

DESERTIFICATION

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Keywords: Desertification, land degradation, biological resources, sustainability, development, environmental law

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Summary

Desertification constitutes one of the “global” international environmental problems the world is facing. It has been recognized as a problem of significant importance since the early 1970s but the international community has never given it its full attention and commitment.

In particular, adequate financial resources have not been forthcoming, partly because the impacts of desertification in any given region do not spill over to other regions. The international community has addressed the threat of desertification through a convention negotiated at the level of the United Nations. It constitutes a significant effort to mainstream desertification but remains a peripheral instrument with rather weak commitments.

1. Introduction

Desertification constitutes one of the international environmental problems whose global importance has been recognized by the international community. This importance is clearly visible in the massive endorsement that states have given to the United Nations Convention to Combat Desertification in those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa adopted in 1994.

Desertification is a problem that affects a number of regions of the world in developed and developing countries but Africa, the continent with the largest number of least developed countries, is the region that suffers most from desertification. Desertification is perceived differently from other global environmental problems such as climate change mitigation or biodiversity management. This is due in part to the fact that the negative impacts of desertification are confined to a given region and do not affect directly all countries. It is nevertheless slowly being recognized that land degradation in drylands is, for instance, a significant vector of biodiversity loss.

The concept of sustainable development that constitutes the focus of much of recent environmental policy making implies that environmental problems cannot be tackled without taking into account the broader development framework into which they fall. While this is true for most environmental issues, desertification is even more closely associated with the development process insofar as it impacts on people's livelihoods much more directly than other environmental problems. In particular, there are close links between dryland degradation and food production. Given that the satisfaction of basic food needs for an increasing world population constitutes one of the central challenges of environmental management in the coming years, the loss of productive land is of major concern in a world where hundreds of millions of individuals already go hungry today.

2. The Problem of Desertification

Land degradation caused either by anthropogenic or climatic factors has occurred since time immemorial. In recent times, it became an issue of international significance in the wake of the Sahelian drought of 1968–1973. Since then, there have been several coordinated efforts at the international level to tackle the growing problem of desertification and land degradation, which have culminated in the adoption of the Desertification Convention.

2.1 Definition and Extent of Desertification

The definition of desertification has varied over time and has been the object of significant debates among specialists. In particular, there has been disagreement over the extent to which anthropogenic factors are to blame in the process of land degradation. The most recent definition inserted in the Convention recognizes that a variety of factors are at stake and states that desertification is land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities.

An exact assessment of the extent of land degradation remains elusive both because of the difficulties involved in measuring it and because of the different definitions used

over time. However, it is estimated that about 40% of the total land area of the world or 6.1 billion hectares is dryland and that 15% of these drylands (1 billion hectares) are hyper-arid deserts. The greatest impact of land degradation is in the African continent where dryland, including hyper-arid deserts, comprise about two-thirds of the continent. It is significant that the 5.1 billion hectares drylands that are not hyper-arid deserts support about a fifth of the world population.

2.2 Causes of Desertification

Desertification is caused by a number of factors, which have been the subject of significant debate. One can generally distinguish between climatic factors such as natural disasters and human factors such as salinization of water sources or overexploitation of biological resources. Climatic variations have significant impacts on dryland soils because they are inherently vulnerable to desertification processes as they already have low levels of biological activity, organic matter and aggregate stability. Indeed, dryland soils become increasingly susceptible to accelerated erosion by wind and water as plant cover decreases.

Human actions constitute the other major cause of desertification. While the data concerning human impacts on drylands is not good, a number of trends and factors can be highlighted. The direct human-induced causes of desertification include overgrazing, over cultivation, deforestation and salinization on irrigated cropland. One estimate of the direct causes of degradation allocates, for instance, the responsibility to overgrazing (35%), deforestation (30%), other agricultural activities (28%), overexploitation of fuel wood (7%), and bioindustrial activities (1%).

