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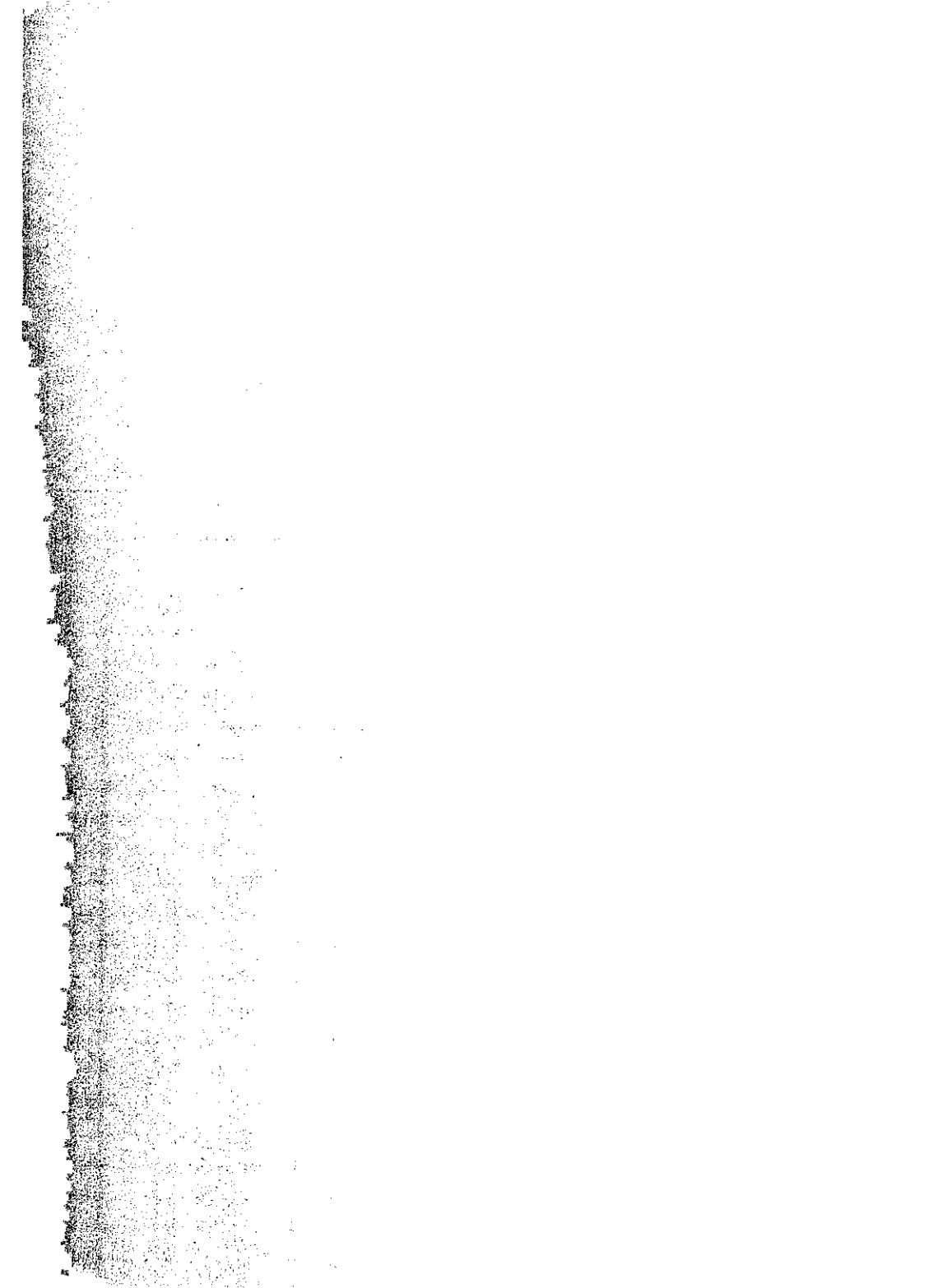
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TOWARDS BETTER WOODLAND MANAGEMENT IN THE SAHELIAN MALI

by

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IUCN, Mali



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1. Introduction

The International Union for the Conservation of Nature (IUCN) has been running a project in the Inner Niger Delta, which lies in the sahelian zone in Mali, since 1984. The Inner Niger Delta covers some 30,000 square kilometres in central Mali with an average rainfall of 300-450mm. The rich postflood pastures, which are available from late November in the south and from early January in the north, are much sought after dry season grazing areas for cattle, sheep and goats from the surrounding Sahel. Recent periods of low rainfall have seriously reduced the maximum height of the annual flood of the River Niger which in consequence has reduced flooding area and duration. The resulting increase in pressure on the remaining parts of the flood plain has been found to be a major cause of their recent degradation.

