

# **CHAPTER 5**

## **ENVIRONMENTAL PROTECTION IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT**

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# Environmental Protection in the Context of Sustainable Development

## Introduction

*Environmental protection* refers to the deliberate maintenance of a certain level of *environmental quality*. This is done through *environmental management*. This chapter briefly discusses four aspects of environmental protection, namely:

- Why is it needed?
- What needs to be protected?
- How much should be protected?
- How should protection take place?

The concept of *sustainable development* offers a useful analytical framework to answer these questions. Although not entirely new, the World Commission on Environment and Development (WCED) gave sustainable development a new authority:

*Meeting the demands of the present generation without jeopardising the ability to meet the needs of future generations (WCED, 1987).*

The following description in the same book reflects the demanding nature of the concept:

*A process of change in which the exploitation of resources, the direction of investments, the orientation of technological developments and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspirations (WCED, 1987).*

In economic terms, sustainable development considers natural resources as production factors (at par with labour and physical capital). A society develops sustainably when it increases its production factors, or at least keeps them constant.

Sustainable development is not just an environmental concept; it has various dimensions. It cuts across traditional lines of sectoral organisation of policies - dominant in government structures - and traditional disciplinary lines - dominant in academic institutions. Few countries - if any at all - in the world can claim to develop sustainably. Nonetheless, the concept is useful in directing the general development path and as an analytical framework to improve existing projects and policies.

## **Reasons for Environmental Protection**

*Environmental protection* is a limited concept in that it is only concerned with prevention of undesirable environmental changes. It gained prominence because of the growing environmental problems, resulting from past environmental neglect. As the environment provides key resources to society, its protection is essential to maintain a flow of essential goods and services.

Environmental decline may adversely affect such flows, either damaging future development or threatening human survival in the case of loss of life support functions. In particular, irreversible environmental changes deserve detailed examination before such changes are “accepted”. One needs to weigh the costs and the benefits of such actions, and in case of uncertainty planners may be well advised to apply the *precautionary principle*, i.e. do not implement actions until you are sure about their major consequences. The consequences of species losses are often very difficult to anticipate because of our limited understanding of complex ecological processes. Perhaps, we can do without a species such as the panda bear, but who knows the other consequences its disappearance might have? If you like, this utilitarian perspective on the environment is selfish, considering benefits to humankind as the ultimate criterion of every development or process. There are other normative - less anthropocentric - perspectives which consider humankind as only one of the natural resources and species. In such views, humans are not above the other species, and in fact have the responsibility to ensure their survival.

## **What Needs Protection?**

Given ecological complexities, it is not sufficient to single out species in need of protection (e.g. through CITES). Environmental protection should focus on a wide range of interrelated levels such as *genes, species, ecological cycles* and *ecosystems*. For practical purposes, countries could concentrate their efforts on species or ecosystems which are particularly threatened and/or vulnerable to development. Certain ecosystems may be protected by giving them a special status (e.g. Park and Reserve Ramsar site). However, it is widely accepted that species protection cannot be restricted to special areas such as Parks or Reserves. Genes protection is particularly important in undisturbed areas hitherto not suffering from intensive, monoculture-biased, development. Species and genes diversity tend to be greatest in such areas (e.g. tropical rainforests).

## **Level of Protection**

The level of protection can be identified in different ways. In reality, the most commonly selected level of environmental protection is environmental

management which does not significantly and adversely affect economic growth. An example of this approach is the Western growth model followed in the past. Where a trade-off exists between environmental protection and economic growth, the latter usually takes priority (protection is a luxury, which one can only afford later). Fortunately, the importance of environmental protection for long term economic growth is increasingly recognised, demonstrating that the tradeoff is not as common as generally believed (win-win situations, where both development and environment benefit).

Sustainable development offers clear guidelines as to the level of environmental protection. Two variations exist, each with their own recommended level of protection.

### ***Strong Version of Sustainable Development***

The *strong version of sustainable development* dictates that the *environmental quality must be maintained as far as renewable resources, biodiversity and pollution is concerned*. The optimal levels of environmental use and protection are:

- ❑ For *renewable resources*: the use of renewable resources should not exceed the regeneration renewable resources;
- ❑ For *pollution - emission and effluent discharge*: level of emission/discharge should not exceed the environment's absorption capacity;
- ❑ *Loss of biodiversity*: anthropogenic loss must not exceed the natural rate of loss.

