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Combating Desertification: Encouraging Local Action Within a Global Framework

Camilla Toulmin

The Nature of the Problem

Desertification is said to touch the lives of more than 900 million people in dryland regions across the world, from the arid reaches of the African Sahel, and the savannas of north-east Brazil, to the flat plains of Central Asia. Estimates from the Desertification Control/Programme Activity Centre at the United Nations Environment Programme (UNEP), suggest the costs of desertification exceed US$42 billion each year in output forgone and damage to natural-resource stocks. In comparison, programmes to tackle desertification are estimated to cost between US$10 and 22 billion per year.[1]

If the above figures are to be believed, and the apparent costs of addressing desertification are so low in relation to benefits, it must be asked why desertification remains such an intractable problem, about which many observers express considerable scepticism. The answer to this paradox lies in disagreement about the definition of 'desertification' and its causes, and about appropriate methods with which to combat the problem.

Over the past twenty years there have been many definitions of desertification. That proposed in 1991 by UNEP takes it to be: 'land degradation in arid, semi-arid and dry sub-humid areas resulting mainly from adverse human impact.'

This definition incorporates a number of processes leading to the physical impoverishment of soils and vegetation, where the primary cause is human activity. Examples of such degradation include where loss of vegetation bares the earth and accelerates soil erosion, and where soils lose fertility through continuous cropping without replenishment of nutrients. The climatic regime within dryland areas may aggravate such risks of degradation, as when drought causes a reduction in vegetative cover and increased exposure to erosion by rainfall. Similarly, dryland regions tend to experience very intense storms at the start of the rainy season, when much land is denuded of plant cover, hence making it more susceptible to gulley and sheet erosion.

During preparations for the Earth Summit at Rio, held in June 1992, the definition of desertification was further disputed and an amended formulation developed for inclusion in *Agenda 21*. This new definition takes it to be: 'land degradation in arid, semi-arid and dry sub-humid areas resulting from climatic variations and human activities.'

The main difference between the above two definitions lies in the latter's explicit inclusion of climate as a major cause. There are several implications of accepting the latter definition. First, it reduces the emphasis in the first definition on human activities as being primarily responsible. Secondly, it opens up the possibility of countries suffering from desertification being able to claim that responsibility lies also with those countries which have provoked climatic change at the global level, that is, those of the industrialized world. Accepting such a causality could lead to claims for compensation to be paid to those suffering desertification.

Definitions and Politics

In the past few years many observers have argued that it would be wise to abandon the term 'desertification', and to use 'dryland degradation' in its place.[2] This view is based on the perception that the former term has been used to cover too many different processes, with differing origins and causes, and hence differing solutions. The root of the word, with its origins in 'desert', creates a strong association with the concept of an advancing desert. The general public and many policy-makers continue to believe that the desert is advancing in many parts of the world, engulfing more fertile neighbouring areas in a tidal wave of sand. In some areas mobile sand dunes threaten to spread over important infrastructural investments, such as roads. However, recent research has laid to rest the idea of a general process of desert advance amongst professionals working in this field,[3] but the image remains strongly embedded in the rhetoric used by politicians and journalists.

It is hard to understand the amount of time and energy devoted to formulating and disputing different definitions of desertification. However, it should be remembered that acceptance of a given definition may have substantial implications. The term has been expanded from its initial focus on arid and semi-arid lands, to include dry sub-humid regions. This increase in area covered provides potential access by countries in the dry sub-humid zone to funds raised for combating desertification. However, the broadening of the geographical scope and confusion surrounding its meaning have probably reduced, rather than increased, access to donor funds for this field, since donors have been very sceptical about the nature of the problems involved.

With increasing interest in environmental issues since the

mid-1980s, attention has increasingly been focused on the management of natural resources in general. Programmes for effective management of natural resources have replaced programmes to combat desertification in many countries. This change in terminology is a significant improvement, since the current focus places much greater emphasis on the institutions at all levels by which resources are managed. It also represents a change in vocabulary and approach from one emphasizing the battle against desertification, conjuring up a series of militaristic images, towards an approach based on working to improve management systems.

It is unfortunate that the term 'desertification' has been revived during the Earth Summit process. However, it is clear that re-negotiation of the term is not now possible and it must be accepted, with all its faults. This paper will use the term to mean the degradation of natural resources in dryland regions, while 'combating desertification' will be used interchangeably with 'improving natural resource management in dry areas'.

Drought, Desiccation, and Degradation

It is helpful to distinguish between the above three processes which, although closely linked, should not be confused:[4]

- *drought*: a period of one or two years with rainfall well below average:
- *desiccation*: a period of well below-average rainfall which lasts for one or more decades; and
- *dryland degradation*: a persistent decrease in the biological potential of soils and vegetation due to methods of land management and use under conditions of low rainfall and high inter-annual variability.

