

Environment in Decentralized Decision Making

An Overview





Environment in Decentralized Decision Making An Overview

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1 SUMMARY

This module discusses the importance and means of incorporating environmental considerations into decentralized decision making processes. Why one should care for the environment is first discussed, including the economic role of the environment in life support. Two sets of environmental issues are distinguished, namely those relating to natural resource use and management; and problems arising from environmental pollution, depletion and degradation. Subsumed is the concept of sustainable development, which provides the underlying framework for all subsequent discussions. Also recognised is the need to integrate economic, social and ecological dimensions in development strategies and plans.

Various types of linkages and relationships within the environment-economy system are reviewed. These include the interactions between natural resources and their use for production and consumption, and as waste assimilator; cause and effect relationships linking environmental pressures and societal responses; stakeholder interests and linkages over the micro-macro continuum; and potential conflicts and trade-offs. Implications for decentralized decision making are next discussed. A case is made for mainstreaming environment in decentralized decision making, and a number of important issues which require policy attention briefly reviewed.

2 OBJECTIVES

The main objective of this module is to familiarize the reader with key issues concerning the environment and its relevance to policy decisions on decentralized decision making processes. It draws attention to the economic, ecological, and social dimensions of environmental and natural resources, and the need to balance development objectives of different uses and claimants. Issues brought out in this module are covered in greater detail in other modules of a conceptual and technical nature, with links to analytical tools and case materials.

3 INTRODUCTION

The module focuses on issues concerning the environment and its relevance to policy decisions on decentralized decision making processes. Two sets of issues are distinguished, namely that of: a) natural resource use and management; and b) problems arising from environmental pollution, depletion and degradation. Both are seen to require policy attention at various administrative and geographic levels.

The underlying framework guiding the discussion is the concept of sustainable development. A key message conveyed is the need to mainstream environment in decentralized decision making within the overall context of agricultural and rural development, rather than treating it merely as an activity of specialized environmental protection agencies. This brings out the importance of gaining a clear understanding of stakeholder linkages and relationships, fostering participation, and appropriate

institutional choice. Also recognised is the need to integrate economic, social and ecological dimensions in development strategies and plans.

Target audience

This module is intended for a wide audience, ranging from policy analysts and decision makers, to development practitioners, training institutions, and media. It is of particular relevance to senior and mid level officials and professional officers in ministries of agriculture, livestock, forestry, rural development, and cooperatives, including line departments and training institutes/units. It should certainly be of enormous interest to officers of environmental agencies, local governments, and NGOs/CBOs. Suitably adapted, it may also be used as a reader in undergraduate courses in natural resource management, environmental sciences, and in agricultural and rural development.

Required background

No specific technical background, beyond reasonable language skills, is required for this module. However, it is anticipated that individuals with a degree in economics, natural/ environmental sciences, and agricultural or rural development related areas, and those with several years of experience in agricultural policy analysis or development planning and implementation, at a mid to senior level position, should have little difficulty in grasping the module's content.

To find relevant materials in these areas, the reader can follow this links included in the text to other EASYPol modules or references¹.

4 WHY CARE FOR THE ENVIRONMENT?

4.1 Recent history

Problems of environmental and natural resource degradation are viewed with increasing concern by policy makers in many parts of the world. Protection and conservation of environmental resources are however not new: many societies have traditions going back hundreds of years. What is new in relatively recent times is the extent and pace of natural resource use and environmental degradation, as well as their development and welfare impacts, hence the scale of the challenges facing many countries.

By the 1970s, impacts of extractive industries, such as logging, mining, marine fisheries, and industrial and power generation processes on the environment became the issues of intense national and international concerns as we know them today. These initially revolved around problems caused by pollution and depletion of natural resources. They included air and water pollution, effects of human activities on the

¹ EASYPol hyperlinks are shown in blue, as follows:

- a) training paths are shown in **underlined bold**;
- b) other EASYPol modules or complementary EASYPol materials are in ***bold underlined italics***;
- c) links to the glossary are in **bold**; and
- d) external links are in *italics*

atmosphere (greenhouse gases and climate change), deforestation, soil erosion, desertification, silting of lakes and waterways, and threats to biodiversity.

Focus of management and policy responses has shifted more recently to the integration of such concerns with the imperatives of economic growth and development, particularly of the poorer countries, the point of departure being the concept of sustainable development (see Box 1). Natural resource and environmental conservation needs are seen here as part of the development equation, along with the pursuit of social and economic goals.

An important strand of this is that development ought to be conservation based, and must protect the structure, functions and diversity of the world's natural systems upon which the human species depends².

Box 1 - Some definitions of sustainable development

"Development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (Brundtland Commission, World Conference on Environment and Development, 1987)

"Sustainable development is the management and conservation of the natural resource base, and the orientation of technological and institutional change in such a manner as to ensure the attainment and continued satisfaction of human needs for present and future generations. Such sustainable development (in agriculture, forestry and fisheries sectors) conserves land, water, plant, and genetic resources, is environmentally non-degrading, technically appropriate, economically viable and socially acceptable". (FAO, Den Bosch Declaration on Sustainable Agriculture and Rural Development, 1991, reaffirmed at UNCED/Rio Summit in 1992 and incorporated into Agenda 21, chapter 14).