The IUCN project is examining the social, ecological and economic factors which dictate how the natural resources of the area are used by different groups of people. One of the critical requirements is to set up better management systems which do not depend on the already overstretched resources of the state forestry department for their implementation, and which go some way towards reversing the abusive use of common land which is resulting in the severe degradation of the resource base on which rural inhabitants depend.

This case study concerns an area of woodland near Bouna (Cercle de Mopti, Arrondissement de Kona) which surrounds four large marshes covering some 600 ha in total, although much of this is open water. The woodland sits in the middle of a flood plain and is therefore a usefully discrete unit with which to work. The major groups of pastoralists using the area are Peuls from the northern parts of the delta, Tamasheq (mostly the maraboutic branch, the Serif) and their ex-slaves, the Bella. The fishermen along the River Niger are predominantly Bozos and Somonos.

The choice of Bouna as a pioneer site for interventions in the delta stems from the work on the distribution and rarity of heron colonies,

and the need to protect the few remaining woodlands as future breeding sites for these species. Two thirds of the known breeding colonies have disappeared in the recent past, either due to low flood levels, or due to the loss of the wood through cutting. As the wood at Bouna is young, but already with a considerable colony in 1985/86, it constitutes a priority for intervention. This involved investigating during the dry season of 1986 how the quality of the wood as a heron colony could be preserved, while recognising the importance of the area for goat herding.

Since July 1986, work has continued in spite of the lack of a colony in the wood. Increased emphasis has been placed on looking at the wood as a mismanaged resource, whose benefits to the community are considerable and varied, and on examining the complex interplay of vested interests which surround the use of the area. This ecological approach takes the observed short-term overexploitation of a resource and the real management possibilities for doing something about it as a starting point for an intervention with the interested parties. This complements the socio-economic approach by other parts of the project, which takes villages or communities as a starting point and looks at how their access to a range of different resources may affect their livelihood security. The natural evolution, however, is to combine the two approaches at a single site, thus linking ecology and the local economy through a common natural resource.

Before proceeding with a detailed description of the study at Bouna, a certain amount of background material is essential.

2. Background

2.1 The Ecological Links

Woodlands of Acacia kirkii, such as that at Bouna, require to be inundated for a part of the year to ensure their growth cycle. The flooded thorny woodlands which result are essential to the success of breeding herons and cormorants. Flooding generally occurs from early August until December, depending on the site and the height of the

flood. The breeding cycle of the birds is linked to the flood as well, with the maximum breeding activity being in September, but frequently extending from July to January. During this period, faeces, pellets and other regurgitated food from tens of thousands of birds fertilise the waters and provide good growing conditions for many species of fish. In addition, fishermen may exploit the young herons and cormorants during the height of the flood (Sept/Oct) when the water is high and fish are hard to catch.

Local farmers benefit from the flocks of cattle egrets which eat millions of grasshoppers daily, making a small but significant contribution to crop protection in nearby millet fields.

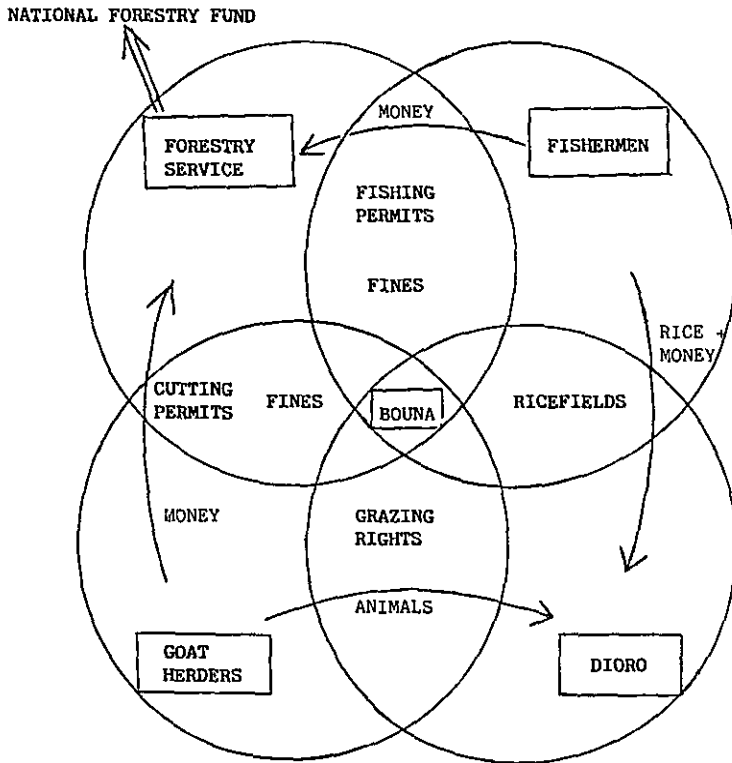
In contrast to many sahelian species, A. kirkii grows well during the dry season and is a highly sought after pasture.