The need to distinguish between these processes is due to the fact that they have different causes and, thus, appropriate policy responses will vary. In the first case, systems need to be put in place to provide early warning of and rapid response to problems of food and fodder shortage, emergency employment schemes, crop insurance, and programmes of post-drought rehabilitation. So far as desiccation is concerned, measures may need to include adaptation of farming and livestock systems to cope with much drier and more variable rainfall. In the case of dryland degradation, the main areas for intervention concern policy measures both at national level (land-tenure reform, pricing policy for crop and livestock products) and at lower levels (support to farm-level technological adaptation) to provide more assured incomes and livelihoods to rural people.

Desertification and Climate Change

There are a number of important potential linkages between desertification and climate change, as shown in Fig. 1.

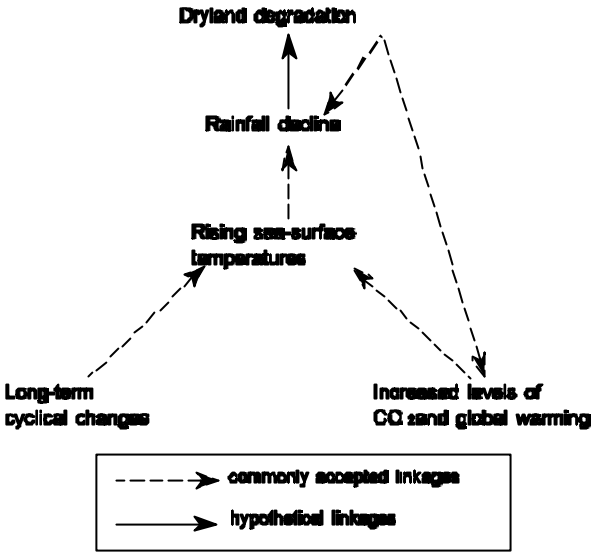

Fig. 1. Climate and desertification

Does climate change lead to desertification? For the West African Sahel, the last twenty-five years have seen a significant decline in rainfall, with average precipitation in the period 1961–90 some 25–30 per cent below that of the period 1931–60.[5] It is not known whether this shift represents a more permanent change in climate, given the relatively short period over which it has occurred and uncertainty regarding the possible causes. Lower rainfall and its increased variability have exposed the ecological and economic systems of the Sahel to greater risk of erosion, and rendered the livelihoods of Sahelian populations more vulnerable to loss.

It is not yet clear what might have caused such a shift in rainfall patterns in West Africa. Other regions of the continent have not experienced the same marked decline, although they have been subject to occasional devastating drought. A recent paper suggests three possible causes for this Sahelian rainfall shift:[6]

- the impact of global warming on sea-surface temperatures in the South Atlantic, which reduces the strength of the monsoon weather front northwards into the Sahel;
- natural changes in ocean temperature circulation which have led to rising sea-surface temperatures and a weaker monsoon; and
- loss of vegetative cover and barer soils leading to higher air temperatures and greater soil reflectance, which feeds into reduced precipitation (see below).

As yet, there remains much dispute concerning the importance of these different factors and their respective impacts on Sahelian rainfall.

Does desertification lead to climate change? It has been argued that desertification could induce climate change at various levels.

- At the local or regional levels, baring of the earth might feed into higher air temperatures, reduced atmospheric moisture, and thus reduced precipitation. This feedback effect between increased reflectance of the soil surface (albedo) and reduced rainfall was first proposed following the 1973 Sahelian drought to explain persistent drought in the region. However, climatologists are generally cautious about the existence of such linkages. If such an effect exists, it is thought to be of negligible importance in comparison with processes at work within the broader climatic system.
- At a global level, it has been argued that dryland degradation could feed into increased global warming through loss of vegetative cover, reducing the ability of these regions to fix carbon dioxide, and contributing further to CO_2 build-up. However, there remains considerable dispute about the significance of such a linkage.

Different countries have incentives to promote or deny the existence of certain linkages between climate and desertification. On the one hand, countries suffering dryland degradation want to promote the view that continued degradation will increase global warming, since it then strengthens their hand in trying to extract more money and support from the rest of the world. On the other hand, industrialized countries, which are the main providers of aid, have an interest in playing down such linkages since this would reduce their financial liabilities.

The Incidence of Desertification

Despite the bold statements made by UNEP's Deserts branch noted earlier, there is little consensus regarding the scale and incidence of desertification. This is partly due to disagreement regarding what is meant by desertification, partly to difficulties in identifying appropriate parameters for measurement, and partly to difficulties of interpreting the limited data currently available.

