Natural Resource Management at the Local Level: Will This Bring Food Security to the Sahel?

Camilla Toulmin

Introduction

This paper looks at the role of natural resource management systems in promoting greater food security in the West African Sahel. It extends the argument linking entitlements to food security [Sen 1981] to cover access to natural resources [Davies *et al* 1991], and argues that affirmation of these entitlements is a central necessary step towards more sustainable livelihoods in this region. This argument is based on a number of assumptions, which are examined. Several examples are discussed which aim to transfer responsibility for resource management to local populations, to demonstrate some of the practical difficulties encountered. It is concluded, however, that local natural resource management while necessary, is not a sufficient condition for increased food security in the Sahel.

The origins of food insecurity in the Sahel are many and various. In this paper, the various factors to be looked at are environmental, and those of an organisational or legal nature. This concentration does not mean that other factors are not considered important. Indeed, the conclusions reached by this paper emphasise that a sole focus on environment, tenure and management issues cannot provide sufficient answers to achieving greater food security.

Environmental factors which contribute towards unreliable access to food supplies include rainfall variability, the nature of soils, their fertility and vulnerability to erosion, the incidence of pests, and availability of appropriate cereal varieties. The way in which these factors affect any one person or household depends on socioeconomic and political factors concerning the distribution of different kinds of resources between and within groups of people and the extent to which people can protect themselves from risk. For example, larger richer households amongst the Bambara of central Mali have a more diverse portfolio of assets and sources of income, which means that they can withstand crop failure more easily than small, assetless households [Toulmin 1986].

Tenure and management issues of relevance to food security are those linking the theory of 'entitlements' to questions of access to natural resources. Sen developed his theory of entitlements in relation to famine to help explain the paradox that people can die

from want of food even though there may be sufficient food at an aggregate level available in the region. Entitlement theory introduces the notion of rights attaching to access to food which may be attained through various means, such as by being able to trade certain goods for food or by being part of a social redistribution system through which access to food is assured in times of crisis. Famine occurs when such systems of entitlement break down, or are not recognised, so that, for example, with labour markets contracting and food prices rising a day labourer can no longer earn enough money to buy the food needed by him and his family. Similarly, particularly vulnerable groups may find that they can no longer extract help from relatives and neighbours, due to the collapse of social systems of redistribution.

Using the theory of entitlements within the natural resource management context allows one to focus on the existence (or not) of firm rights attributed to groups or individuals confirming their control and management of given resources. The Sahelian region lacks both a recognised and accepted system of rights, sufficiently well-defined, and an administrative structure which supports those rights in cases of conflict. As a result, there is considerable insecurity regarding rights of access to certain resources which generates an adverse system of incentives for people to manage and invest in these resources, and thereby reduce their vulnerability to food shortage.

Systems of Resource Tenure in the Sahel

Within the francophone Sahel,¹ there are remarkably similar structures and legislation concerning resource management, due to the region's common colonial inheritance.

(a) Ownership Vested in the State

It is at the national level that formal tenure over each country's natural resources has been nominally held since colonial times. This tenure system has been subsequently modified following independence. In general these systems have involved the nationalisation of land and water resources, while allocating rights of usufruct to traditional users. These rights usually refer to land currently under cultivation; by contrast, rights

¹ Burkina Faso, Mali, Niger, Chad, Senegal, Mauritania.

of farmers and herders to land in fallow and to traditional grazing territory are far less clearly defined and in practice this has permitted in many cases the alienation of these resources from customary users. Formal ownership of the land by the state allows the authorities to gain access to particular pieces of land when necessary, for example to carry out an irrigation or mining project.

Parallel to state ownership of the land is the state's right and duty to manage and plan how resources should be used. In practice, national and local administrators have rarely been able to carry out these functions effectively. The very large areas of land involved, their scattered populations, and the weak capacity of local administrations have combined to create a power vacuum on the ground. Local communities have lost the legal power to decide and enforce decisions about rights of access to local resources, yet this loss has not been replaced by a state-provided system at local level, able to ensure firm and fair allocation of rights when brought into dispute.

(b) The Community's Role

The second system of tenure which exists in some form through much of the Sahel is based on the traditional pattern for managing resources found in much of Africa, whereby access to land is obtained through membership of a given community which has rights of custody over a given area. Generally such land rights are acknowledged to derive from settlement, so that the first families to establish a farming hamlet are the ones to exercise subsequent control over who may gain access to land.