"Agriculture and rural development are sustainable when they are ecologically sound, economically viable, socially just, culturally appropriate, humane and based on a holistic scientific approach. Sustainable Agriculture and rural development (SARD) inherently addresses multiple sectors encompassing not just agriculture, but also water, energy, health and biodiversity". Since the Earth Summit in Rio, when SARD Chapter 14 of Agenda 21 first outlined programmes and actions to enhance food security in a sustainable way, the concept of SARD has evolved to include social, institutional, and economic sustainability, as well as environmental sustainability. (FAO, "Reporting on Progress for Chapters 10, 12, and 14 of Agenda 21: SARD Initiative", see: http://www.fao.org/wssd/SARD/SARD0_en.htm).

Sustainable development motives are particularly relevant to the decentralization context. The rest of this module will be guided by sustainable development concepts and the experience gained in its application in many parts of the world. Planning for sustainable development is then seen to aim at maintaining or improving not only the welfare of people but also that of the ecosystem which supports economic activities and life on earth. Achieving these two broad goals will require economic, social, and ecological dimensions to be integrated in the design and formulation of development

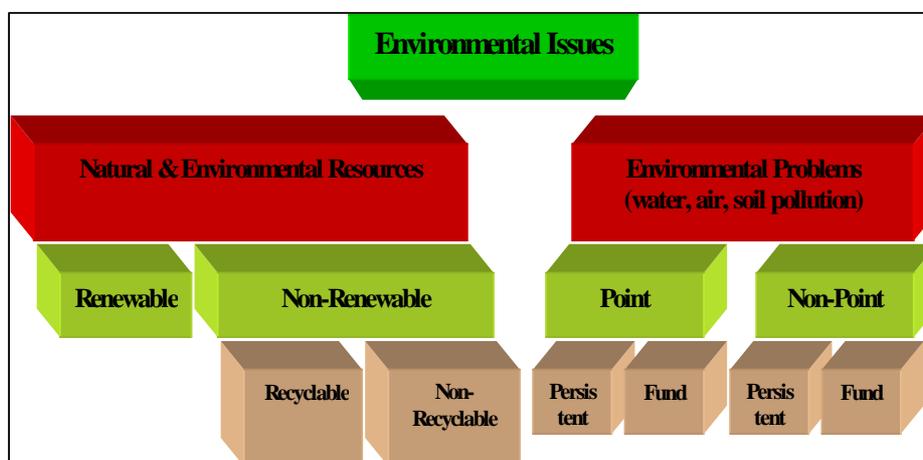
² Succinctly articulated as one principle for a sustainable society in: IUCN/UNEP/WWF (1991), *Caring for the Earth: A Strategy for Sustainable Living*, Gland, Switzerland.

strategies and plans. In most countries these dimensions are often considered in isolation. This is true for development at any level: international, national, sub-national, but especially so for planning at the local level.

4.2 Classifying environmental issues

To understand better the role and contribution of environment in sustainable development, it is useful to first understand the nature of environmental issues. Two broad categories of issues may be recognized: those relating to natural and environmental resources, and environmental problems associated with pollution, depletion and degradation of these resources. This classification (Figure 1, below) encompasses a variety of situations and processes, all of which have specific characteristics as well as management and policy implications.

Figure 1 - Environmental resources and problems



Natural and Environmental Resources. These generally describe all the elements available in nature that are used or can be used in the economic system. These can be:

- Physical, such as soil, water, forests, fisheries, and animals, minerals (e.g. copper, bauxite);
- Gaseous (e.g. helium, hydrogen, oxygen, etc.); and
- Abstract, such as solar energy, wind energy, landscape, good air, or clear water.

Natural and environmental resources can be split into renewable and non-renewable resources, and the latter into recyclable and non-recyclable resources:

- Renewable resources, which are reproducible and in principle could be maintained perpetually. Examples of renewable resources are forests, animals, and water. The availability and reproduction rate of these resources depends generally on their management by humans. The management issue related to renewable resources is the optimal rate of extraction.
- Non-renewable resources cannot be regenerated, or the regeneration takes place so slowly that it will not increase significantly the stock of resources in any reasonable

time span. Examples of non-renewable resources are oil, gas, minerals, and so forth. Non-renewable resources can, in turn, be divided into recyclable and non-recyclable resources.

Recyclable resources such as minerals, paper, glass, do not lose their properties when they are used in economic processes. Therefore they can be reused in the economic system. In theory 100 percent of these resources could be recycled but for economic reasons³ only a fraction of these are. As in the case of renewable resources, the management question is what is the efficient amount of recycling. Non-recyclable resources are finite in the sense that once used, their stock is no more available for future use. This is the case of energy resources such as coal, gas, oil. The management problem in this case involves substitution with renewable or transitional resources.

Conditional and **non-conditional** renewability. An important aspect of renewable resources is that they may be conditionally or non-conditionally renewable. The former could be renewed only subject to certain biological (plants animals, entire ecosystems) or non-biological (e.g. water, oxygen, soil nutrients) processes taking place, and could be depleted through poor management. Non conditional renewable resources are generally non-living flow resources like solar, wave or wind energy that in principle are inexhaustible.

