreaming EbA into the policy and financing framework. The more diverse the group of participants is, the more comprehensive the list of issues will be.

The methods of developing a list of key ecosystem issues include:

- Using brainstorming in a multi-stakeholder group and breakout groups.
- The use of multiple expert and stakeholder consultations (smaller groups than above).
- Adapting surveys of individual experts and stakeholders using means such as e-mail, the telephone, and face-to-face interviews.
- Synthesis and review of relevant literature from libraries and archives.

The approaches above can be used jointly.

EXERCISE

Participants in a meeting focused on mainstreaming EbA into the policy and financing framework can form groups of four or five, and carry out the following tasks:

- Discuss and note key specific EbA issues related to the state-and-trends of the ecosystem in the local area.
- Assign specific ecosystem issues to general categories (use the table below).
- Discuss the following questions: How many distinctly different themes did the group identify? How many specific state-and-trends of the ecosystem issues? Can some of the specific issues under a given theme be expressed as a single issue?

Table 1: Priority ecosystem issues and the general theme

| Priority Ecosystem Issues | General Theme |
|---------------------------|---------------|
| | |
| | |
| | |
| | |

In a group plenary, carry out the following tasks:

- Combine the work of all groups into one table (e.g. using flip charts or overheads).
- Determine the general themes for the overall group; organise all specific state-and-trends of the environment issues according to those themes.
- Combine related specific issues as appropriate.

Time: 20 minutes for group work; 30 minutes plenary.

The number of possible themes can emerge from any approach used to identify specific ecosystem issues. Examples of themes are presented in Table 2. The themes can be used to check the comprehensiveness of the list developed through the participatory approach.

Table 2: Possible state of the ecosystem themes selected *for use in* mainstreaming EbA into the policy and financing framework

| Source | State-and-Trends of the Ecosystem Theme and Issues |
|---------------------------------|--|
| Africa environment outlook | <ul style="list-style-type: none"> • Atmosphere • Biodiversity • Forests • Freshwater • Land • Urban areas |
| Millennium ecosystem assessment | <ul style="list-style-type: none"> • Forest/woodland: tropical/sub-tropical, temperate, boreal • Dry land: hyper-arid, arid, semi-arid, dry sub-humid • Inland water • Coastal: terrestrial, marine • Marine • Mountain • Cultivated: pasture, cropland, mixed • Urban |
| GEO Brazil | Soil and land <ul style="list-style-type: none"> • Water • Forests • Atmosphere • Marine and coastal areas • Fishery resources |

Further selection by the group is necessary even after a comprehensive set of state-and-trends of the ecosystem themes and specific issues has been identified. This is because the list which emerges from this process is often longer what can be reasonably accommodated in mainstreaming EbA into the policy and financing process, given the constraints of time and human and financial resources. Participants should, therefore, prioritise both themes and specific issues.

Techniques are available to help prioritise issues, including brainstorming sessions, expert consultations and surveys (Table 3). Whichever technique is used, it is important to identify key criteria to distinguish higher priority issues from lower priority ones.

Additionally, it is important to have a sense of the number of specific issues that reasonably can be accommodated in the reporting process. It is important to note that the priority list identified during mainstreaming EbA into the policy and financing process might be refined after its content has been analysed in greater detail.

For example, there might be limited data relating to a certain issue, which might, in turn, cause an issue lower on the priority list to be considered instead.

Table 3: Possible techniques that groups use for setting priorities

| Prioritisation Technique | Description and References |
|---------------------------|---|
| Consensus decision-making | 'A consensus represents a reasonable decision that all members of the group can accept. It is not necessarily the optimal decision for each member. When all the group members feel this way, you have reached consensus. This means that a single person can block consensus if he or she feels that it is necessary.' Reference: http://www.npd-solutions.com/consensus.html |
| Traditional voting | Given a list of important environmental issues, each participant is asked to vote, for example by: <ul style="list-style-type: none"> • show of hands. • secret ballot. • a dotocratic method, where each person is given a number of coloured stickers equalling the number of items that can be considered. With the entire issue list placed on a single board, each person places stickers beside their priority issues. People are allowed to distribute their dots as they wish (i.e. they can invest all their dots in a single issue if they feel that best represents their views). Issues are then ranked according to the number of stickers each received. |
| Nominal group methods | Participants are asked to choose a list of specific issues they feel are most important, and to rank them by relative importance. These rankings are collected from all participants, and aggregated. Reference: http://www.ryerson.ca/~mjoppe/ResearchProcess/841TheNominalGroupTechnique.htm |

EXERCISE

Using the themes and issues identified in the previous exercise, rank the priority of each issue using a three-point scale (low, medium and high). Use Table 4. Compile the results in plenary, and establish a priority ranking of the issues (i.e. how many high, low and medium rankings each issue receives).

Complete the following worksheet below for regions (Mt Elgon, Nepal or Peru) or for Mt Elgon district (Kween, Kapchorwa, Sironko and Bulambuli).

Table 4: Possible themes from group prioritisation

| Theme | Ecosystem Issue | Geographical Scale/ Coverage of the Problems | Prioritisation of the Problem | | |
|-------|-----------------|--|-------------------------------|--------|------|
| | | | Low | Medium | High |
| | | | | | |
| | | | | | |
| | | | | | |

Time: 10 minutes individually; 20 minutes plenary.

2.2 State-and-trends of the ecosystem issue

Ecosystem issues are often general (land management, flooding, water quality, and air quality, or biodiversity). Being more specific with regard to each priority ecosystem issue is important because it becomes easy to understand the causes of change and how the ecosystem can be included in policy and financing framework processes.

Consider landslides, for example. This issue is sometimes specified in an aggregate form (e.g. a district landslide scenario). To understand an ecosystem it is necessary to think of landslides in a specific region and budget or include hazards in policy dialogues. For example, a certain river system might be particularly problematic at the time you are developing or attempting to mainstream EbA into the policy and financing process. Then it becomes easy to plan.