Traditional rules of tenure ensure rights of usufruct to land for so long as the household maintains its other obligations to the community by, for example, making the necessary religious sacrifices at the start of the farming season. Rights to resources other than land (such as water from communal village wells) may be contingent on membership of the community, while others (such as hunting) may require special authorisation by the appropriate body (such as the local hunters' association).

Ownership is more tightly defined where a family has invested time and effort in raising the productivity of a particular resource; for example, families may claim ownership of certain trees in the village's woodland if they have been pruning this tree regularly, while ownership of a well is also usually attributed to the person or group responsible for having dug it.

These traditional tenure systems, stemming from pre-colonial times, were not always free of conflict, and communities were forced to call upon higher authorities to defend their rights where these were not adhered to by others. Only within the central heartland of pre-colonial states were rights likely to

have been firmly enforced, while on the edges was much insecurity surrounding which communities had rights to what, leading to raids between opposing sides.

In the recent debate on tenure systems, pre-colonial 'traditional' patterns of natural resource management have sometimes been presented as models which allowed communities to live in harmony with their environment. The evidence for such traditional systems providing fair and effective resource management is pretty inconclusive. Certainly in the past, most farming and herding communities in Africa operated under much lower levels of population density and thus the need for more intensive management was not necessary. Nevertheless, times of food insecurity there certainly were, due both to harvest failure and the effects of conflict. Overall levels of insecurity due to raiding meant that many populations could not make full use of the lands and pastures surrounding their settlement for fear of being caught and captured while away from the safety provided by the village walls [Toumlin forthcoming].

There is now considerable interest amongst governments and donors to reform codes of tenure in the Sahel. Such reform needs to encompass two main issues: first, the legal definition of rights to manage, use and control access to given resources; and second, the devolution and affirmation of powers held by local populations and government administrators. Legal definition of rights without an assurance that these will be enforced fairly and effectively will be unlikely to generate the security needed by farmers and herders to maintain and improve the resources upon which their future livelihoods depend.

Assessing the Importance of Resource Management Systems

For local level resource management systems to play an important role in promoting greater food security, several assumptions must hold. These are presented in Diagram 1 and examined below:

- (a) that systems of tenure and resource management are very important in providing resource users with sufficient incentive and security to invest and manage resources in a way which ensures their longer term productivity is maintained;
- (b) that there exist means for improving the productivity of soils and plant growth which bring greater and more stable returns to crop and livestock production and to other associated activities, at accessible cost to the resource poor farming and herding communities of these regions;
- (c) that climate and rainfall will remain unreliable, bringing great variability in returns from year to

Does reform of land tenure lead to improved food security? The line of reasoning and assumptions to be made

year and from place to place, but it is assumed that rainfall trends will not worsen;

- (d) that there is sufficient political will amongst central and local governments to achieve a significant shift in the allocation of power and responsibilities to local users, and commitment to affirm these rights fairly and effectively.

Examining the Assumptions

(a) Tenure

Considerable debate surrounds the role of tenure systems in providing people with sufficient security

and incentive to manage and invest in their land. Some argue that traditional systems of land tenure in much of Africa provide insufficient security, and that farmers need firmer title to their land before they will carry out more than the most rudimentary investments. Within the context of irrigated agriculture, such schemes like the Office du Niger, in Mali, have been criticised as providing no incentives to farmers to improve their plots as they may be moved to a new plot at short notice [Tiffen 1985].

Similarly, the land reforms in Ethiopia in the mid-1970s are considered inconsistent with government plans to improve soil and water conservation and increase tree planting, as farmers may have their land taken away from one season to the next. Policy

changes in 1990 have partially addressed this disincentive effect. Varying forms of common property resource management, especially in the pastoral sector, have been subject to attack on the grounds that they inevitably lead to resource degradation [Hardin 1968]. However, as has been rightly pointed out, there is frequently confusion here between common property regimes in which there is completely free and open access and those where there is some control and decision-making exercised by a management group [Bromley and Cernea 1989].

In general, it would seem that the actual form of tenure is probably less important than the degree of certainty which attaches to the enforcement of certain rights. For example, as Reij [1986] notes, customary land tenure probably provides sufficient incentive for farmers to engage in construction and maintenance of soil and water conservation structures, as long as they can be sure that their use rights will be confirmed by the administration, in cases of dispute. Whether or not this happens depends on the value of these resources to other potential users.

Similar evidence from East Africa shows that creation of formal legal titles does not appear to lead to higher levels of land investment nor greater productivity, when 'titled' land is compared with that held under customary tenure [Hazell, in Migot-Adholla, *et al.*, 1991]. But this study assumes that customary rights are supported with equal force to those held formally. In the case of the West African Sahel, this assumption cannot always be made.