A critical issue relating to the various categories of natural and environmental resources is how they could be managed in a way that is ecologically sound, yet would meet criteria of economic efficiency and social acceptability.

Environmental Problems. These are mainly related to the impacts of human activities on environmental resources. They generally take the form of pollution, depletion or degradation of water, air and soil. Soil erosion, water salinization and pollution, desertification, forest depletion, coastal zone degradation account for much of the environmental problems in the developing countries. There are global as well as national and local dimensions to these problems. However, most stem from human activities at the local level: actions of individual households or a factory can lead to any of the above problems. Solutions therefore need to be found at this level, regardless of the scale of manifestation.

Environmental pollution can take different forms: point and non-point pollution; and stock/ persistent and fund pollution.

Point pollution is generally associated with the possibility of identifying the source of emission and with the limited domain over which its damages are experienced. This would be the case, for example, of wastewater of industries polluting a lake, a river or a coast.

Non-point pollution, on the contrary, refers to a non-identifiably precise source of emission and to a more extended area of its negative impacts. A typical case of non-point pollution is surface water pollution due to various and widespread emission

³ The entropy law also explains why only a fraction of recyclable resources can be reused.

sources, such as industrial and urban wastewater, or use of nitrogen in the agricultural sector. Another example of non-point pollution is air pollution due to the increase of carbon-dioxide in the atmosphere. This pollution originates from many economic activities (industries, cars, deforestation, etc.) in many countries (industrialized as well as developing countries).

Stock pollution refers to pollutants that cannot be absorbed and are accumulated in the environment. Examples of stock pollutants are heavy metals like lead, and many chemicals such as dioxin, and so on.

Fund pollution is caused by pollutants that can be absorbed by the environment provided their concentration does not exceed the absorptive capacity of the environment. Among fund pollutants are organic matter, which is transformed by bacteria in less harmful inorganic matter. Carbon dioxide is also absorbed and transformed by plants and oceans.

Understanding of the peculiarities of the various types of environmental resources and problems is of primary importance in the identification of both the most appropriate policy measures and management practices, as well as the most suitable institutional arrangements to be adopted.

4.3 The resources base for life support

The bank (environment) is filled with limited amounts of renewable and non-renewable natural assets or capital. Through bank operations, the capital generates interest. An environmentally sustainable society protects the renewable capital, lives-off the interest, and uses the non-renewable capital wisely. In this way massive debt is avoided and the ecosystems are kept running⁴.

There is now wide recognition that the environment interacts with the economic growth of economies, and in general contributes to the welfare improvement of society through three main economic functions:

- It supplies raw materials that will serve as inputs for economic activities and production processes. These include, as seen earlier, natural resources that may be renewable or non renewable/ depletable.
- It functions as a sink for wastes of any type produced by economic and human activities. Such wastes may be bio-degradable/ short lived/ non-toxic, or they may be persistent/ toxic.
- It provides direct utility to people.

Less obvious, but essential to general life support nonetheless are environmental services provided by the water cycle and carbon cycle, and the ozone layer, all of which have a direct or indirect link to human welfare.

The relationship between the environmental resource base and welfare is particularly strong in developing economies. These countries, particularly the poorest ones, depend

⁴ Gray et al., 1995.

substantially on renewable resources and on the self-regeneration capacity of the environment. This is mainly due to the fact that technological substitution has not developed to the same extent as industrialized countries.

For example, water pollution is less an issue in industrialized than in developing countries. There is widespread availability of water treatment plants in the former, whereas populations of many developing countries continue to rely on primary water sources (rivers, wells), for domestic consumption. Another example is the substitution of fossil fuels for fuelwood in developed countries, whereas wood is still the major fuel source in developing countries (as seen from table 1). Whilst environmental issues may differ, the need to care for the environment is a universal one, but especially so for developing countries.

Table 1 - Developing Countries Dependence on Renewable Resources, in the 1980s

Countries	Traditional fuel as % of total energy	Excess harvesting of wood as % over sustained yields
Nepal	93	+132
Malawi	92	+31
Tanzania	91	+151
Ethiopia	89	+150
Sudan	83	+71
Paraguay	83	na
Niger	80	+193
Uganda	71	+21
Yemen	58	+300

Source: Various author.

5 ENVIRONMENT- ECONOMY SYSTEM: LINKAGES AND RELATIONSHIPS

5.1 Environment-economy system: linkages and relationships

The functional role of environmental resources in relation to provision of utility within an economy may be further illustrated using a number of models of environment-economy interactions. In Figure 2, the first two models (a and b) reflect the conventional, simplistic linear view of the linkages of production and raw materials with utility. The third model (c in the Figure) includes consideration of waste produced and its re-absorption into the environment i.e. into a waste sink.

In the last model (d in Figure 2) the economic-environment system (also known as the materials balance model) is conceptualized as a circular economy, where economic processes interact with stocks and flows of natural resources in various ways. This indicates that the balance between production, consumption and assimilation or absorptive capacity for waste can lead to positive as well as negative impacts on the stock of natural resources.