2.3 The drivers and pressures causing ecosystem change

After understanding the specifics of the ecosystem, the focus is on the pressures and drivers causing the change to occur (see Table 5).

Table 5: Possible types of drivers and pressures are presented

| Description | Type |
|-------------|--|
| Drivers | <ul style="list-style-type: none"> • Consumption and production patterns • Demographics • Science and technological innovation • Economic demand, markets and trade • Institutional and socio-political frameworks • Distribution patterns |
| Pressures | <ul style="list-style-type: none"> • Sectors: <ul style="list-style-type: none"> – Agriculture, fisheries and forestry – Transport and housing – Finance and trade – Energy and industry – Security and defence – Science and education – Health – Culture |
| | <ul style="list-style-type: none"> • Human influence: <ul style="list-style-type: none"> – Pollution – Land use – Resource extraction – Modification and movement of organisms |

The purpose of identifying drivers and pressures is to establish the likely causes of the observed changes in the state of the ecosystem.

The story starts with identifying a pressure, which is readily identifiable as a cause of the ecosystem change. For example, changes in precipitation can cause flooding from upstream communities, which represents a pressure causing changes in runoff in a river or gully. The driver behind this particular pressure could be energy production from charcoal burning due to deforestation. A landslide, on the other hand, could result from hill crosscutting for house construction due to rapid population growth in the upstream communities (see Figure 1).

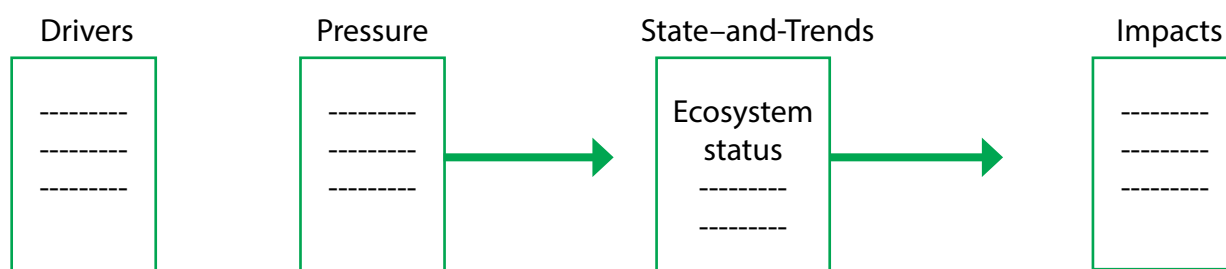


Figure 1: A landslide could result from hill crosscutting for house construction due to rapid population growth in the upstream communities (Source: NEMA, 2010)

EXERCISE

- Participants form groups of four or five, and select a specific ecosystem state for the exercise.
- Use the DPSI Sheet (below) to record the ecosystem state that is the focus of the group issue.
- Identify DRIVERS and PRESSURES that influence the ecosystem state you have selected. Draw lines between the drivers and pressures that are linked.
- Complete the worksheet for discussion in plenary. Note that impacts will be identified in a subsequent exercise.

Q: Does your group have enough knowledge to identify all relevant relationships in a theme, issue or sector? If not, who else would need to be involved to complete the analysis?



On the sheet, draw arrows connecting specific driving forces to specific pressures.
Time: 25 minutes for group work; 15 minutes in plenary (pick two groups to present).

EXERCISE

Identify the inter-linkages of ecosystem issues.

In groups of four or five, use the Integrated Sheet in the previous exercise:

- Transfer the drivers, associated pressures and ecosystem state to the inter-linkages (Table 6).
- Starting from the driver, identify two other pressures and then other ecosystem states that could change as a result of each pressure. Note the multiple linkages among pressures and ecosystem states.

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- What impacts on the ecosystem and human health are associated with changes in the various ecosystem states?
- Complete the diagram and discuss in plenary.

Time: 20 minutes for group work; 15 minutes in plenary (assuming two groups volunteering to present).

Table 6: Understanding drivers, pressures and states and trends

| Drivers | Pressure | Ecosystem State-and-trends |
|---|----------------------------------|----------------------------|
| Rapid deforestation or poor land management | Upstream flooding | Fertility erosion |
| | | Landslides |
| | Increase in agriculture activity | Draining of wetlands |
| | | |
| | | |

2.4 Possible indicators of ecosystem states, drivers and pressures

This section represents the essentials for mainstreaming EbA into policy and financing processes. The section introduces the use of quantitative and qualitative information. Participants with no prior experience with data and indicators will find the work easy.

Using indicators

Indicators are used to illustrate and substantiate statements. The choice of indicators determines the kinds of data needed for mainstreaming the EbA into policy and financing processes, including helping to structure and guide data collection.

It is important that the indicator selected for possible inclusion in policy is one that both demonstrates something salient about the themes and issues and that can be clearly communicated to people with different backgrounds.

When selected and used properly, and where data are available, indicators can offer:

- Characterisation of historical trends related to priority issues.
- Spatial patterns of change.
- Analysis of progress relative to targets/benchmarks/reference values.

Appropriate indicators can be selected using the following selection criteria. They should:

- Have been developed within an accepted conceptual framework.
- Be clearly defined and easy to understand.

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- Be subject to aggregation.
- Be objective.
- Have reasonable data requirements.
- Be relevant to users.
- Be limited in number.
- Reflect causes, processes or results.

In some instances SMART criteria for indicator selection suggest that the system indicators should be: Specific, Measurable, Aggressive but achievable targets, Relevant and Time-bound. However, this does not imply the indicators selected are meaningful to any given audience. Thus, quality control needs to be built into the discussions with stakeholders not only for individual indicators but also for the entire set.

EXERCISE

In groups of four or five, participants should identify indicators for each priority theme/issue from the previous exercise using the following matrix.

| Thematic/ Issue Category | | | |
|--------------------------|------------------------------|------------|--------------|
| Problems | Framework Elements (D, P, S) | Indicators | Data Sources |
| | | | |
| | | | |
| | | | |

Time: 10 minutes group work; 15 minutes plenary.