Private transferable tenure rights certainly are no guarantee that farmers and herders will manage their resources optimally, as experience from the American Dustbowl in the 1930s and Australia in the 1960s demonstrates [Young 1979]. Clearly, other measures are also necessary to provide the incentives and the means for land users to take the long term into account.

(b) Technical improvements to agro-sylvo-pastoral production systems in the Sahel

The argument surrounding tenure and resource management presupposes that there are investments which farmers and herders could make that would lead to higher and more sustainable yields in crop and livestock production in the Sahel. The transfer of 'green revolution' technology to the Sahel is now acknowledged to have brought few of the hoped-for returns. The use of high yielding seeds, fertiliser, mechanisation and irrigation have failed to generate higher and more secure yields, partly due to rainfall variability and partly due to the high cost of inputs relative to crop prices.

More recent project interventions have been focusing on a range of interventions that require fewer purchased inputs and which aim to reduce risk, rather

than achieve spectacular yields. These interventions include soil and water conservation, agroforestry, and organic farming practices (mulches, manuring, etc.). In many cases, projects are building upon existing practice to improve techniques, such as by better definition of contours for stone bunds in Yatenga, Burkina Faso, or by getting a proper manuring pit dug rather than relying on more haphazard systems of spreading dung and household waste. By associating a range of different interventions, it seems that some progress can be made to raise yields and to provide a greater level of protection of harvests in years of poor rainfall [Chambers 1988].

In the pastoral sector, there are few equivalent examples to date of innovative work to raise herd and pasture productivity and to reduce vulnerability to drought. However, some results exist with the regeneration of pastures through seeding and scarification, the construction of soil and water conservation structures, and so on.

There probably are improvements to be made to farming and herding systems which will bring higher and more stable returns, and firmer title to land will probably encourage more of this activity. However, it must be remembered that intensification bears a cost, in terms of increased labour inputs; the returns to the use of labour in these activities must be examined in relation to other possible returns to labour. For example, much of the soil and water conservation work in Yatenga is carried out in the dry season months of December to March, a time when most young men will have set off on migration further south to earn money. For poorer households there may be a stark trade-off between investing in on-farm soil and water conservation and getting the cash income they need to survive until the following harvest.

(c) Climatic trends

It is assumed here that rainfall will remain highly variable but that there is no worsening of the existing levels of rainfall experienced in the 1980s. Were rainfall to decline further, so that villages getting 400-500mm in the 1980s were to receive 200-300mm in the 1990s and 2000s, then the question of appropriate resource management systems may become largely academic. Should rainfall levels improve, establishing a more effective system of resource management will still be important but there will be less pressure to achieve this.

The Inter-Governmental Panel on Climate Change makes few detailed predictions about Sahelian rainfall. Nevertheless, they reckon that rain is likely to come in fiercer storms, bringing increased problems of run-off and erosion of soils [IPCC 1990]. If these predictions are accurate, then more careful management of soils and vegetation becomes an even greater necessity.

Continued variability in rainfall from year to year and from place to place means that resource management systems must maintain some flexibility to allow for the movement of people, livestock, and food between areas of deficit and surplus. Thus, as will be seen later, pastoral management systems need to establish reciprocal agreements between areas to enable herds to move in case of fodder shortages in one area. Similarly, policy needs to address ways to promote the storing of food and protection of the value of assets in years of crisis, and to help re-establish farming and livestock production systems after drought.

(d) Political will

An effective local level system for managing resources requires a substantial shift in power and responsibilities from the central government and local administrations to local populations. The current situation is characterised by formal *de jure* ownership, control and management by government of the country's natural resources, but a power vacuum on the ground in which occasional and arbitrary action by forestry guards and centrally-appointed administrators takes place.

Cynics view the current situation regarding land rights and their lack of clarity as a conscious strategy on the part of government to justify continued central control, on the grounds that local populations are evidently incapable of managing their own resources. Local administrators then create further chaos by arbitrary decisions regarding who has access to certain resources and thus ensure that contesting parties will try to get a decision made in their favour by providing them with large bribes.

Clear land legislation would damage the interests of these administrators by removing the power to allocate as they see fit. As far as pastoral tenure is concerned, any devolution of power over water and grazing to politically marginal groups is seen as very unlikely as this would strengthen their autonomy, itself perceived as a threat to central government power.