2.2 The Social and Economic Links (Fig.1)

The traditional land-use system within the delta divides the area into discrete fishing grounds managed by villages during the flood season. When the same areas dry out, the herding communities, represented by the Dioro who is the nominal head of the old Peul fighting families, divide the grazing lands into units fixed in the mid 19th Century and remaining largely unaltered to this day. The Dioro administers the pastures, controlling access to herders and rice-growers, from which he and his family gain a substantial income.

Since Independence in 1960, the Malian Government has nationalised all land, and the management of fishing, grazing and woodland exploitation has been put in the hands of the technical services of the Ministry of Natural Resources. The delta has an extremely complex web of traditional land rights with fishing territories overlapping grazing territories and village ricefields. Superimposed on this traditional patchwork is the administrative system which does not always coincide with traditional boundaries. This often makes it difficult for forestry staff, who often come from other parts of the country, to understand how local traditions influence and control land-use.

Fig. 1: Social and Economic Links at Bouna



Different production systems still lay claim to their traditional areas, but the breakdown in support of the fishing grounds following the introduction of a Fishing Permit (valid nationwide), is more extensive than that of the grazing areas, where the Dioros have managed to maintain their power structure and a degree of control over their pastures.

Goat herders, who come from up to 100 km away, bring their goats herds into the delta in the dry season, reaching the delta's post-flood pastures in late December. Here they negotiate pasturing rights with particular Dioros for the dry season. Generally, the Dioros permission to graze need only be sought until about mid-March after which time the pastures are declared 'open' and herders can move more freely between different grazing areas. Herders generally buy a Cutting Permit at the Forestry Department (cost 4,000 CFA) for permission to construct a thorn enclosure where the goats spend the night. In a justifiable attempt to reduce deforestation and tree damage by goat herders, substantial fines are levied by the forestry department on those who construct enclosures without a permit, or who cut live trees simply to feed their goats. Funds gained from the sale of permits go to the National Forestry Fund, as do 75% of the fines. The other 25% is split between the field agent and his immediate superiors (under review).

3. The Case Study at Bouna

3.1 Background

The major problem at Bouna was the extent of tree-cutting to gain access to foliage which they would otherwise have been unable to reach. This is common practice in the Sahel, and has been seen as one of the major causes of deforestation in marginal areas. At Bouna, cutting had reached levels likely to damage the future of the wood both for goat grazing and for the heron colony (which only occupies a small proportion of the total area), and hence for part of the fishery.

The fishermen may cut wood for domestic use and for the construction of fish traps and fish dams. They also cut large quantities of thorn branches which they throw into the river in the dry season as refuges for fish. Significantly, this practice is carried out only by migrant 'stranger' fishermen rather than local ones, who consider it unnecessarily destructive.

The fishermen have no control over the herders, nor vice-versa. The Dioro does not herd goats, only cows, so his interest is simply in the revenues which he may get from the herders. If the wood disappears, he suffers loss of income.

The Forestry agent is based in Kona (20 km distant) and, given the large area he has to cover, he can only visit Bouna sporadically when he comes to check permits and the degree of cutting.

Discovering the reasons why so many people should be actively trying to destroy the resource on which they depend forms the basis of the study. The particular interest of the Bouna is not only the extensive links between production systems, but also their relevance to the thorny issue of how to integrate transhumant herders into a management system. This will give them a long-term stake in the successful management of the wood with a future guarantee of pasture, but the role of the Forestry Service as a government body and that of the Dioro as traditional landowner must not be seriously compromised. In addition, we wished to avoid getting into any of the complicated disputes about traditional land ownership, which are only too common in the delta.