3.0 ECOSYSTEM CONSEQUENCES FOR THE LOCAL COMMUNITY

3.1 Sustainable development and mainstreaming ecosystems into the policy and financing framework

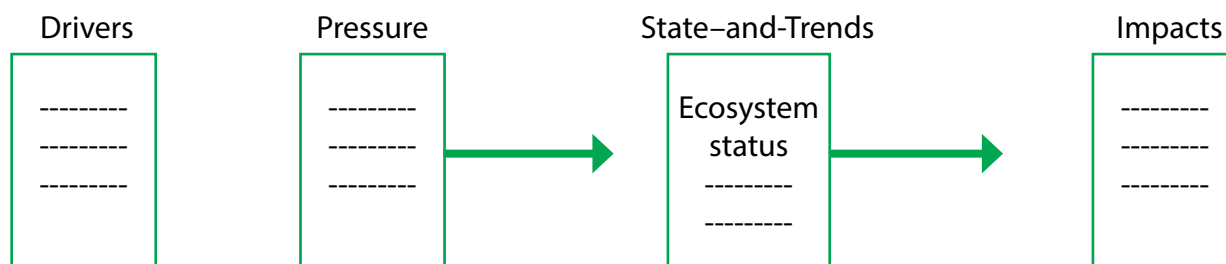
Mainstreaming ecosystems into the policy and financing framework involves consideration of sustainable development. However, participants need to understand that sustainable development presents the inherently interrelated economic, social and environmental conditions underscoring - that it is not possible to change the condition of one of the three dimensions without affecting the others, and actions to meet needs today should not compromise the ability of future generations to meet their needs.¹

Variations in a particular ecosystem variable may have an impact on other aspects of the environment and on the well-being of people. Many of the important impacts can be shock-absorbed by policy and budgetary processes.

For example, a change in vegetation cover (natural forest) can have an impact on the biodiversity of that particular region. An impact on biodiversity could mean that a species particularly valuable as an ecotourism resource no longer survives in the area. Thus, incorporating ecotourism into the financing framework could help to minimise the loss of the resource. This could impact the ability to earn a living based on ecotourism by local residents. The loss of biodiversity could also mean that a particular plant species upon which local residents relied as sources of food and medicine can no longer thrive.

EXERCISE

- In groups of four or five, identify potential impacts of the changes on the ecosystem. Use the concept of sustainable development to help you identify impacts.
- Complete the DPSI Sheet using the template provided.



Using the sheet, draw arrows connecting specific pressures. Draw arrows connecting specific driving forces to specific pressures.

Time: 20 minutes for group work; 15 minutes in plenary.

¹ Known as the Brundtland Commission

4.0 UNDERSTANDING CHANGES IN THE ECOSYSTEM AND CAUSES

4.1 Impacts of ecosystem services on policy and financing processes

This section deals with understanding the impacts of ecosystem services on livelihoods and how crucial they are for mainstreaming EbA into the policy and financing frameworks. The section helps participants describe aspects of human well-being that are affected by demographic, institutional and material factors. The aspects in turn influence the environmental factors: ecosystem services; non-ecosystem natural resources such as hydrocarbons, minerals and renewable energy; and stresses such as disease, radiation, pests and hazards.

Example of impacts on ecosystem service due to change in river water quality.