Measuring environmental change is a complex business since the processes involved are not always easy to detect, nor their significance easy to value. For example, a fall in crop yields could be the result of declining soil fertility and increased levels of soil erosion, and thus be considered a proxy for increased desertification. Equally, falling crop yields might be the result of lower rainfall in that year, pest attacks, reduced labour input at a critical period, or a combination of all three factors. Similarly, figures on rates of soil loss indicate the scale of erosion processes in a particular site. However, it must be asked whether such rates of erosion are always damaging and should therefore be slowed at any cost. For example, if soil is being removed from a steep hillside where it cannot be farmed and transported to flatter valley-bottom areas where crops can be grown, then it can be argued that soil erosion is a good thing.

The *Desertification Atlas* recently published by UNEP provides a good example of some of the hazards associated with data collection and presentation. Inspection of the maps would imply very large areas of Africa adversely affected by 'over-grazing' and soil erosion. However, a more careful reading of the text warns against such an easy interpretation, since regions on the map are coloured in as suffering from over-grazing even if only a small part of the overall coloured area has been affected.

Data collection and interpretation is subject to substantial trade-offs, first between greater accuracy and the costs involved, and secondly, between greater accuracy and scale.[7] A better understanding of the incidence, causes, and trends in dryland degradation requires the interpretation of data collected over a period of several years, which is demanding in time and resources. Such an analysis needs to be carried out at a micro-level. However, it then becomes very difficult to draw broader conclusions from micro-level studies for understanding processes at a regional or global level.

Global Data Sets

Two main sources provide data on desertification at a global level. The first set comes from the Global Assessment of Soil Degradation programme carried out at the University of Wageningen, the Netherlands, for the Food and Agricultural Organization (FAO) of the UN. Based on the informed opinions of experts in this field, it attempts to estimate the incidence and severity of soil degradation at a continental level. Since the data are presented at the scale of 1:10 million, there is little detail provided and it constitutes but a first step towards identifying and understanding processes of soil degradation.

The second main set of data commonly quoted comes from the International Center for Arid and Semi-Arid Land Studies at the Texas Technical University, USA. These data cover areas considered subject to either soil or 'vegetation degradation'. The latter is taken to describe changes in the composition and extent of vegetation cover, such as where perennial grasses have been replaced by annuals, or where forest land has been cleared for cultivation. As a result, these data provide a far greater proportion of land said to be suffering from degradation, since it includes many areas

where vegetation changes have taken place unaccompanied by soil erosion. Many African range-lands have suffered vegetation degradation where the composition of grassland cover has changed as a result of rainfall decline or grazing pressure. In the absence of observable soil erosion, it needs to be asked whether such areas really should be included in overall estimates of desertified land.

A comparison of the two data sets is provided in Table 1. Using the former data set, 19.5 per cent of drylands world-wide are said to be suffering from desertification, whereas using the latter gives an estimate of 69.5 per cent of dryland areas.

There are many who doubt the accuracy and utility of both of these data sets. The degree of accuracy which can be claimed is inevitably slight given their scale of analysis. As for the use to which they can be put, such data are usually orchestrated to demonstrate the importance of desertification as a global issue, in comparison with other global problems, such as deforestation, and to provide backing for global plans of action to combat desertification. Inevitably, due to their scale, they are of little value to practical field-based programmes.

In the assessment of desertification in dryland Africa prepared for Rio by the UN Sahelian Office,[8] little or no quantified data are provided on the grounds that their accuracy would not warrant their presentation. It is hard to judge whether this is a better approach than that based on the two global data sets discussed earlier.

Assessing Desertification at Local Levels

Evidence for dryland degradation at the local level paints a picture which often contrasts strongly with the sombre statistics generated at global levels. Based on a historical analysis of production systems and farmer response, these studies demonstrate the high degree of resilience found in the physical and social structures upon which people depend for their existence, and the very considerable degree of adaptability made evident by changes in local practice.[9]

Certain features of crop and livestock systems in these dry zones tend to protect the resource base from over-use. In the pastoral case, this is because at the time of year when most damage might be done—while grasses are flowering and setting seed—herds are usually at their most dispersed across the range-lands and, thus, least likely to over-exploit available forage. At the same time, variability in rainfall from one year to the next is usually so great that its timing and quantity have far greater impact on levels of pasture biomass than does grazing pressure.[10] In such circumstances, the most important condition for maintaining pastoral production and minimizing risks of degradation is the maintenance of herd mobility, so that animals can exploit different patches of grazing.