### ***Weak Version of Sustainable Development***

For the *weak version of sustainable development* (the sum natural, human-made) no environmental losses are acceptable. On the other hand if all environmental losses can be compensated, then all environmental changes would be acceptable. It is problematic to identify the potential and extent of compensation. To what extent can machines and human skills substitute natural resources? Optimists argue that technology and human innovation will solve all problems. Pessimists argue that substitution is limited, and possibilities will run out.

Strictly adhering to the principle of strong version of sustainable development (the amount of natural capital should remain at least constant), extraction of non-renewable resources would not be allowed. Of course this does not make sense (why keep it forever?). The weaker version of sustainable development

offers two useful guidelines for the rate of depletion:

- ❑ Deplete non-renewable resources in such a way that renewable substitutes exist upon their depletion. This will minimise societal disruptions.
- ❑ Mineral revenues should only be used to strengthen human skills and/or the physical infrastructure. This would enhance the future productive capacity.

Interestingly, sustainable development extends protection guidelines to the human sphere. Environmental protection requires eradication of absolute poverty (i.e. people living below the poverty datum line) and efficient resource use by the middle and high income groups (households and countries). The former would enable the poor to invest in activities with long term environmental benefits. The latter would reduce resource pressure and create room for low income groups to access their fair share of natural resources.

Environmental economics adds to the sustainable development approach by incorporating cost concerns. Let us discuss the example of pollution. The problem of pollution arises because of market failures. Normally, pollution costs are external to the polluter, and therefore not incorporated in his/her decision-making process. The company increases its production level to the point where the extra revenues from an additional unit produced equal the extra production costs, i.e. the level where the marginal net private benefits are zero. Society incurs increasing pollution costs MEC, which lead to a situation where - from society's prospective - the company's production is too high, i.e. the level where the society's marginal costs exceed the marginal benefits. The optimal level of pollution is the environmental quality where the society's extra (or marginal) costs of pollution reduction equal society's extra benefits. If the costs of pollution control exceed the benefits, such control is uneconomic, and unwise. If on the other hand the gains exceed the costs, it is important.

## Means of Environmental Protection

Environmental protection is the responsibility of all resource users, be it individuals (e.g. consumers, farmers), companies or government departments. Government - as the overall custodian of society's interests - should provide a "climate", an "enabling environment" conducive to environmental protection. Governments have three general instruments at their disposal:

- ❑ **Legislation**, comprising legal rules that seek to prescribe environmental use (command the control);
- ❑ **Economic instruments**, comprising charges, subsidies etc. aimed at

encouraging environmentally friendly behaviour and discourage undesirable resource use; and

- ❑ **Consultative instruments**, seeking negotiated or voluntary changes in resource user behaviour. For example, government may sit down with villagers to negotiate a sustainable development plan in the village area. The government may also sit down with the chemical companies to agree on an environmental action plan. Awareness raising and formal education are fundamental components of this approach.

Each type of instrument has its own strengths and weaknesses. Traditionally, *environmental policies* have heavily relied on regulations. While this has the potential advantage of detailed control over resource use, enforcement has proven to be difficult and costly. *Economic instruments* serve the dual purpose of fund raising for government activities with respect to environmentally management and of altering resource use by stimulating environmentally friendly behaviour. In practice, *economic instruments* are successful in fund raising but their environmental impacts are less clear. Among others, the environmental impacts depend on the price elasticity of demand. If this elasticity is close to zero, making resources more expensive will not change consumption patterns much. Finally, *consultative instruments* such as negotiations with villages or economic sectors can be used. Persuasion and environmental education also belong to this category of instruments. These instruments tend to be successful in terms of compliance as people and institutions have been consulted. However, it is not always possible to agree on relevant environmental targets. For example, an industrial sector may not be willing to reduce pollution sufficiently. Indonesia has been fairly successful with these instruments by making compliance or non-compliance with environmental standards public (with a time lag for defaulters of one year to allow time to improve their record).

## Conclusion

It is recommended that a consistent package of all *environmental protection instruments* be put together to promote the desired resource utilisation. This requires radical changes as most countries apply instruments with diverging environmental impacts. For example, livestock subsidies lead to larger number of animals and rangeland rehabilitation. Subsidies actually hamper the chance of success of the latter projects. Both instruments have to be brought in line. Environmental impact assessments for both projects and government policies could reduce the occurrence of such inconsistencies.

## References

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