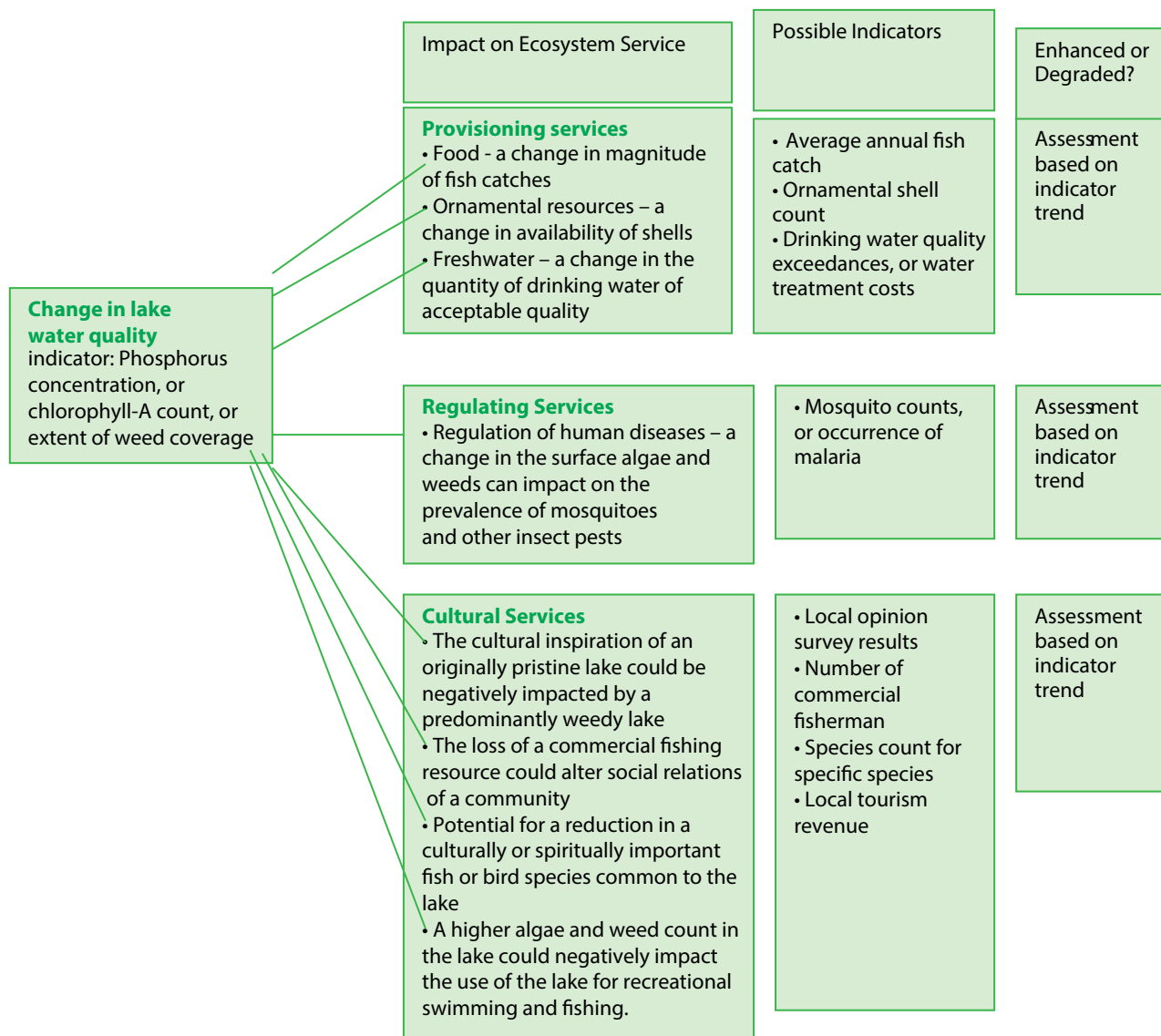


Figure 2: Example of impacts on ecosystem service due to change in river water quality

EXERCISE

Developing an impact pathways diagram.

Working in groups of four or five, choose a specific ecosystem state to examine. Conduct the following tasks in the group:

- Identify which ecosystem services (from column 2 of the table below) potentially could be affected by an adverse change in the ecosystem state.
- For each affected ecosystem service, identify which aspects of human well-being would likely be affected.
- Describe possible indicators for each of the ecosystem services and human well-being impacts that you identified.

Designate one spokesperson from each group to report results in plenary.

Time: 40 minutes group; 30 minutes plenary.

Table 7: Ecosystem services

| Category | Service | Description |
|--------------|---|---|
| Provisioning | Food and fibre | This includes the vast range of food products derived from plants, animals, and microbes. |
| | Fibre | Materials such as wood, jute, hemp, silk, and many other products derived from ecosystems. |
| | Fuel | Wood, dung and other biological materials serve as sources of energy. |
| | Genetic resources | This includes the genes and genetic information used for animal and plant breeding, and biotechnology. |
| | Biochemicals, natural chemicals and pharmaceuticals | Many medicines, biocides, food additives such as alginates, and biological materials are derived from ecosystems. |
| | Ornamental resources | Animal products, such as skins and shells, and flowers are used as ornaments, although the value of these resources is often culturally determined. |
| | Fresh water | Fresh water is another example of linkages between categories — in this case, between provisioning and regulating services. |

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| | | |
|------------|---|--|
| Regulating | Air quality maintenance | Ecosystems both contribute chemicals to and extract chemicals from the atmosphere, influencing many aspects of air quality. |
| | Climate regulation | Ecosystems influence climate both locally and globally. For example, on a local scale, changes in land cover can affect both temperature and precipitation. On the global scale, ecosystems play an important role in climate change by either sequestering or emitting greenhouse gases. |
| | Water regulation | The timing and magnitude of runoff, flooding and aquifer recharge can be strongly influenced by changes in land cover, in particular alterations that change the water storage potential of the system, such as the conversion of wetlands or the replacement of forests with croplands or croplands with urban areas. |
| | Erosion control | Vegetative cover plays an important role in soil retention and the prevention of landslides. |
| | Water purification and treatment | Ecosystems can be a source of impurities in fresh water, but also can help to filter out and decompose organic wastes introduced into inland waters and coastal and marine ecosystems. |
| | Regulation of human diseases | Changes in ecosystems can directly change the abundance of human pathogens, such as cholera, and can alter the abundance of disease vectors, such as mosquitoes. |
| | Biological control | Ecosystem changes affect the prevalence of crop and livestock pests and diseases. |
| | Pollination | Ecosystem changes affect the distribution, abundance and effectiveness of pollinators. |
| | Storm protection | The presence of coastal ecosystems, such as mangroves and coral reefs, can dramatically reduce the damage caused by hurricanes or large waves. |
| Cultural | Cultural diversity | The diversity of ecosystems is one factor influencing the diversity of cultures. |
| | Spiritual and religious values | Many religions attach spiritual and religious values to ecosystems or their components. |
| | Knowledge systems | Ecosystems influence the types of knowledge systems developed by different cultures. |
| | Education values | Ecosystems and their components and processes provide the basis for both formal and informal education in many societies. |
| | Inspiration | Ecosystems provide a rich source of inspiration for art, folklore, national symbols, architecture and advertising. |
| | Aesthetic values | Many people find beauty or aesthetic value in various aspects of ecosystems, as reflected in the support for parks, 'scenic drives' and the selection of housing locations. |
| | Social relations | Ecosystems influence the types of social relations that are established in particular cultures. Fishing societies, for example, differ in many respects in their social relations from nomadic herding or agricultural societies. |
| | Sense of place | Many people value the 'sense of place' that is associated with recognised features of their environment, including aspects of the ecosystem. |
| | Cultural heritage values | Many societies place a high value on the maintenance of either historically important landscapes (cultural landscapes) or culturally significant species. |
| Supporting | Recreation and ecotourism | People often choose where to spend their leisure time based in part on the characteristics of the natural or cultivated landscapes in a particular area. |
| | Supporting services are those that are necessary for the production of all other ecosystem services | <p>These services differ from provisioning, regulating and cultural services in that their impacts on people are either indirect or occur over a very long time, whereas changes in the other categories have relatively direct and short-term impacts on people.</p> <p>Some examples of supporting services are primary production, production of atmospheric oxygen, soil formation and retention, nutrient cycling, water cycling and provisioning of habitat.</p> |

4.2 Economic costs and benefits of mainstreaming ecosystems into policy and financing framework

Environmental valuation involves assessing costs associated with changes in ecosystem services. Such costs and benefits are related to environmental externalities (i.e. costs or benefits that are not reflected in the prices of goods and services in regular markets). One example of a positive externality is the possible value of pollination by honeybees for fruit production in a community. However, most externalities tend to be negative (e.g. if a stone quarry mining industry [such as on Mt Elgon] pollutes air quality which negatively impacts on residents [and those far away] but does not pay to clean up the pollution, this represents a negative externality).