In farming areas, as population densities rise and land becomes scarcer, there is a tendency for property rights to tighten and become more exclusive, providing a framework within which people have a greater incentive to intensify and invest in their land.

While local-level studies of resource management and degradation provide greater detail and more hope regarding the resilience and adaptive capacity of dryland production systems, this is not to imply that there is no environmental problem in these areas. Soil erosion, impoverishment of soil fertility, and loss of diversity amongst vegetation and wildlife are found in many dryland areas, especially where population densities are high. Local-level studies recognize the need to take an approach which examines the nature of degradation in that particular setting, the causes, and appropriate measures to be undertaken in collaboration with local populations. These studies also demonstrate the dynamic relationship between human societies and their physical environment, which provides a basis for the design of policy measures to encourage more-effective husbandry of such resources in future.

Scope of International Action

A broad range of measures has been undertaken in the past to address problems of desertification. These measures have operated at many different levels, from global plans of action

Table 1. Status of desertification world-wide

	Million hectares	% of total drylands
1. Degraded irrigated lands	43	0.8
2. Degraded rainfed crop lands	216	4.1
3. Degraded range-lands (soil *and* vegetation degradation)	757	14.6
4. Drylands with human-induced soil degradation (GLASOD) (i.e. 1+2+3)	1.016	19.5
5. Degraded range-lands (vegetation degradation without soil degradation)	2,576	50.0
6. Total degraded drylands (i.e. 4+5)	3,592	69.5
7. Non-degraded drylands	1,580	30.5
8. Total area drylands excluding hyper-arid deserts (6+7)	5,172	100.0

Source: UNEP (1991), *Status of Desertification and Implementation of the United Nations Plan of Action to Combat Desertification*, Report of the Executive Director UNEP/GCSS.III/3 (UNEP, Nairobi).

and multilateral programmes, to government actions at national level and activities at the level of the settlement or farm.

It has become increasingly clear that priority in future must be given to supporting the landusers themselves in managing more carefully the natural resources upon which they and their descendants will depend. This demands that attention be paid to a variety of local-level activities, and provision of a broader institutional and economic framework within which land-users feel more secure. However, there remain very important functions to be carried out at national, sub-regional, and global levels to support this local-level approach. Elements of such a framework at these different levels are examined more closely in the last section of this chapter.

A Global Convention to Combat Desertification is due to be ready for signature in June 1994. Negotiation of this Convention provides an opportunity for recipient and donor nations to assess current policy and practice in this field and to commit themselves to more effective action in the future.

However, there remains some uncertainty about whether a Convention of this nature is really the best means to address effectively problems of dryland degradation. Desertification is unlike many other environmental issues, in that it lacks clearly identifiable linkages at a global level. For ozone depletion, greenhouse-gas emissions, or tropical deforestation there are clear and accepted linkages between the behaviour of individual countries and their use of resources, and effects experienced by the world as a whole. On such linkages can be based a global agreement which attempts to agree limits on the behaviour of individual nations for the greater global good. In the case of desertification, such global linkages are neither well-identified nor commonly accepted. As seen earlier, there is no consensus regarding how desertification might impact on climate change or vice versa. Dryland vegetation probably has a much smaller potential for absorbing and locking up CO_2 than do tropical forests. While loss of vegetative cover may effect micro-climatic conditions, in terms of increasing soil temperatures, reduced moisture availability, and increased wind speeds, there is no evidence that continued degradation will produce climate changes on a regional or global level.

An agreement at global level is likely to be so general as to provide little substantive guidance on detailed commitments to be undertaken. Some governments argue that dialogue regarding policy change and donor commitments are best carried out on a bilateral basis, within which confidence can be built up over a longer period. According to this view, negotiation of a global convention is actively damaging to current attempts to improve dryland management, by polarizing the world into two camps—the developing and developed world—and by tying up scarce manpower in negotiating a document which will be of little ultimate value.

While the Global Convention provides a broad framework, much greater detail will be possible when drawing up regional instruments, or protocols. Such instruments may be developed either at a continental level—for Africa, Asia, Latin America—or at a sub-continental level—for example, in the African case, covering eastern, western, southern, and northern Africa.

Agreement to draw up a global convention was made for political reasons, as a *quid pro quo* to African nations at Rio for their involvement and support in agreements concerning issues in which they had little direct interest. Having made such a commitment, it now falls upon the world community to endeavour to design an agreement which is fair and realistic. Given the tight time-frame involved, the design of such a convention represents a major challenge.

Past Experience with Programmes to Combat Desertification

While desertification as a term has been around since the 1930s, it is only in the last twenty years that it has entered more general usage. The great African drought of 1973 brought much world attention to desertification and environmental trends in dryland regions of the world.