Generally, human-induced desertification is caused by the intensification of land use. This is also linked to broad structural changes such as increasing population densities, local socio-economic development, distribution of property rights over land, and the unfavorable impacts of the international economic order. Population growth and migration to dryland areas have often been branded the primary culprits of land degradation. While increasing human population is bound to increase the pressure on natural resources, especially in situations where the basic necessities of life are not available, the relationship between population and desertification is not clear-cut. In some cases, as in the case of the Indira Gandhi Nahar Pariyojana (Rajasthan canal) in northern India, the introduction of irrigation water has made cultivation possible in new areas and has therefore directly resulted in important migration flows to the area. In this case, land degradation seems to be linked directly to rapidly increasing human population and expanding livestock numbers. In other cases, however, it has been noted that when out-migration from drylands previously cultivated may accelerate the process of desertification because the land is not any more adequately managed. In the case of the Machakos district in Southeast Kenya, land deemed to be unsuitable for cultivation a few decades ago had been successfully regenerated. Further, it appears that local people, despite their difficult economic situation and a rather adverse climate, have not destroyed their environment while improving their livelihoods. Indeed, the district seems to have been able to sustain agricultural intensification, improved conservation and increased output through several decades of population growth in excess of 3% per annum.

2.3 Impacts of Desertification

Desertification is unanimously acknowledged to have significant adverse impacts for affected populations and affected countries. It is associated with accelerated soil erosion by wind or water, salt accumulation in soils, reduction in species diversity and plant biomass and reduction in overall productivity of dryland ecosystems. It often leads to the conversion of usable drylands to land that is unable to support agriculture or settlement. The loss of soil fertility constitutes one of the major socio-economic impacts of desertification with direct repercussions on yields, food production, and people's incomes. In turn, this directly contributes to the exacerbation of poverty, to migration or displacement and social breakdown with the resulting political instability that this can bring about. Losses in productive capacity caused by desertification—which include production lost because of human-induced land degradation and the cost of rehabilitation—are difficult to estimate but are of significant magnitude. The United Nations Environment Programme (UNEP) estimated, for instance, for 1991, losses amounted to \$42.3 billion.

Desertification also has a number of environmental consequences. These include a loss of endemic animal and plant species. Despite the perception that drylands are not rich in biodiversity, it is remarkable that a number of the most important food crops on which humankind relies such as wheat, barley and millet originated in arid or semi-arid lands. Land degradation also reduces resilience to climatic disturbances such as drought or human-induced impacts such as overgrazing. Further, it can also contribute to flooding and sedimentation.

3. The Internationalization of the Question of Desertification

The preceding remarks on the extent and impacts of land degradation clearly indicate that desertification is a significant international environmental problem. Combating desertification is also a central component of the realization of sustainable development at local and international levels. Indeed, the solution to a number of other environmental problems cannot be found unless the problem of land degradation is tackled alongside. Even though land degradation is closely related to a number of other environmental problems, in particular the management of biological and water resources, the international community has decided to address the problem of desertification as a separate topic. Today, land degradation is therefore a distinct issue in international legal parlance, as indicated by the existence of a separate desertification convention, alongside the various other international environmental treaties.

3.1 Early Developments

Desertification has been a concern for all human societies established in arid or semi-arid areas from antiquity. In recent times, one of the first international efforts at addressing land degradation was the UNESCO arid zone program established in 1952. However, it was only in the 1970s that desertification became a focal point of international attention. The trigger was the Sahelian drought, which started in the late 1960s and focused the world's attention on the seriousness of the situation there. This was reflected at the Stockholm Conference on the Human Environment in 1972 and led

to the establishment the following year of the United Nations Sudano-Sahelian Office (UNSO), which was given the mandate of coordinating recovery and rehabilitation efforts in drought affected regions. The limitations of action focused only on drought relief for addressing the underlying social and environmental problems linked to the drought led the General Assembly to declare the next year that the international community should make appropriate efforts to take measures to combat desertification in affected developing countries since land degradation has important negative repercussions on their agricultural production. This paved the way for calling an international conference on desertification in Nairobi.

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Biographical Sketch

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