Some externalities can be quantified directly from market prices. For example, a change in the water quality of a river could impact the magnitude of fish catches; the decline in fish catches could be quantified economically by considering the loss of income from commercial fishing, or by estimating the cost of a food substitute (Table 8). Similarly, if drinking water quality is affected, economic costs might be equated to increased health costs for treating water-related sicknesses, or also to the costs of improved water treatment.

Table 8: Example of impact pathways for a change in river water quality, including economic cost

| | A. Impact on Ecosystem Services | B. Impact on Human Well-being | C. Cost or Benefit |
|-------------------------------|--|---|---|
| Change in river water quality | <ul style="list-style-type: none"> Food – a change in the magnitude of fish catches | <ul style="list-style-type: none"> Basic material – sufficient nutritious food | <ul style="list-style-type: none"> Cost of food substitute or import Loss of income from commercial fishing |
| | <ul style="list-style-type: none"> Freshwater – a change in the quantity of drinking water of an acceptable quality | <ul style="list-style-type: none"> Health – access to clean air and water | <ul style="list-style-type: none"> Increased health costs Increased water treatment costs |
| | Other pathways | | |

4.3 Understanding environmental evaluation

Ecosystem services are partly based on willingness to pay and the externalities can be difficult to quantify directly. Several valuations are used to explain externalities. These are called ‘Total Economic Value’ (TEV) (Pearce 1993; Bateman et al. 2003). The TEV is distributed into use and non-use values as follows:

a) Use value

Direct use value: The value attached to the use of the resource, for whatever purpose. Agricultural land can produce crops, but it can also provide biomass for energy generation, perhaps forage for animals, etc. Some of these values will be difficult to quantify.

Indirect use value: This corresponds to ‘ecological functions’ (such as protecting watersheds from siltation and maintaining biodiversity). Carbon sequestration was an indirect use value, until there developed a market for it—at which point sequestration became a direct value.

Option values: The option values are direct values, even though they do not require that there be specific use at the time of valuation. Option values are those for which individuals are willing to pay to maintain the availability of something for future use, even though the individual has not seen or used and may never see or use it.

b) Non-use values

Existence value: This is an indirect value, in contrast to the categories listed above. It is the result of people's willingness to pay for something with no expectation that they themselves will benefit from it. People contribute to organisations to save the Amazonian rain forest or gorillas in Africa, because they feel that these natural wonders should not be destroyed.

The sum of these categories equals the TEV. However, these are the 'economic' values, necessarily an anthropocentric calculation. There is a category of non-economic values as well, often called intrinsic values. These values do not depend on human willingness to pay for them, but are intrinsic to the animal, ecosystem or other parts of nature.

EXERCISE

Identifying economic costs and benefits associated with changes in ecosystem services and human well-being.

Participants in groups of four or five, select one of the impact pathways from this exercise:

- Identify the costs and/or benefits associated with the change in ecosystem service or human well-being (market or non-market).
- What types of values do these represent (market, non-market, bequest, existence, intrinsic)?

Designate one spokesperson from each group to report results in plenary.

Time: 40 minutes group; 30 minutes plenary.

5.0 STATUS OF POLICY ACTION, AND HOW EFFECTIVE IT IS

The next step in mainstreaming EbA into the policy and financing framework is to address the status of policy action and how effective the policy is, if available. This is a retrospective understanding of what has been and is being done to maintain and enhance the ecosystem and human well-being. This information paves the way for enriching participant knowledge of mainstreaming EbA into the policy and financing framework. This third step in mainstreaming EbA into the policy and financing framework deals with community or societal responses (Figure 3).