In 1977, the United Nations' Conference on Desertification was held in Nairobi, Kenya. Its aim was to examine the causes and consequences of desertification, to assess its overall incidence, and to generate commitment from donors and countries affected by desertification to tackle these problems. In 1978, following this conference, the Desertification Control/Programme Activity Centre was set up in the newly established UNEP to follow up on the commitments made, and to provide technical support to countries undertaking plans of action to combat desertification.

A range of actions were envisaged by the 1977 conference for addressing problems of desertification, which included proposals:

- to assist countries to formulate plans for combating desertification;
- to stimulate and co-ordinate action within the international community; and
- to develop methods to assess desertification processes, in collaboration with national, sub-regional, and international institutions.

An assessment of progress made in combating desertification was undertaken, and reported in 1984. This was done by sending out a questionnaire to all nations, requesting information on changes in the incidence of land suffering or at risk from desertification. These figures, presented in the 1984 update on desertification, showed a very large increase in areas affected and at risk. Much of this increase is due to

changes in definition by including the dry sub-humid zone, and adding in not only land suffering, but also land thought to be at risk from desertification. The data received from these questionnaires is now admitted to be worthless.

In 1990 an external review was undertaken of the Global Plan of Action to Combat Desertification drawn up in 1977, and the extent to which UNEP had fulfilled its mandate.[11] It concluded that the principles contained in the Plan of Action remained valid, but that a number of shortcomings within the Plan had hindered its implementation. These included its lack of focus, the very ambitious goals set, and lack of attention to socio-economic factors. Other reasons for poor performance comprise a lack of political will by governments and donors to address desertification, and uncertainty regarding the nature of the problem to be tackled.

A further update on the incidence of desertification was carried out in 1990/91 for presentation at the Earth Summit in 1992. This is based on the two global data sets described earlier, and presented in a series of maps. Some of the difficulties concerning interpretation of this data have been examined earlier in this paper.

The overall judgement of donors regarding UNEP's capacity to tackle desertification effectively is made evident in the experience of the Desertification Consultative Mechanism. This body was established in 1978 after the UN Conference on Desertification as a means to raise funds for anti-desertification activities. It was hoped that donors would shift much of their funding out of bilateral channels and through this mechanism. UNEP's Deserts branch would provide an administrative and technical secretariat to judge, and allocate funds between different programmes. However, it has never been able to raise more than a tiny fraction of what had been hoped. While this was partly due to donors' reluctance to lose the political leverage maintained through bilateral spending, unwillingness to channel money through such a multilateral fund was largely the result of donors' low opinion of UNEP's expertise in identifying worthwhile activities for funding. The Desertification Consultative Mechanism was wound up in 1991.

Careful examination of past experience with global-level programmes is necessary to help avoid a repetition of useless activities, and identify new approaches which are likely to yield greater success. Work in preparation for the global convention, due to be signed in June 1994 and the drawing up of regional protocols will aim to evaluate the successes and failures of past experience. Care must be taken to avoid a further proliferation of action plans at global, regional, and national levels, which are easy to draw up but frequently bear no relation to what is subsequently achieved on the ground.

Programmes to Combat Desertification at Other Levels

It is not always easy to identify the proportion of resources allocated to combating desertification, since the collection and presentation of data on development assistance does not use this as a distinct category. There may be a number of activities included within, say, livestock or agricultural development which could be considered as promoting more effective drylands management. In addition, the terms and categories used by government, donors, and the development business at large have been changing. For example, the rise in interest about the environment has spawned a range of new terms, such as natural-resource management, village-land management (*gestion de terroir*), and joint forest management.

Regardless of the exact share of aid involved, the number of projects in operation in most developing countries is often very large. These may range in size from a multi-million dollar programme for natural-resource management across the entire country, to a single-village project funded by an NGO. Each project and donor tends to have its own objectives and methods of work. The large number and diversity of projects make it difficult for government at national or local level to achieve a degree of co-ordination between projects, and to ensure that their operations are broadly in line with the objectives of government. The need for greater donor co-ordination and the difficulties of achieving this are outlined in the final section of this paper.

Multilateral Programmes

At a multilateral level, many organizations have been involved in programmes which include the promotion of better land management in dry areas. Here, since lack of space constrains a detailed presentation of their respective merits, only a short summary of major points of interest will be provided.