It is thus clear that many environmental resources are finite, and have scarcity value or user cost – its use by one party means others (in spatial or temporal terms) are precluded

from using it. Failure to take into account their finite availability, or miss-estimation of their true value, can have undesirable implications not only on sustainable resource use, but also on economic growth and welfare over time⁵.

5.2 Cause and effect relationships

Environmental problems can arise when actions of an individual, group or organization affect environmental resources and the livelihood system either of themselves or of other individuals or groups. Issues which need to be addressed can cut across communities, geographic boundaries, and levels of administration. Subsumed in the environment-economy system in fig. 3 are cause-effect relationships linking human activities to the environment. Typologies of such linkages include the poverty-resource degradation and the profitability-overexploitation-resource degradation linkages, representing subsistence and commercial motive situations, respectively.

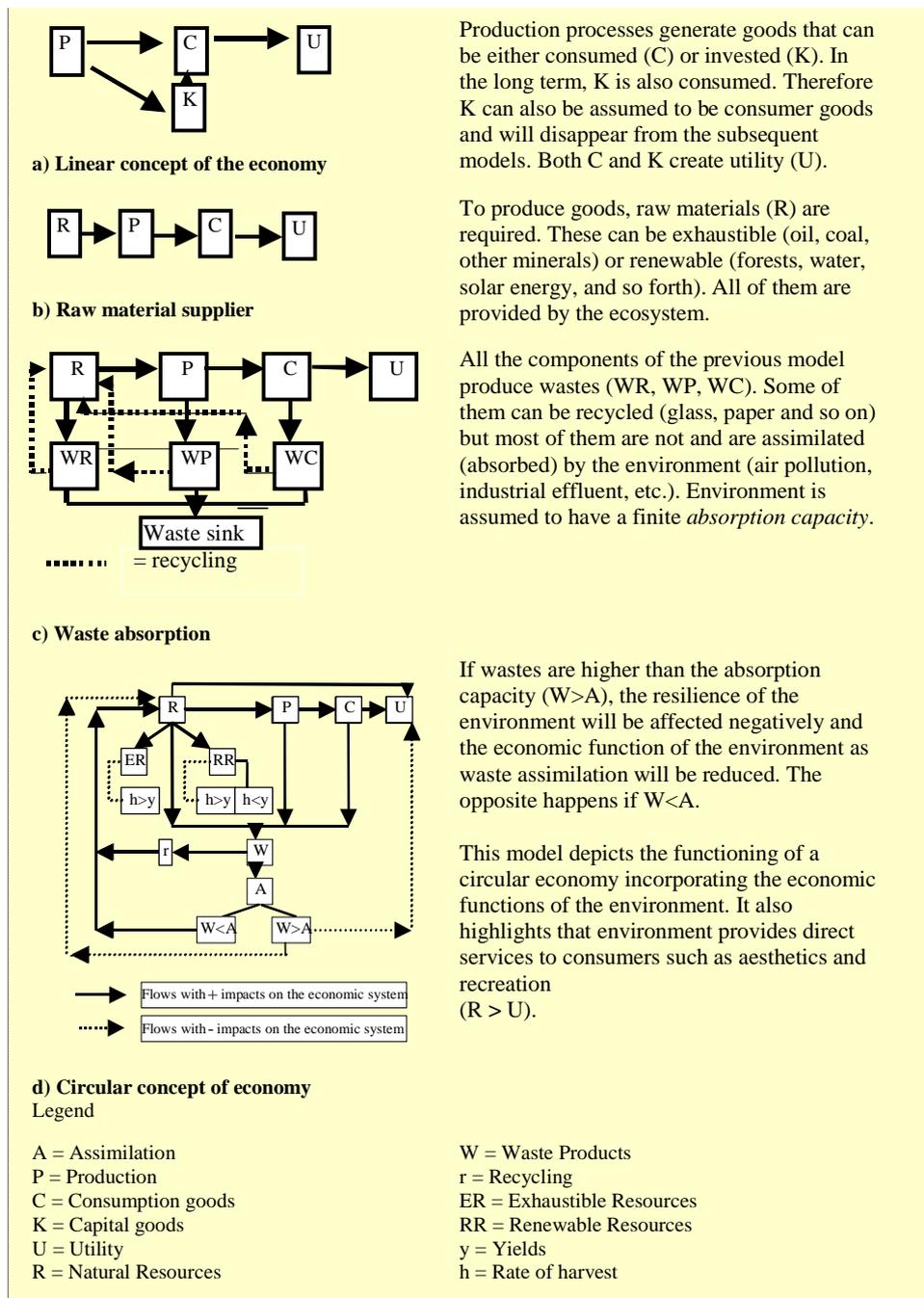
Various conceptual frameworks may be used to help understand these linkages, of which the pressure-state-response (P-S-R) framework first put forward by OECD is perhaps most well known. A recent variant of this framework additionally gives explicit recognition to specific *impacts* as well as *driving forces*.

The P-S-R framework states that human activities exert *pressures* on the environment (e.g. shifting cultivation), which induce changes to the *state* of the environment (hillslopes denuded). These may lead to certain bio-physical or socio-economic impacts (silting of lakes and rivers, degradation of freshwater fish resources, loss of livelihood to local fishermen who compensate by producing charcoal, and exacerbating the deforestation process). Society, which can be the government or communities themselves, then *responds* to these changes through policies, programmes or other actions to mitigate pressures and/or environmental damage.