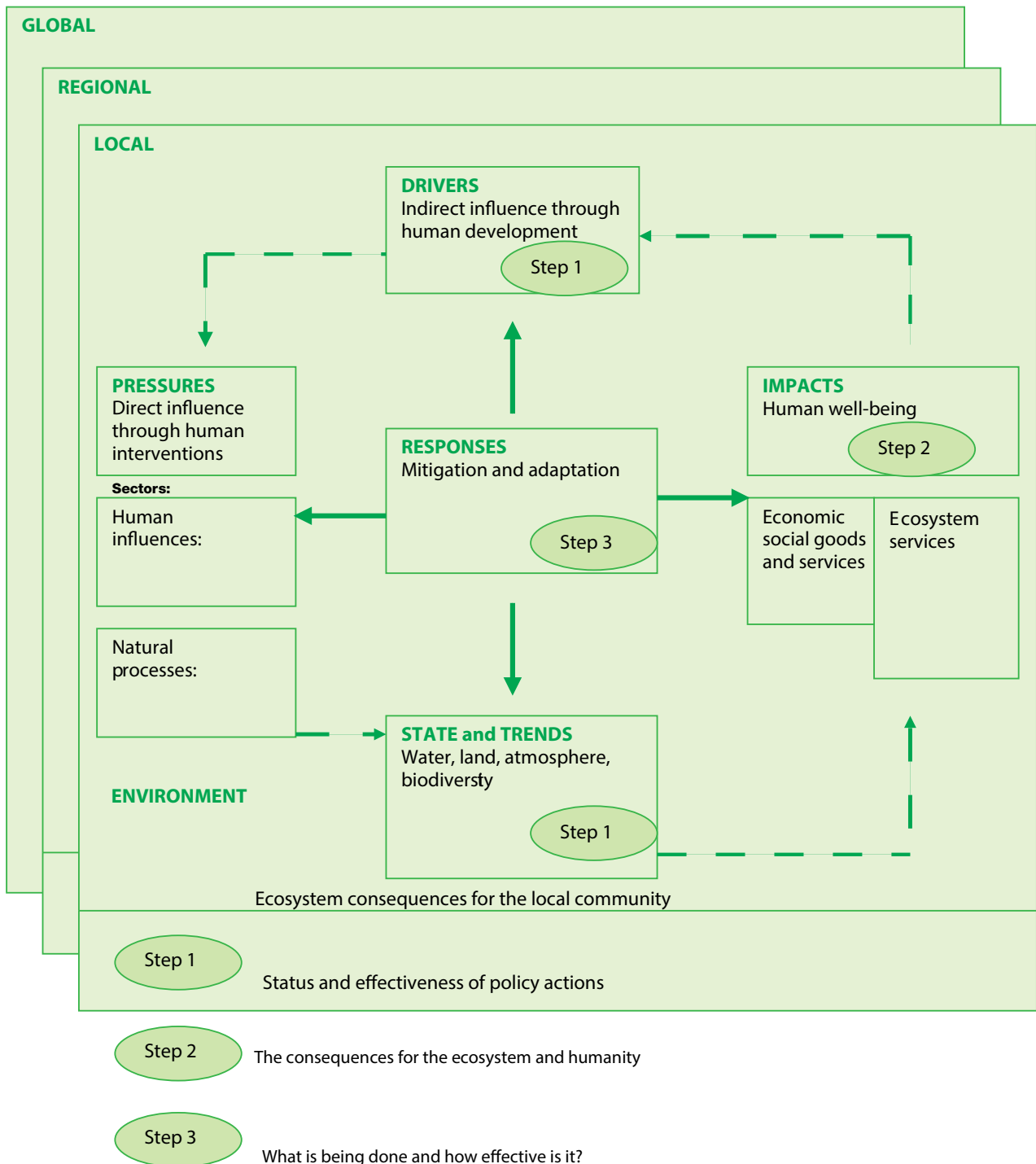


Figure 3: Community or societal responses

The actions include government policies, plans and programmes, as well as actions of civil society and business through such interventions as science and technology. Responses can have an effect on many facets of an the ecosystem issue (for example, afforestation actions affect the state of forests), pressures (such as housing construction), drivers (community population growth) and even the impacts of changes in the ecosystem (actions which help communities adapt to lack of forest cover, such as alternative fuel or building material sources) (Figure 3).

The actions that influence drivers, pressures and the ecosystem help to reduce communities' *exposure* to a change in the environment. In contrast, community responses which alleviate the impact of a change in the ecosystem help build society's *capacity to adapt*. Together, responses that influence both exposure to change and ability to adapt to impacts help reduce vulnerability to ecosystem change.

5.1 Policy instruments and mainstreaming EbA into policy process

Ecosystem scenarios can change over space and time for many reasons, driven by many processes, and influenced in many ways by multiple stakeholders. Policies and financing processes are important to ensure ecosystem control.

The term policy in this manual is 'a set of interrelated decisions taken by a political actor or group of actors concerning the selection of goals and the means of achieving them within a specified situation where these decisions should, in principle, be within the power of these actors to achieve' (Jenkins, 1978). In the Mt Elgon region of Uganda, the implementation of the decentralisation system of government empowers local political leaders and the district executive to use policy to protect the ecosystem.

A policy can be described as a tool (or a mechanism) used as a means to accomplish a policy goal(s). There are many categories of policy instruments. Table 9 presents some categories according to economic, regulatory, expenditure and institutional policy instruments (IISD and TERI 2003).

Table 9: Possible categories of policy instruments

| Instrument Category | Instrument | Description |
|---------------------|---|--|
| Economic | Economic instruments – also referred to as market-based instruments or financial incentives – are measures that directly influence the price that a producer or consumer pays for a product, behaviour or activity | |
| | Tradable permits | Market creation instruments: A system of direct regulations can be used to create a tradable good or service and a market in which it can be traded. Previous to the establishment of the market, the use of this good may have been implicitly appropriated by polluters. Examples include emission permits (i.e. CO ₂); development quotas (i.e. for tourism construction); water shares (where the resource is indivisible in space, but divisible in use [Panayotou 1998]). |
| | Deposit refund | Revenue-generating instruments: Examples such as taxes, charges, user fees and deposit-refund schemes require that money be paid to government in return for engaging in some behaviour. These economic instruments discourage undesired behaviours by raising their prices. To induce a significant degree of behavioural change, a tax or fee may have to be imposed at a level that raises the price of an undesired behaviour above that of an alternative behaviour, in order for and funds to achieve the correct relative pricing between the two options. The general principle to follow in applying revenue-generating instruments is to tax activities or behaviours that are to be discouraged or reduced (Barg <i>et al.</i> 2000). |
| | Performance bonds | |
| | Taxes | |
| | Earmark taxes and funds | |
| | User fees | |
| | Subsidies | Subsidies: Instruments such as cash subsidies, tax breaks and grants induce behavioural change by making the more desired behavioural option cheaper, thereby increasing its attractiveness to the producer or consumer (Barg <i>et al.</i> 2000). |
| | Tax breaks | |
| Administered prices | Price control by governments via a regulated market. | |
| Direct expenditure | Governments influence producer and consumer behaviour by channelling expenditures directly at the behaviour they want to encourage. Direct expenditures differ from subsidies in that they are typically broad programmes of expenditures targeted at a macro level to foster activities like technological innovation, whereas subsidies reward incremental changes in individuals' behaviour (Barg <i>et al.</i> 2000). | |
| | Programme/project operation | Governments may direct their budget towards programmes that work directly on the environment to carry out ecosystem protection and/or restoration. |
| | Green procurement | Governments can opt to spend its routine procurement budget on goods and services that support environmental improvement goals. |
| | Research and development | Governments can allocate budget expenditures to R&D directed at specific economic, social and environmental goals. |
| | Moral suasion | Governments can encourage behavioural changes consistent with ecological goals by funding programmes designed to provide information and education to raise awareness. These moral suasion and education programmes are based on the premise that people behave in environmentally harmful ways because they lack information and knowledge, and that if they have good information they will do the 'right' thing (Barg <i>et al.</i> 2000). |