There are several forces at work behind the current trend in many Sahelian countries towards 'responsibilisation' of local people in the management of their resources. Governments have been pushed by donors into talking about greater participation by local people in the management of their own affairs. The new conditionality pursued by many bilateral donors, in which aid flows will depend on moves towards multiparty democracy, is a further trend in this direction. However, governments are skilled in mastering the development discourse and in highlighting their engagement with the rhetoric in vogue amongst donors.

In reality, governments have made little if any progress in transferring real power away from the centre, as the example of the PNGTV² in Burkina Faso

demonstrates. Making local communities responsible for resource management seems restricted to cases where the government wants to divest itself of certain costly obligations, such as bore-hole maintenance or cleaning out irrigation canals. Responsibility for funding maintenance costs is unlikely to be rewarded by the transfer of real power where this runs counter to current or future interests of government and its supporters.

Even were there to be the necessary commitment by government to the real transfer of power to local community bodies to manage their lands, several other conditions must be met, which include:

- the establishment of a representative body, capable of managing fairly and effectively the distribution of rights between competing parties at the local level;
- that legal powers are transferred to this body to allow it to carry out its functions;
- that the local administration affirms the decisions made by the local management group when these are brought into dispute; and
- that the necessary technical support is provided to the community body managing resources to enable it to plan how to manage and improve the resources over which it exercises responsibility.

Three examples of resource management from the Sahel, the particular problems allied to establishing effective local management systems and how they address points 'a' to 'd' above are here examined:

Local Resource Management in Practice

(a) Pastoral Resource Management

Water points play a central role in the management of pastoral resources in the Sahel. While in the rainy season herds can use sources of surface water, for much of the long dry season, herds can only have access to pastures if there is a nearby well or bore hole. Theoretically then, by controlling access to water points, control over pastures can be attained. As Thébaud [1990] points out, by maintaining broad equivalence between the output of a water point (in terms of the number of livestock that can be watered there in a day) with the availability of grazing within an accessible zone, some kind of equilibrium can be maintained between the two. In practice, the management of pastoral resources has not been so easy, for a number of reasons:

- bore-holes have been dug throughout the pastoral zone which have an output far in excess of what the neighbouring grazing lands can support;
- such bore-holes, constructed by governments and aid programmes, have been considered public

² Programme National de Gestion des Terroirs Villageois.

property by herders and thus have not been under the control of a particular group;

- governments have not considered pastoral land use to confer rights of occupancy, in contrast to the use of land for cultivation purposes. As a result, pastoralists using a particular zone have not been able to acquire the right to control access to the grazing resources which they have traditionally used;
- variations in rainfall and pasture productivity from one year to the next mean that the establishment of equivalence between water point capacity and that of neighbouring grasslands is not clearly defined. Any system of water point attribution would thus require the existence of reciprocal grazing agreements enabling herders in one zone to have access in times of pasture shortage to the resources of other pasture areas.

A strong case can be made for the attribution of water points to particular pastoral groups [Marty 1990; Thébaud 1990]. This would enable herders to manage the resources in their zone more effectively. As a group, decisions could be made to set aside certain areas close to the water point for late dry season grazing, when animals are at their weakest, and improvements could be made to small patches of higher quality land. Such environmental management should bring improved food security for the group with management rights by providing some incentive for more careful use of pastures and secure rights to exploit improvements made in pasture productivity.

Certain difficulties arise in putting such attribution of water points into practice which include:

- how to define the group which is to manage the water point and neighbouring pasture lands? In some areas, this process is relatively easy, as where traditional wells have been the main source of water for herds. These traditional wells (as in the eastern region of Niger) have remained under the control of those groups who dug them. However, in other areas, particularly around large bore-holes, a number of different groups may feel they have acquired certain grazing rights through time. A larger, more diverse group will face greater difficulties in making management decisions, particularly where there is some history of conflict over resource use between them.
- how to transfer sufficient rights to the group to encourage more careful management and investment while maintaining enough flexibility to allow people to move to other areas in times of drought? As noted earlier, some system of reciprocal watering and grazing agreements need to be established to allow for the movement of herds from areas where rainfall and pasture growth have been poor to areas which can receive them.

- how to ensure an equitable distribution of rights between different herding groups? Certain pastoralists may find it very difficult to attain rights in a particular area; especially those which are highly mobile, or those who for political or social reasons do not carry much weight (for example the **WodaaBe** in Niger or the **Egge egge** in Senegal).