The UN Soudano-Sahelian Office (UNSO) is the main UN agency with a specific mandate to work in the dry regions of Africa. It focuses on twenty-two countries in sub-Saharan Africa which are particularly susceptible to drought and desertification. Originally set up following the 1973 Sahelian drought to cover countries in this region, it has subsequently expanded to cover other less drought-prone nations who probably hoped, by this means, to gain access to extra funding. With an initial emphasis on major infrastructural projects, such as roads, in recent years the organization has shifted towards policy and planning activities. This includes the formulation of National Plans of Action to Combat Desertification, and attempts to co-ordinate the large number of different planning exercises currently being promoted by different donors (such as National Environmental Action Plans, Tropical Forestry Action Plans, and National Conservation Strategies, to name but a few).

The International Fund for Agricultural Development (IFAD), with its mandate to work on improving the prospects for small-scale farmers and livestock keepers, has had a major role to play in helping develop systems for sustainable production in marginal dryland areas. For example, in Sahelian Africa it has been supporting a number of programmes to provide credit and promote the conservation of soil and moisture, through building on local farmers' skills.

The World Bank has initiated a range of programmes to encourage more-effective natural-resource management in the West African Sahel, which combine specific project components with recommendations for policy change at national levels (such as the clarification of land-tenure regulations, and reform of agricultural pricing policy). A large number of African countries are now undertaking programmes of structural adjustment, designed by the World Bank and the International Monetary Fund (IMF) to improve public finance, the trade balance, and pricing of different goods. Some observers argue that structural adjustment programmes have had a highly damaging effect on the environment of countries forced to carry these out, since governments are put under pressure to expand their foreign-exchange earnings, extension services are cut back, and there is no money available for other government services in support of small farmers. However, others argue that on balance the effect of structural adjustment has probably been positive, by achieving a shift in relative returns from the urban towards the rural sector, and by reducing the influence which government attempts to exert on many areas of economic life.

Other important programmes in the field of promoting more-effective natural-resource management in dryland regions and improved welfare have been carried out by the Food and Agricultural Organization of the UN (FAO), the United Nations Development Programme (UNDP), and the International Labour Office (ILO), to name but a few.

Regional-Level Bodies

In Africa, there are several sub-regional bodies which are mandated to combat drought and desertification.

In the West African Sahel, the Comité Inter-États de Lutte contre la Secheresse au Sahel (CILSS) was set up in 1973, in the wake of the extreme drought experienced that year. It now has nine member states, and aims to co-ordinate activities to reduce the vulnerability of the region to drought and desertification. The Club du Sahel was established in 1976, in parallel, to encourage co-ordination of approaches amongst the main donors to the region.

The experience of this sub-regional organization has been mixed. A major restructuring programme has been under way in 1992–93 to reduce very substantially its size and ambitions, to fit better the contributions agreed by its nine member states. As a result, there will now be only a small core staff responsible for certain key functions. Additional programmes will be agreed and funded by donors on a project-by-project basis.

Its work programme since 1989 has focused on a series of inter-locking themes, which include land tenure, decentralization of state administration, and linkages between demographic growth and environmental degradation. While the debate raised by such themes has been lively and informative, the impact on national government policy has to date been limited. Member-state governments are under no obligation to adopt policy recommendations emanating from this organization. Nevertheless, the relationship between the Comité Inter-États and the Club du Sahel is a useful example of the kind of dialogue and linkages which may be built up over time between recipient and donor governments. Currently a charter on environmental aid is being drawn up and negotiated between countries of the sub-region and the Club du Sahel, in an attempt to rationalize the wide range of programmes involved in tackling environmental degradation in the Sahel.

On the other side of the African continent, the Inter-Governmental Authority on Drought and Desertification (IGADD) brings together six member states. Established in 1986, it has had a hard time defining a realistic mandate for the organization, given the political turmoil prevailing in many of its member countries. Since 1990 work has gone into drawing up a five-year plan for which it is hoped donor governments will provide the necessary finance. A heavy backlog of unpaid subscriptions to the organization has been almost cleared by the member states. However, the future of the organization and the role it will be allowed to play remains in some doubt. Few donors seem willing to consider the establishment of a donor organization, similar to the Club du Sahel, to support development work in the Horn of Africa. Yet a Club de la Corne (or Horn Club) could play a valuable role in enabling this organization to evolve into a useful sub-regional forum.

Careful thought should be given to the role of sub-regional organizations within the forthcoming Convention on Desertification. In the past these organizations have maintained very ambitious goals which have rarely been supported by their member states, either in financial resources needed or in powers granted. The debate concerning 'subsidiarity' in the context of the European Commission in relation to its member states has many echoes in current discussions about appropriate mandates for sub-regional bodies in southern, eastern, and western Africa. Several functions can be identified for such bodies to carry out, which include:

- sharing experience and information on desertification control between countries with similar environments;

- provision of certain services and institutions at regional level, for training, environmental monitoring, and research;
- a co-ordination mechanism to ensure regular discussion concerning economic policy, management of common resources (such as river basins), and to promote trade and mobility between member states.