Mainstreaming Ecosystem-based Adaptation into the Policy and Financing Framework

| | | |
|---------------|--|---|
| Regulation | Creating change via legal avenues | |
| | Legislative instruments | Acts and regulations passed to carry out a legal mandate for change. |
| | Enforcement activities | The enforcement of legislative instruments. |
| | Liability | Aims to induce socially responsible behaviour by establishing legal liability for certain activities, such as natural resource damage, environmental damage, property damage, damage to human health, non-compliance with environmental laws and regulations, and non-payment of taxes, fees or charges (Panayotou 1998). |
| | Competition and deregulation policy | Government policy initiatives directed at orienting markets such that 'prices are established and investments are made in competitive and freely functioning competitive markets' (NRCAN). |
| Institutional | Affect the working of the government itself in an effort to promote change | |
| | Internal education | Internal efforts to educate technical officers and policy-makers on sustainable development topics (i.e. a national round table on the environment and economy). |
| | Internal policies and procedures | Governmental institutional changes (i.e. Canada's Commissioner of the Environment and Sustainable Development) or procedural changes (requiring drafting of a sectoral sustainable development strategy). |

Discussion Questions

Table 9 presents possible categories of policy instruments.

Q: What types of policy instruments are familiar to you?

A: -----

Q: What categories do your policy instruments fall under? Are they represented in Table 9, or a new category completely?

A: -----

5.2 Understanding the policy instruments is meant to help participants recognise why ineffective policy happens. Ineffective policy can be a result of many things, such as relevant actors being ignored, a misunderstanding of the policy context, and policy goals not being supported, or a misreading of the politics of the issue (Najam 1995; Najam 2000).

Understanding policy stakeholders

Policy should shape and manage people’s activities, so stakeholders affected by the policy, either positively or negatively, have to be consulted in the policy formulation and implementation processes. State, market and citizen are three main categories of policy stakeholders in a community (Najam 1996,1999).

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. What is the ecosystem issue of concern in your region?

A: -----

Q. Who are the government actors involved in addressing the issue?

A: -----

Q. How do you get multiple stakeholders involved to ensure that EbA processes are mainstreamed into policy framework choices more robustly?

A: -----

5.3 Policy gap and mainstreaming EbA into policy and financing framework

5.4 Identifying gaps in the policy mix/interlinkages

In mainstreaming EbA into the policy and financing framework it is important to know whether the *policy effectiveness* assessment reveals that the mix of policies resulted in inadequate adaptation. Identifying gaps in the policy mix can help in determining how to mainstream.

To mainstream EbA into the policy and financing framework, participants need to know three aspects of indentifying gaps: (1) whether the relevant policy is in place; (2) whether a policy type with significant potential for positive impact is under-represented; and (3) whether the policies are not focused on relevant drivers or pressures. The identification of the types of gaps can be facilitated by using a *policy mix matrix* such as is presented in Table 9.

Using a policy mix matrix can help to determine which policy types (economic instruments, regulatory, direct expenditure, institutional) are under-represented and implemented in the policy process. As policy helps in shaping and managing people’s behaviour, implements such as economic instruments will help to mainstream EbA into the policy processes and financing framework.

EXERCISE

In groups of 5, carry out the following tasks in relation to one Drivers-Pressures-State-Impacts (DPSI) chain used in the previous exercises:

Characterising the policy mix

- Copy the descriptions of your DPSI chain from the previous exercise to the first row of the policy mix matrix.
- Using shorthand or a code, transfer policies influencing the driver, pressure, state and impact from the previous table to the appropriate cell in the policy mix matrix. Can you think of any additional policies to add to the table that you did not identify previously?
- Use the examples of policy types described previously in Table 9 as possible categories, but you may also create new categories, if necessary.

Estimating the policy effect

- Working with the results of the table just completed, indicate your perceived effect of the policy on the given ecosystem issue, based on existing information, by placing the appropriate symbol in the cell representing the policy. You could use a scale similar to the following:
 - Highly positive effect: +++
 - Moderately positive: ++
 - Slightly positive: +
 - Neutral: 0
 - Slightly negative effect: -
 - Moderately negative: --
 - Highly negative: ---
 - Policy effect unclear: ?

In plenary, carry out the following analysis of policy gaps:

- Identify policy types that appear to be over- or under-represented.
- Note if there are policies directed at each part of the issue chain (driver, pressure, state and impact).
- Identify policy types and/or specific policies that are currently absent, but that might have significant potential for a positive effect.
- Discuss opportunities and barriers for optimising the policy mix, either by adding new or discontinuing existing policies or policy types.

Time: 45 minutes group; 30 minutes plenary.

6.0 FINANCING FRAMEWORK AND EBA MAINSTREAMING

6.1 EbA and the budgetary participatory approach

The budget process is characterised by relative transparency and openness and broad participation (MFPED 2009; de Renzio *et al.* 2006). After the Budget Speech is read, often in June of each year, Parliament discusses and concludes debate on the budget and the concerns it raises can be incorporated before the budget is approved in September. To get EbA activities mainstreamed into the financing framework, the EbA project could utilise the characteristic opportunity by contributing information to the consultative process of the budget debates after reading.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in participatory budget meetings and will ensure EbA issues are considered?

A: -----

Q. Who is responsible for including the EbA in the budget finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

6.2 Budget framework papers and EbA approaches

Once Cabinet has approved the budget, a first budget call circular is sent to communicate the budget strategy for the following financial year and request sectors to prepare and submit Budget Framework Papers (BFP). The BFP links the sector ceiling, priorities and their vote and are prepared at the national, sectoral and local government levels (MFPED 2009). Similarly, given that the EbA activities are also prepared at the national, sectoral and local government levels, the EbA project could use the existing opportunity to contribute to the public sector finance and policy process at the various levels.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in Budget Framework Papers and can thus be invited to be involved in EbA issues?