The 'response' part of the framework calls into play a range of actors or stakeholders, whose decisions and actions can affect the pressures or state by way of the causal chain. This raises the questions as to: a) how the necessary environmentally related responses and interventions could be determined; b) the appropriate levels for making and acting on such decisions; and c) roles and responsibilities at the respective levels.

⁵ Further elaboration of the economic dimension of the environment, including a discussion on environmental values are given in EASYPol Module 017: [Environment in Decentralized Decision Making: Economic Rationale in caring for the Environment](#).

Figure 2 - Environment-economy interaction



5.3 Stakeholder linkages: micro-macro continuum

Use of raw materials and other natural resources for production and consumption is not a unitary process, but can take place amongst many individuals and groups, in different locations, and at various timeframes. What is also true is that these take place ultimately at the organization, household or individual level. Decisions taken on a day-to-day or longer term basis can, individually or in unison, impact on environmental resources and livelihood systems, through:

- Pollution from discharge of solid or liquid wastes, and health threatening organisms into the soil or watercourses, and air-borne particles and gases into the atmosphere;
- Depletion of the total quantity of a natural resource available for future use;
- Degradation of the overall quality of the natural resource, including its productivity and stability; and
- Altering existing relationships between the different parts of the environment-economy system, in both bio-physical and socio-economic terms.

The above could impact on the overall patterns of resource use, and production and consumption relationships in the immediate vicinity (i.e. on-site of a particular action) or in areas further away (off-site, such as downstream of an area affected by shifting cultivators). Micro level decisions and actions thus pose important concerns to the wider society at large i.e. have significance at the meso (such as local economy) or macro (national economy or higher) levels.

Decisions of local, regional and central governments and authorities (e.g. a sector ministry or a municipality administration) can in turn affect how individuals use natural resources in relation to production and consumption requirements. This may be through instituting regulations and legal controls or putting in place enabling mechanisms and instruments, including a system of incentives. It may also be through adopting certain economic policies at the national or sub-national level.

Environmental issues arising from various linkages over this micro-macro continuum are thus apparent. These linkages qualify further the environment-economy interactions illustrated in Figure 2. They reveal the multiplicity of issues that need to be addressed at various levels of the system. They also bring out the reality that there can be different *stakeholders* at various levels, each having an interest or stake in the environment. All can affect or be affected by decisions of the others, adding to the complexity in the range of issues to be addressed⁶.

5.4 Conflicts and trade-offs

The above linkages imply that decisions and actions that impact on the environment are inter-linked, and can produce winners as well as losers. Gains and losses, whether real or perceived, pose potential conflicts of interest (manifest as competition, disagreements, or even violent reactions) between different stakeholders over the use of a resource. At the same time, decisions on the use of a resource, whilst giving benefits of one kind, may result in a sacrifice or trade-off in other objectives (which carries an opportunity cost in benefits foregone).

Both conflicts and trade-offs are important issues that need to be addressed at various levels of the economic and administrative system. An important challenge for policy

⁶ Refer to EASYPol Module 017 [Environment in Decentralized Decision Making: Economic Rationale in Caring for the Environment](#) (for further discussion of stakeholder issues, and conflicts and trade-offs, below).

makers and managers in agricultural and rural development is to first understand their economic, social and ecological implications, and finding practical ways of balancing these. Reconciling differences would require good communication and facilitated negotiation amongst the stakeholders. The objective here is to arrive at *win-win solutions* for the different parties involved, in relation to conflicts as well as trade-offs between development objectives.

6 DECENTRALIZATION AND ENVIRONMENTAL DECISIONS

6.1 Decentralization processes

Early official responses to tackling environmental issues had been based largely on authoritarian controls and regulations. Often formulated and decreed at the central level, these had generally met with limited success. Growing awareness of past failures had led to much rethinking of the approaches used, in relation both to environmental resource management and dealing with problems of pollution, degradation and depletion. This has spawned a wide range of initiatives promoting locally based, often participatory, methods of environmental protection or enhancement. Examples include programmes or projects in community forestry, watershed management, soil conservation, land care, wetland restoration, and local environmental planning, to mention a few.

These new environmental initiatives are consistent with, and complementary to decentralization processes that may be taking place within the national context. Their experience so far lends support to the rationale for decentralization outlined elsewhere⁷. But whilst local initiatives could make useful contributions to environmental management or protection, they do not on their own signify a wider process of decentralization. As stand-alone initiatives, they may or may not be sustained beyond project timeframes or funding support of say, donors or NGOs. A more substantive institutionalized process of decentralization (in various political, administrative and fiscal aspects) is necessary if their contributions to addressing environmental issues are not to remain ad hoc and highly localised.

6.2 Importance of decentralizing environmental decisions

Potential benefits from decentralization in relation to environmental decision making may be reiterated to include the following:

- Local institutions and people have a better knowledge of environmental and socio-economic problems and potentials of the area, and are best placed to protect and enhance the environment if they are given clear rights (and obligations) with regard to natural resources.
- Assigning greater degree of responsibility in decision making will be accompanied by better motivation for a more efficient use of natural resources.