There would seem to be a clear trade-off between the more sustainable and greater level of resource productivity which it is hoped will be attained as a result of granting firmer rights to pastoral communities, and the possibility that this process will disenfranchise certain of the weaker pastoral groups who will find themselves edged out. Thus increased security to resources and food for some may be at the expense of reduced security to those resources for others.

(b) Tree Tenure in the Sahel

Trees are widely acknowledged to play an important role in improving the sustainability of agricultural and pastoral systems, for example by slowing wind speeds and cutting wind erosion, by slowing rainfall run-off in fields, by providing leaf-litter to enrich soils, and leaves as fodder for livestock, by contributing to a more effective recycling of water and nutrients in the soil and by providing beneficial micro-climatic conditions for crop growth. In addition, trees can provide important cash incomes from the sale of fruit, wood for building, etc. and serve as assets that can be sold in times of need [Chambers and Leach 1987].

Encouraging people to grow more trees should have beneficial effects on their own incomes and on the eco-system as a whole. Current forestry legislation in the Sahel discourages farmers from tree-planting and their care. Forestry codes rely heavily on direct state regulation of how trees and their products can be used by local people, yet ineffective systems of administration make such regulation impossible to carry out in practice.

All governments now recognise the importance of promoting greater public participation in forestry activities and greater private investment in trees on farms. Yet if these policies are to succeed, communities and farmers will need stronger assurances that they will benefit from such investments. The current system of control, however, provides uncertain and insecure rights to farmers. Forest codes in the Sahel consist largely of lists of restrictions or prohibitions on forest use, with permits issued by the forest service for certain allowable activities.

Even trees on farms are subject to such restrictions and farmers must pay for a permit before cutting or using a tree that they themselves have planted. Community-based management of forest resources is also not allowed for within these codes, or is permitted only in terms of increased restrictions on use (e.g. 'Forêts Villageoises' in Mali).

In practice, many of the forestry regulations are flouted by villagers, since the procedure and cost of obtaining a permit is out of all proportion to the benefits to be gained. Forestry agents are unable to enforce effectively all of the provisions in the code and depend on levying fines in a manner which is inevitably perceived as arbitrary. This policing work by forestry agents does nothing for the role they are meant to play as extension agents.

A reassessment of tree tenure is underway in much of the Sahel, with governments in Senegal, Mali, Niger and Burkina Faso considering revisions to tenure law in general. Allocating much firmer rights to manage and exploit trees at the local level should provide greater incentives for farmers to plant more trees. However, there are other important elements which must be put in place. It is not clear that transferring all responsibility to local people will produce the hoped-for increase in tree-planting activities. As Lawry notes [1989:17], 'the social and economic bases for collective control are eroding. Policies must be based on a recognition of the limits and opportunities for local management. The role of the state can be decisive in providing a legal framework and in improving economic incentives for desirable management practices'.

Examining the role of tenure in encouraging forestry activity in the Sahel raises a number of questions:

- will the introduction of clearer rights to trees encourage much more tree planting, and has weak tenure been the main constraint?
- supposing tenure conditions to be improved, what are some of the other policies and inputs needed?
- are there readily adoptable techniques for tree planting and propagation which allow for high rates of survival in the drier parts of the Sahel?
- what are the labour inputs required and how do returns from tree planting compare with other uses of labour?
- how will rights to trees and their products be allocated within the local population, between and within households?

Recent work in the northern province of Yatenga, Burkina Faso, shows that high survival rates for trees can be achieved, but this requires the adoption of strict livestock control measures.³ In the village of Louga, for example, the permanent stabling of sheep and goats and careful herding of cattle has brought about much regeneration of trees and woodland around the village. However there are certain costs, in terms of labour and construction, of establishing and maintaining a cut and carry system of livestock production.

Where livestock are a key element in the production system, there is thus a clear trade-off between improved rates of natural regeneration and higher seedling survival on the one hand, and the costs in

labour of careful herding of stock throughout the year and/or stabling of herds and fetching fodder on the other.

A clear understanding of how agroforestry systems work, choice of tree species and their effects on farming systems is not widespread, as is shown by a recent study in Senegal [Sall 1989]. Here, a sample of agro-forestry projects carried out by NGOs demonstrates the latter's weak understanding of many of the technical issues involved and the encouragement of some species (such as *Leucena*) in circumstances which were highly damaging to farm yields, due to their invasive habit. Similarly, many projects continue to rely on eucalyptus species for want of quick and easy alternatives [Kerkhof 1990].