A: -----

Q. Who is responsible for including EbA in the Budget Framework Papers finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

Sectoral Budget Framework Papers (BFPs) and EbA activities

Resource constraints due to limited revenue generation and competition between sectors mean that clear policies and strategies receive due attention. The sectoral BFP presents sector expenditure priorities and outlines the sector's contribution to poverty reduction (MFPED 2011). A well-formulated sectoral BFP may lead to a balanced and adequate allocation of sector ceilings in the Mid-Term Expenditure Framework (The Global Mechanism 2008). The EbA project can utilise the opportunities to make contributions to the sectoral budget process by working with sector working groups.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in sectoral Budget Framework Papers and can thus be invited to ensure mainstreaming of EbA issues into the financing framework?

A: -----

Q. Who is responsible for including the EbA in the sectoral Budget Framework Papers finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

6.3 Decentralisation system and EbA activities

The decentralisation system of government aims at enhancing the efficiency of resource allocation in line with local priorities. The system provides for the transfer of functions and services from the central government to local governments and enables district authorities to make decisions on the utilisation of funds—decisions that were hitherto made by the central government. Local governments in Uganda enjoy about 10% flexibility of non-salary conditional grant allocations to recurrent sector budgets and sector budget lines (Budget Monitoring 2012). Local governments are also allowed discretionary planning and budgeting powers; however, local government plans and budgets need to fit into national priorities and policies. The EbA project could utilise this opportunity by suggesting that expenditure on ecosystem-based adaptation strategies be emphasised.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in funding linked to decentralisation at district level and can thus be invited to ensure mainstreaming of EbA issues into the financing framework?

A: -----

Q. Who is responsible for including the EbA in the decentralisation activities finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

6.4 Ministerial policy statements and EbA activities

The ministerial policy statements are important in forming the basis for Parliament to scrutinise and debate the budget of each ministry. They are prepared by June 30 annually. The statements also provide a link between the ministry’s strategic priorities and the proposed budget allocations. Given that every ministry prepares and submits a Ministerial Policy Statement each financial year on the planned expenditure and outputs for the following financial year to Parliament, the opportunity to have EbA activities considered can perhaps be explored through networking and collaboration.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in compiling and writing ministerial policy statements and can thus be invited and involved in mainstreaming of EbA issues into the financing framework?

A: -----

Q. Who is responsible for including the EbA in the ministerial policy statements finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work;15 minutes plenary.

6.5 Sector Investment Plan and EbA activities

Financing instruments and implementation frameworks

The Sector Investment Plan (SIP) is a document that can make a strong case for a sector as a poverty-reduction tool but does not determine final and approved investments (Poverty Status Report 2012). Analysis of the SIP can identify activities that would help achieve relevant objectives. Resource constraints owing to limited revenue generation and competition between sectors mean that only some of the sector's policies and strategies receive due attention. The EbA project can build a case and formulate strategies which can be included in the plans as they can be easily considered and funded.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in compiling and writing the Sector Investment Plan (SIP) and can thus be invited and involved in mainstreaming EbA issues into the financing framework?

A: -----

Q. Who is responsible for including EbA in the SIP finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

6.6 Ministry of Water and Environment

The Ministry of Water and Environment (MWE) seeks to clarify the objectives and outputs for the MWE sector, highlighting priority areas and linking spending to ministry goals and objectives. There is need to strengthen EbA priorities in the SIP – as the ministry invests in programmes for future improvement.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in compiling and writing MDSIP and can thus be invited to be involved in EbA issues?

A: -----

Q. Who is responsible for including the EbA in the MDSIP finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

6.7 Grant transfers and EbA activities

The allocation of the unconditional grants presents few possibilities for financing EbA activities because grant transfers are formula-based and rarely cover more than operational expenditures. To work with the discretionary powers of local governments in the allocation of resources, it is important that EbA needs and priorities are accurately identified as part of the local government budget process and are fed into the budget process at national level.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in reporting on grant transfers and can thus be invited and involved in mainstreaming EbA issues into the financing framework?

A: -----

Q. Who is responsible for including the EbA in the grant transfers finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

Local Government Development Programme (LGDP) and EbA activities

6.8 The Local Government Development Programme (LGDP) provides local governments with technical and financial support to implement their mandates with respect to decentralised service provision and devolution of the development budget. The LGDP supports the government efforts to integrate its development budget with the development budgets of local government units.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in the LGDP and can thus be involved mainstreaming EbA issues into the financing framework?

A: -----

Q. Who is responsible for including the EbA in the LGDP finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

6.9 District Development Plan (DLP) and EbA activities

To access LGDP funds, local authorities usually have a three-year rolling District Development Plan (DDP) in place and expenditures are in line with the approved annual work plans and budgets. An assessment of local government performance verifies local government compliance with the overall legal and policy framework and sector policies and guidelines. The assessments determine local government access to development grants under LDGP and are crucial for obtaining financing for the implementation of DDPs.

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in compiling and writing the DDP and can thus be invited and involved in mainstreaming EbA issues into the financing framework?

A: -----

Q. Who is responsible for including EbA in the DDP finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

6.10 Climate change is a cross-cutting theme and EbA activities

c) Opportunities in government institutions, processes and financing instruments

The operations of government institutions present opportunities in the multi-sectoral approach that adopt cross-cutting themes (such as environment and related climate change phenomena), similar to themes addressed by ecosystem-based adaptation. The relevant institutions are the Ministry of Agriculture, Animal Industry and Fisheries; the Ministry of Water, Lands and Environment; the Ministry of Finance, Planning and Economic Development; and the Department of Climate Change.

The institutional setting also supports dialogue across sectors (including coordinated planning, prioritisation and budgeting), joint implementation (coordinated budget planning) and accountability (such as for effective monitoring and evaluation).

Discussion Questions

In groups of four or five members, discuss the following questions:

Q. Who are the government actors involved in compiling and writing the cross-cutting themes (such as environment and related climate change phenomena and can thus be invited and involved in mainstreaming EbA issues into the financing framework?

A: -----

Q. Who is responsible for including EbA in the cross-cutting themes finally?

A: -----

Q. What role will EbA members have?

A: -----

Time: 10 minutes group work; 15 minutes plenary.

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Comments



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