⁷ For example, in the EASYPol Module 012: [Decentralized Development in Agriculture: An Overview.](#)

- It is more likely to involve less favoured groups and populations in decision-making.
- It facilitates local participation due to greater homogeneity of common needs with lower sizes of population, and more transparency in decision-making processes.
- It allows building of local capacities for the provision of services that are more consistent with local requirements.

Whilst these propositions hold true generally, with decentralized decision making remaining an important condition for addressing environmental issues, this *does not mean* all related decisions can be taken at the decentralized level. When and how issues should be addressed are context specific and depend on certain physical and institutional factors⁸. It is thus important to undertake careful analysis of the contextual factors involved before deciding *where* and *by whom* environmental issues are best addressed. But undeniably, environmental considerations need to be proactively embedded within the decentralization process in a planned and organized manner.

7 MAINSTREAMING ENVIRONMENT IN DECENTRALIZED DECISION MAKING

Incorporating environment into decentralized decision making should be an integral part of an institutional effort, rather be left to ad hoc and uncoordinated advocacy inputs. This will be helped by giving attention to a number of institutional and organizational issues, in particular:

- Recognizing current weaknesses in environmental procedures and plans
- Ensuring adequate stakeholder participation
- Deciding on institutional options for decentralization
- Identifying suitable entry points in decision making
- Providing for capacity development

Key aspects are discussed below.

7.1 Recognizing current weaknesses

Many countries have introduced administrative procedures and national legislations (and also local by-laws) to help conserve natural resources and protect the environment. Government ministries or departments of the environment, and environmental protection and monitoring agencies, have also been constituted to undertake control/enforcement, coordination, planning and implementation functions. Some countries have also prepared national environmental strategies as well as local action plans to address specific natural resource management needs and other environment related problems.

⁸ They are also subject to the limitations of decentralization processes outlined in the EASYPol Module 012: [Decentralized Development in Agriculture: An Overview](#).

Not all such initiatives can be said to be an unqualified success. Environmental procedures had often been designed to deal with large investment projects, generally focusing on point-source pollution. Problems of environmental degradation by large numbers of small-scale enterprises and/ or individuals, and non-point source pollution, tend to be less well catered for. Moreover, much of environmental protection provisions and management plans are not rendered operational.

A major difficulty for developing countries is lack of financial and technical resources, and reliance on external financial assistance, which can prove unreliable. But there are also other constraints and weaknesses of an institutional nature (see Box 2) which will need to be identified, given due recognition and resolved, so as to permit setting the appropriate policy and regulatory framework for environmental decision making at the decentralized level.

7.2 Ensuring adequate stakeholder participation

There is a need to ensure substantive participation of key stakeholders in decision making on environmental issues at the various levels, geographically and institutionally. Participation may be seen as a means simply to achieving certain common goals or objectives. But alternatively, the most important feature of participation may be in its potential to enhance the power of various stakeholders to influence things⁹. And, according to the World Bank's Participation Learning Group¹⁰,

Participation is a process through which stakeholders influence and share control over development initiatives and the decisions and resources which affect them.

In the context of environmental decisions, participation may involve partnership between community organizations and bureaucratic/ political entities (such as sectoral agencies and local government organizations), but also private sector organizations, including rural entrepreneurs and non-governmental organizations. Various types of collaborative management of natural resources have emerged over recent years, where stakeholders work together on management of a single resource (joint management of a block of forest, say), or cooperatively address management issues of common interest (such as soil and water conservation). The potential of such arrangements merit consideration as practical expressions of decentralization approaches. In many instances, opportunities occur for existing traditional or indigenous systems of natural resource management to be supported and built upon.

⁹ FAO (1999), *The Participatory Process for Supporting Collaborative Management of Natural Resources: An Overview*, Rome.

¹⁰ World Bank (1996), *World Bank Participation Sourcebook*, Chapter I.

Box 2 - Problems affecting environmental procedures and plans

Possible factors include the following:

- Responsibility for environmental protection and planning is delegated to a single ministry or agency that has little control or direct influence over plans and actions of other sectoral or specialised agencies, where decisions on natural resource use and management are made.
- Legislations in place are often non-enforceable in practice, as there had been little prior consultation or involvement of local officials and communities in their drafting; lack of financial and manpower resources for enforcement compound the problem.
- Environmental issues are treated separately from other development issues, due to the perception that they relate largely to control, protection or preservation measures, hence are of marginal relevance (and sometimes nuisance value) to sectoral and specialised agencies concerned with income generation or export growth.
- Lack of appreciation on the part of some government administrators as to the linkages and interactions between natural resource use and social as well as economic issues.
- Environmental procedures used lack financial and economic dimensions, and are open to loose interpretation based primarily on qualitative physical factors.
- Procedures based on methodologies for environmental analysis used in developed market economies may not be readily applicable to developing country situations, with poorly developed markets as well as a dearth of economic and social data.