3.2 The Breakdown in Control

Two influences are at work: one social, one legislative. The Forestry Service controls permits for cutting and the fining of those who do not respect the law. The forestry agent at Kona fines those who have constructed enclosures without permission, cut down living trees to feed their goats, or committed other sundry offences. In the case of enclosures, the owners of the camp, if they are present, have to pay; but for cutting of trees, collective fines are imposed as the culprit

is rarely caught red-handed. All herders in the area chip in a few thousand francs to achieve the total required to pay the fine. This results in a unification of the herding community against the forestry agent. Nobody will breach this social wall to point out the actual offenders for fear of subsequent social consequences, even if in many cases herders sympathise about damage to trees.

The second stage of this process occurs as a result of the problems faced by the forestry agent. Through being able only to visit the area irregularly and being therefore unable to control the amount of damage to the woodlands, he is obliged to make prompt and difficult judgements as to the degree of damage which has occurred and who is responsible for it. His decisions are reflected in the nature of the resulting fine. For example in two woodlands at Bouna, one was largely untouched but the herders there were fined 40,000 CFA, whereas in our study wood, which was badly damaged, the herders were fined 'only' 50,000 CFA. The herders do not always understand how the fine is arrived at and they are liable to misinterpret the situation as one where if they cut trees to feed their goats, they are fined, and if they don't cut they are also fined. But their goats are in less good condition. Fining appears to herders to be completely independent of their actions. The obvious consequence of such an attitude is towards increased cutting.

Should the negative effects of cutting be strongly disapproved of by the other goat herders, they have no clear traditional power. structure between themselves (coming from at least six different villages and being partly Peul, mostly Bella and partly Serifi) through which to resolve such problems. In addition holders of 'Permis de Coupe' may defy local pressure to stop cutting by claiming that their permit gives them the official permission from the forestry service to cut trees. The use of a permit, issued solely for the construction of enclosures, to justify the cutting of trees for browse is a result of herders not fully understanding their own rights or the forestry laws. (This is itself a consequence of how forestry agents behave in the field. No-one will denounce another herder to the forestry agent, even if he believes that herder to be in the wrong).

3.3 The Creation of New Structures

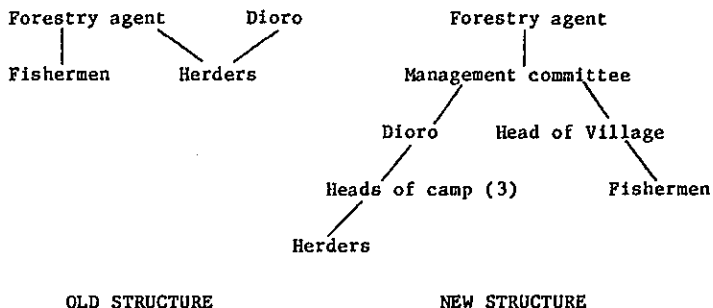
It is clear that the present system does not work. All of the power is vested in the forestry agent, who has a large area to cover, can only visit sites irregularly and cannot always effectively put into practice forestry policy. The forestry department has gone some way towards recognising the problem and has begun a new policy which encourages participation of the users of forestry resources in the control and management of their own woodlands, (creation of 'Forets Villageoises').

We felt that trying to set up a Foret Villageoise would be a suitable way to allow a committee of users to begin to formulate their own policies, and to put them into action. The role of the forestry agent would be that of extension officer, co-ordinator and eventually upholder of the law against offenders. Bouna would be a pilot site in Mali's 5th Region to test the feasibility of new policies and legislation in the Sahelian zone. It is important in this instance to explore ways in which transhumant 'stranger' herders can be integrated into new management structures.

Given the complexity of the area and its users, and conforming with the existing political structure, a committee of eight people was proposed, consisting of:

The Head of the Village of Bouna	(fisherman)
Adviser of the Village of Bouna	(fisherman)
Representative of the Political Party, Bouna	(fisherman)
Two goat herders	(transhumant herders)
Two Dioros	(local 'landowners')
Forestry agent from Kona	

It is important that the two separate interest groups (fishermen and herders) should meet to decide common policy, because there is no possibility of a fisherman making decisions concerning herding matters, nor vice versa.