Bilateral Programmes

At a bilateral level, a multiplicity of development interventions has been pursued. Those programmes of particular note include:

- Germany's work in Burkina Faso involving the Programme d'Aménagement des Terroirs et de Conservation des Ressources dans le Plateau Central, which has been developing techniques for treating gulley erosion within farmers' fields through permeable stone dykes, and for village-level land-use planning;
- research-and-development work funded by the Dutch government for the Projet Lutte Anti-Erosive and Village Land Management programme in the cotton-growing region of Sikasso, in southern Mali;
- the Swedish International Development Agency's long-term programme of support to develop effective soil- and water-conservation activities in eastern Africa; and
- the Norwegian Sudan–Sahel–Ethiopia programme, which has supported a range of activities in the Sahelian zone to promote more sustainable resource management and reduced vulnerability to drought.

It is not possible to provide an overall assessment of the strengths and weaknesses of the wide range of bilateral programmes. In many cases remarkable progress has been made in working with local people to design better methods for crop and livestock production. However, as noted earlier, the large number of different donor interventions can have adverse consequences. For example, each donor programme will make particular demands on the scarce time of government personnel. Donors may also have contradictory approaches and methods to managing certain issues, such as payment of per diems, food for work, provision of transport allowances to extension workers, and so on. Donor co-ordination involving the main bilateral and multilateral agencies working in a particular country is becoming increasingly common. Many of the Western donors see this as indispensable to avoid duplication of activities and inconsistencies in approach. It also permits a tighter degree of donor conditionality on the recipient government. However, as will be seen in the last section of this paper, there are frequently limits to the effectiveness of such donor co-ordination, given the conflicting interests involved.

The Role of Non-governmental Organizations (NGOs) in Combating Desertification

The NGO presence in Africa's drylands stems from their initial involvement in delivery of food relief in the drought crises of 1973–74 and 1984–85. Many organizations moved from such relief work to longer-term development programmes aimed at reducing vulnerability to future droughts, through improvements to production systems and diversification of incomes.

The spread of NGOs has been astonishing in the last decade, with a mushrooming of indigenous groups in many developing countries. Some of these NGOs are, as yet, very young, small, and inexperienced. Others, however, represent important bodies able to carry out effective projects in the field, and engage in policy research and debate at national and international levels.

Experience from NGO projects is as mixed as the groups responsible for their implementation. There has been relatively little independent evaluation of NGO work, and NGOs themselves are often reluctant to spend much time evaluating their own activities. There is a frequent assumption made that the small scale at which NGOs work, and their close links with a given population, ensure that their projects will be successful. However, not all observers are unanimous in such a positive assessment of NGO performance.

Nevertheless, the influence of NGO approaches to project development and work with local people has been enormous. There is a growing literature describing successful rural development projects, many of them from the NGO sector.[12] Each volume of case studies derives key elements considered essential for ensuring success. There is broad agreement regarding such elements, which tend to include:

- building on local skills;
- a flexible learning-process approach;
- working with indigenous groups; and
- providing secure rights and gains to the poor.

Adaptation by Local People

At the level of the individual farmer or herder, much has been done to adapt to changing environmental, economic, and institutional circumstances. Such adaptations have often occurred outside the confines of any project and demonstrate the strength of local capacities to analyse change and develop new systems to cope. It should be remembered that farming populations for many generations throughout the world have had to cope with change, and have needed to develop ways

of providing themselves with more-certain sources of income and security. Examples of such adaptation include:[13]

- development of indigenous systems for rainwater collection;
- spread of short-cycle crops to cope with lower and more variable rainfall;
- intercropping of nitrogen-fixing crops, such as cowpea, within grain fields; and
- amongst pastoral groups a shift in herd composition towards more robust species, such as goats and camels.

Increasingly, attention is turning to how best governments and donor agencies can support local people in developing means to deal with drought and desertification in ways that conserve their resources. This does not assume that local people are all-knowing and wise, but rather that a partnership could usefully be created between the skills and information of outside professionals and those of local people.

Obstacles to Effective International Solutions

There are several reasons, some of which have already been mentioned, which explain why international solutions to combating desertification have not brought great success.

It is now accepted that dryland degradation is a problem that best needs to be addressed at local and national levels, within the countries seriously affected. Desertification is not a global environmental problem of similar form to ozone depletion and global warming through CO_2 emissions. As a consequence, there is only a limited role for international action, elements of which are described in the last section of this paper.