Stakeholder participation implies an important but not exclusive role for local communities and civil society organizations in exercising responsibilities in relation to environmental issues. This is partly because governments at various levels generally have mandated responsibilities with respect to a range of policy formulation, fiscal, planning, administrative control and regulatory functions: part of these impinge on use and management of environmental resources. Moreover, as indicated before, not all environmental issues can be addressed at the community or indeed local government levels, especially where problems of externalities, conflicts and trade-offs are involved. Choosing the appropriate level and institutional form to deal with various kinds of issues is thus necessary, as next discussed.

7.3 Choice of institutions

Various forms of decentralization in progress in various countries have already been discussed¹¹. As previously indicated, decentralization decisions should be guided by the principles of *subsidiarity*, *jurisdictional spillover*, and *specialization*. Given the nature of environmental issues i.e. location specific, with multiple stakeholders at various levels, both areal as well as functional decentralization of power and responsibility may be implicated.

The design of institutional arrangements and policy instruments to take account of differences in ecological factors among *geographical areas* is now well recognized.

¹¹ See the EASYPol Module 012: [Decentralized Development in Agriculture: An Overview.](#)

Examples include coastal water pollution from nitrogen fertilizers and siltation of lakes and waterways by upstream economic activities. Source specific pollution impacts depend on such factors as soil characteristics, hydrology, and farming practices, which may vary between watersheds or drainage basins. Addressing them would require area-specific management practices and regulations to reflect such variations.

Physical areas such as drainage basins often cut across administrative boundaries as well as management responsibilities (e.g. for agriculture, electricity generation, forestry, environmental protection). Integrating functional coverage with areal decentralization at an appropriate scale may be necessary, and poses special challenges. This calls for careful choice of institutional arrangements, that could adequately take into account conflicting interests and are manageable in terms of resources and costs, including that of information gathering and enforcement of decisions. No single type of institutional arrangement will suit all situations. Much will depend on the type and nature of the environmental issue, and the prevailing physical, socio-economic and political factors. But as an initial guide, a checklist of key factors that need to be considered is set out in Box 3.

Box 3 - Factors impinging on institutional arrangements

Type, scale and timeline of the environmental issue: this has to do with the nature of the good or service in question (type), the area and/or populations affected by it (scale), and the occurrence of the effects, either positive or negative (timeline).

Number of parties involved: this factor may increase the difficulty of parties to find a solution to the problem in question, and thus requires the intervention of external institutions (courts, government).

Conflicting interests among parties: in this case, the achievement of an agreement between the parties may be constrained by the importance of conflicts; the higher the conflicts, the lower the probability that the parties involved will be able to come to an agreement without the intervention of an external institution.

Property rights: if property rights are non-existent or poorly defined, it is likely that co-operation between the parties in solving the conflict will be more complex.

Asymmetries of information: if information is incomplete, the party with more information will try to take advantage of it to maximize its benefits at the expense of the other party. It is also likely that the party with less information will try to minimize its loss by, for example, searching the information needed. Overall, these activities will increase the difficulty and resources (costs) required to solve the conflict.

Distance between the area where the environmental problem is *produced* and the place where it is *consumed*, and between the parties: the higher the distance between the source of the environmental problem and the peoples affected, the higher the probability that information will not be perfect and solutions to the problem difficult.

Enforcement costs: once conflicting parties come to an agreement for solving one environmental problem, they will establish some rules (i.e. define property rights) everybody must comply with. Enforcement of compliance is usually carried out by one neutral institution (e.g. court of justice) capable of measuring the attributes of contractual agreements between parties and to enforce an agreement in a way the

offender finds costly to violate. All this has a cost, which increases along with the complexity of agreements, and can be minimized by choosing or setting up the right institutions.

Institutional setting of the country: sometimes existing institutions are sufficient to cope with the problem in question. It may happen, however, that new institutions may better address specific environmental problems. It is worth mentioning here the recent creation in many developing countries of ministries of the environment or environmental agencies.

Cost-effectiveness of the intervention: this concept suggests that those institutions/organizations should be chosen which can provide the most effective intervention at the lowest cost; and

Strengths and weaknesses of public and private sector organizations in performing different types of functions related to the environmental issue. The underlying concept is that any good or service can be broken down into four components of provision, namely financing, production, regulation of its provision, and consumption. Each component can be addressed by different institutional levels or organizations. Knowing the relative strengths and weaknesses of the institutions/organizations involved will help to identify those which can assure one or more of the above mentioned components at the lowest cost.

General Rules On the basis of the factors set out in box 3, some general rules may be used as a guide for deciding which type of stakeholders i.e. private and civil society organizations or institutions at central government or sub-national/ local government levels are most suitable for environmental decisions:

- *Private or civil society organizations* such as farmers associations, private entrepreneurs, and NGOs are better suited when:
 - ✓ Only a few parties are involved;
 - ✓ Negotiation costs are low;
 - ✓ The “producer” of the externality is aware of and informed about the effects;
 - ✓ The cause and the effects of the externality take place in the same geographical area (local government, community) or very near the source; and
 - ✓ Property rights are defined or can be easily defined.