(c) The 'Programme National de Gestion des Terroirs Villageois' (PNGTV), Burkina Faso

The PNGTV in Burkina Faso is an attempt to translate changes in land tenure legislation for a number of pilot villages. Set up in 1986, the PNGTV now covers some 88 villages in 14 project areas [PNGTV 1990]. The 'Réorganisation Agraire et Forestière' (RAF) was enacted in 1985 in response to fears of deteriorating environmental conditions and management and the need to provide a framework within which to encourage greater involvement by local people in managing and improving their land. An explicit element within the programme has also been the restoration of greater social justice in terms of who has rights of access to land and resources.

The PNGTV operates through a series of four stages:

- i training and animation leading to the establishment of a 'Commission pour la Gestion des Terroirs Villageois' (CGTV), with representatives from certain groups, such as men, women, young people, herders, in-migrants, etc.;
- ii work with the CGTV to define and mark the village's boundary and carry out an inventory of resources within the village lands;
- iii negotiation of a contract between the government and the CGTV regarding the investments to be made to improve the productivity and management of resources within the village lands;
- iv carrying out of the contract.

Most of the pilot villages are still in stages 'i' and 'ii'.

As a whole, the programme seems well thought out and a reasonable starting point for establishing local systems of resource management. The programme also, as can be seen above, includes as an important element, a programme of investment and resource improvement aimed at raising the productivity and sustainability of resources within the village lands.

³ Pers. comm Mathieu Ouedrago.

However, a number of difficulties have arisen which demonstrate the range of problems at different levels which must be overcome:

- i despite this being a government programme, there remains an inconsistency over the actual powers which can be exercised by the CGTV. The government owns all land in Burkina and the CGTV has no legal basis to control use of the land within the village's territory. Despite the RAF clause which lays down that the government will give rights of use to properly constituted local bodies, this clause does not appear to have passed into law.
- ii constitution of the CGTV is meant to involve representatives from all land users within the village lands, including herders and migrant farmers. Some villages have resisted the PNGTV because they do not want rights allocated to these more marginal groups.
- iii definition and marking of the boundaries is not always easy, particularly where a long-running dispute exists with a neighbouring village.
- iv the procedures involved are long and complex, particularly those of mapping, planning the land improvements to be carried out and allocating responsibilities. These procedures are costly in manpower and time and it is debatable how replicable this programme might be on a broader scale.

The PNGTV provides a framework within which more effective natural resource management might be achieved, but it presumes the identification of things that can be done, and the ability and willingness of the local population to contribute towards these plans. While the PNGTV has made a point of trying to accommodate the interests of herders and newly settled migrants, this has been at the cost of alienating certain communities who have seen their rights and access to resources diluted by this process.

Conclusions

Natural resource management at local level is one amongst a number of elements which would be required for Sahelian populations to attain more sustainable livelihoods which will help to guarantee their food security in most years. This article has looked at some of the practical difficulties to be faced in establishing such management systems, and at the assumptions which need to be met for local management systems to play the central role expected of them. These assumptions concern the role of tenure in ensuring better resource management and greater levels of investment; the existence of techniques which will produce stable or rising levels of productivity; continued unreliability of rainfall around current trends; and the existence of sufficient political will to

ensure the transfer of legal rights to local populations to use and manage land.

As has been shown, these assumptions may not always be fulfilled. For example, there may be few, if any, technical improvements to be made to pasture lands in the most arid parts of the Sahel which can be carried out at reasonable cost. Similarly, there are no blueprints for attaining more sustainable farming systems in the Sahel, although some of the elements of such a system are now emerging (such as low cost soil and water conservation measures). It is clear that technical solutions have to be adapted to suit the specific characteristics of each site. On the question of whether sufficient political will exists to achieve a real transfer of power to local populations, the rhetoric exists at governmental level, but we have yet to witness firm evidence of such rhetoric being translated into reality.

Achieving greater food security in the Sahel evidently needs appropriate policies at all levels — the international, national and local. Immediate problems of food insecurity and famine result from the failure of the entitlement system to respond to peoples' needs, due to a collapse of the social and economic framework through which people can normally seek food. Longer term problems of insecure production, poor management and low investment throughout the Sahel are in part caused by the weak system through which people can assert their rights to manage resources. The problem here is not of choosing the right form of tenure, whether private transferable or customary tenure. Rather, the problem is one of poor governance [World Bank 1989]. To ensure their own future food security, farmers and herders need assurance that whatever tenure system exists is supported in practice. It is this assurance which is missing to date, so that entitlements in law have no guarantee of being upheld when brought into dispute.

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