Many of the successful programmes carried out have been relatively low-cost. Large sums of money in themselves will not combat desertification effectively and, indeed, may produce effects that run counter to the desired result. Instead, local people need an economic, social, technical, and institutional framework within which to develop appropriate methods of resource use and management. Such measures are probably not best dealt with by global conventions. Experience from the 1977 UN Conference onwards has demonstrated the very limited value of drawing up plans at global, regional, or national levels, since they rarely bear much resemblance to reality and are usually impossible to implement.

There is a certain unwillingness amongst donors to address issues which may have adverse impacts on dryland producers, because of the interests involved within northern countries. For example, there is growing evidence that some agricultural, environmental, and trade policies from the European Community and the United States have damaging effects on the prices and incomes of small farmers and herders in developing countries. A particular case involves the dumping of frozen meat from the EC on to meat markets in West Africa at highly subsidized prices. This makes it much more difficult for Sahelian herders to sell their animals at a decent price. Other examples probably exist for different products, such as wheat-flour, and milk powder. A Global Convention may provide a context within which to consider such trade impacts.

Future Prospects

The Global Convention to Combat Desertification is being negotiated in 1993–94. While it is likely to be fairly general in terms of the commitments made by donors and recipient governments, it should provide a useful framework within which regional or sub-regional protocols can be developed.

It is considered to be a tight timetable to which the Secretariat to the International Negotiating Committee must work. Hence, it is very likely that the regional protocols will have to be drawn up after June 1994, rather than being ready for signature at the same time as the Global Convention. Prior attention is likely for Africa, given the commitments made at Rio, although other regions of the world increasingly are becoming interested in the potential benefits flowing from regional protocols.

The Global Convention is being negotiated in a difficult world-wide context, as aid-flows stagnate and substantial aid funds are being shifted towards the countries of Eastern Europe and the former Soviet Union. As a result, it is hard to believe that this Global Convention will be backed by a substantial increase in financial resources. Consequently, commitments will need to focus on means by which to improve the effectiveness of aid delivery and its use, changes in policy at national and international levels to bring greater security to the lives of dryland peoples, and appropriate technical inputs to promote the development of locally appropriate solutions to dryland degradation.

For donor governments, a range of commitments are likely to be demanded of them such as:

- an increase in the flexibility of aid delivery;
- increased donor co-ordination;
- improved access to technology needed to monitor environmental change; and
- commitment to address trade policies which damage the livelihoods of dryland producers.

For recipient governments, there are several areas within which commitments are likely to be sought:

- clarification of land tenure, and a devolution of powers to manage resources and control access to local-level structures;
- liberalization of economic and political systems, to encourage the development of a diverse civil society, freedom of association, and multi-party politics; and
- explicit recognition of demographic growth as an important factor limiting the effective management of natural resources and, consequently, the need for national policies encouraging lower levels of fertility.

Progress in attaining the above commitments is likely to be slow and difficult to monitor either by Global Convention, or by regional protocols. Some observers argue that the negotiation process will damage existing bilateral relations in which progress is being made to achieve policy change. There is also concern that it may be difficult to move forward with negotiations already under way (such as the Sahel Charter for Environmental Aid), since everyone will be waiting to see what will emerge at global level first.

A further area of uncertainty concerns the extent to which work on desertification control could, or should, be dealt with by the Global Environmental Facility. Many donors are unwilling to accept that desertification constitutes a global problem, of the same kind as ozone depletion. Rather, they argue, desertification is a world-wide environmental problem occurring in many parts of the world, but with no explicit impact on the global environmental commons. Where processes of dryland degradation are clearly linked to one of the four existing areas of funding through this mechanism—ozone depletion, global warming, management of international waters, and maintenance of biodiversity—then funding should be available through existing channels. It would be inappropriate, according to this view, to establish desertification as a fifth programme area for the Global Environmental Facility, and would probably reduce commitment from the main donors to continue to fund this, since its focus would have become too broad.

Many of the uncertainties regarding the Global Convention will be resolved during 1994, as negotiations are finalized at global level and detailed work starts at regional level. It is a challenging task for all concerned to obtain agreement from the different nations of the world about the best means to address dryland degradation, and the allocation of responsibilities necessary to attain the Convention's objectives.

On the basis of past experience with anti-desertification programmes, there are many reasons to doubt the usefulness of a Global Convention to deal with this problem. However, it would be a mistake to judge the process only on the basis of the Global Convention drawn up in mid-1994. Even if at a global level the agreements reached are of a very general nature, this should provide a framework within which to develop more-specific commitments at national and regional levels.

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