- *Government Institutions* at central or sub-national levels can be considered if:
 - ✓ Number of parties involved and conflicting interests are high;
 - ✓ Geographical distance between the parties is large;
 - ✓ Transaction costs are high;
 - ✓ Negotiations between the parties cannot achieve important social, political, and moral goals;
 - ✓ Property rights are not defined clearly;
 - ✓ The scale and timeline of environmental problems cannot be addressed by individuals or private organizations;

However, in accordance with the subsidiarity principle, sub-national/ *local* governments are preferable when the scope and scale of the environmental issue can be managed competently and cost-effectively at this level. On the other hand, *central* government institutions may be the only choice if: a) there is lack of skilled personnel at the decentralized level; or b) appropriate measures can only be undertaken by central government, such as in determining macroeconomic policies (exchange rate, import and export taxes/ quotas, and so on).

7.4 Entry points for environment in decision making

Possibilities for incorporating environmental issues in decision making exist at various points within the planning and management framework spanning the micro-macro continuum. Opportunities depend on the nature of such a framework, the extent to which planning and management functions have been decentralized, and the type of participatory processes being adopted. In principle, environmental issues have relevance from the issue or problem identification stage, through implementation, to the evaluation and mutual learning stages.

In the ideal case, the decision making framework should be dynamic, inclusive of major stakeholders at various stages of the process, integrative of other social and economic criteria, and characterized by effective communication and capacity building elements. Where such a framework is absent, its development and adoption is itself an important goal of environmental decision making, and of the decentralization process itself.

Additionally, and given the nature of some environmental resources, special emphasis ought to be given to identifying potentials in relation to their use/ exploitation for economic purposes as well as protection/ conservation. This is best done through drawing upon the creativity of local people (such as forest fringe dwellers) who may have built up intimate knowledge of the ecosystem over many years.

7.5 Providing for capacity development

There is generally limited capacity to support and foster decentralized development processes across much of the developing world, although notable progress has been made in recent years in various parts of Africa, and countries like India. When environment considerations are factored into the decision framework, capacities are even weaker. These include not only technical skills, such as in environmental economics or participatory approaches to resource management, but also the institutional arrangements for designing and implementing environmental plans and procedures, of the type shown in Box 3 earlier¹².

Awareness and appreciation of the economic and social significance of caring for the environment, and the potential contribution of decentralized approaches to sustainable natural environment management are often lacking. This applies especially to technical

¹² This issue is further discussed in the EASYPol Module 017: [Environment in Decentralized Decision Making: Economic Rationale in Caring for the Environment](#).

personnel of specialized sub-sector agencies, but is also true to varying degrees amongst the population at large. A command and control mindset, and “it’s alright so long as it is not in my own backyard” attitude are not uncommon.

Much needs to be done in capacity development, covering technical and human resources, sub-sector and cross-sector institutions and, not least, attitudes on environmental issues overall. In practical terms these translate into the need for greater effort in the areas of skill training, institutional strengthening, and mutual learning. This includes the assembling of scientific information, building upon local knowledge systems on the environment, and communication of such information to development professionals, agricultural technicians and the public at large.

Capacity development could perhaps be guided by one of the principles for sustainable living (on personal attitudes and practices) set out in the 1991 document on ‘Caring for the Earth’ which states:

To adopt the ethic for living sustainably, people must re-examine their values and alter their behaviour. Society must promote values that support the ethic and discourage those that are incompatible with a sustainable way of life. Information must be disseminated through formal and informal education so that needed actions are widely understood.

8 READERS’ NOTES

EASYPol links

This is one of several modules of a thematic overview nature in the training path [Decentralization and Agricultural Development](#). Issues addressed in this module are further developed in the following modules:

EASYPol Module 017: [Environment in Decentralized Decision Making: Economic Rationale in Caring for the Environment](#)

Other training paths which have close technical links to the present one include:

- [Analysis and monitoring of socio-economic impacts of policies](#)
- [Investment planning for rural development](#)

9 REFERENCES AND FURTHER READING

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Module metadata

1. EASYPol module	016
2. Title in original language	
English	Environment in Decentralized Decision Making
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3. Subtitle in original language	
English	An Overview
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4. Summary	
<p>This module focuses on issues concerning the environment and its relevance to policy decisions on decentralized decision making processes. Two sets of issues are distinguished, namely that of: a) natural resource use and management; and b) problems arising from environmental pollution, depletion and degradation. Both are seen to require policy attention at various administrative and geographic levels.</p> <p>A key message conveyed is the need to mainstream environment in decentralized decision making within the overall context of agricultural and rural development, rather than merely an activity of any specialized environmental protection agency. This brings out the importance of gaining a proper understanding of stakeholder linkages and relationships, fostering participation, and appropriate institutional choice. Also recognised is the need to integrate economic, social and ecological dimensions in development strategies and plans.</p> <p>The underlying framework guiding the discussion is the concept of sustainable development. Issues brought out in this module are covered in greater detail in other modules of a conceptual and technical nature, with links to analytical tools and case materials.</p>	
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6. Author(s)	Agricultural Policy Support Service, Policy Assistance Division, FAO, Rome, Italy
7. Module type	<input checked="" type="checkbox"/> Thematic overview <input type="checkbox"/> Conceptual and technical materials <input type="checkbox"/> Analytical tools <input type="checkbox"/> Applied materials <input type="checkbox"/> Complementary resources
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