The project laid down the ground rules in April 1986, following a large meeting of interested parties at Bouna. Although we expect the first official meeting of the committee to review some of these rules, they are intended to form a basis for discussion. We shall examine the proposed rules in turn:

1) The wood is registered in the name of Bouna

This is a compromise for several reasons. To receive official recognition as a Forêt Villageoise the wood must be named as belonging to a village. The Administrative recognition of a villages' territory allows only for a radius of 6 km. The Dioros, who if anyone are the true owners, live 25 km away, and no administrative procedure allows for this (partly because traditional land holdings in the delta are considerably larger than those of villages in the south of the country which form the basis of most policy making). However, Bouna's generally accepted fishing grounds include the whole area at high water, so they have been proposed as titular owners. The consequences of putting an area of grazing land in the name of a fishing village, who have no real use for it, may held to reduce conflicts between herders in the real future.

2) The Dioros retain their traditional management areas

An essential step. The area is run by three Dioros, who have largely delegated their responsibility to one of them. It is vital that the new structure makes no judgements as to the limits of each of their areas, but simply retains and reinforces the traditional status quo. Any proposal which defined, or allowed

others to redefine each Dioros' grazing land would be subject to severe scrutiny (and potential alteration) by the administration and could lead to border disputes. The traditional limits must be maintained.

3) No cutting is allowed either for enclosures or for feeding

This proposal was put forward, and accepted, at the meeting in Bouna in April 1986. Herders said that they could make adequate enclosures from *Mimosa pigra*. There are two reasons for wishing to restrict enclosures: firstly, to avoid extensive damage to certain areas of Acacia trees around traditional camps; and secondly to avoid the issue of whether cutting permits issued by the Forestry Department were still necessary and whether forestry agents should still continue to fine those without permits, despite the fact that the woodland was nominally under village control. In 1987, however, following attacks by jackals, most herders have built enclosures of Acacia, having bought permits. One herder lost four goats in one night; clearly losses on this scale have serious economic consequences, and good enclosures become essential. The possibility of using live hedging for enclosures needs to be looked into, but this example illustrates how a new structure must be flexible.

4) The proposal does not affect fishing rights

Exactly the same point as for the grazing territories above, but vis-a-vis the fishing community and with respect to the current laws on fishing permits, which allow holders access to fishing grounds nationwide.

5) The number of herds is restricted to twenty

According to the Dioros, 26 herds pastured in the wood in 1986. The reduction in the number of herds (agreed to by the Dioros) is intended to have several effects. Firstly, it should reduce the need for herders to cut browse to feed their goats. This in turn should make the same herders decide to return annually, knowing

that the grazing is good, and thus beginning to stabilise a group of transhumants in a single dry season site where they can also have some control over the resources on which they depend. Privileged grazing conditions should also help to reinforce the only sanction available to users - that of excluding wrongdoers in future years.

Secondly, reducing the number of herds may be a useful first step in tackling the theoretical problem of carrying capacity. The Dioros often have difficulty in recognising how maximum short-term income (through increasing the number of herds - cattle, sheep or goats - on his land) may have serious long-term ecological consequences.

The view expressed by the paying goat herders is often that they don't mind paying, but they like to know the pasture quality they are paying for, which will vary with the number of animals using it. Although the numbers of animals per herd is not fixed, it is the unit on which the Dioros determine fees. No-one will ever disclose the size of his herd anyway, so the true number of animals has little chance of being a viable measure of grazing density for the future.

3.4 Application of the rules

The users themselves must be sufficiently aware of the actions of others in the wood to point out offenders to the Head of the Village of Bouna or the Dioro. If sanctions are called for which lie within the ambit of traditional power, then the matter is straightforward. If things go seriously wrong, those who go against communal decisions must be delivered up to the forestry service or the administration, which must take appropriate action. If this last resort is unavailable and local power fails, the whole structure will crumble. Significantly, the Head of the Village and the Dioros, being sedentary, will have much better links in this respect than the herders and will therefore have better access to, and understanding of, what is effectively the ultimate power. To try to mitigate this effect somewhat, the forester has his place on the committee and may therefore be more readily accessible to the goat herders.

3.5 Will it work? Where does the power lie?

The power of each group is of a different kind. The goat herders have no power until they can organise themselves into an effective pressure group. They recognise that they are strangers to the area (they come from six different villages) and are therefore without a fixed social structure. A proportion of them are Bella, the least respected ethnic group, who are unused to wielding power, organising or taking collective decisions. It is here that the project has most intervening to do, to weld these herders into an effective group who understand the law and the issues and their rights. This can be done through sensibilisation. If it is successful, the herders will have group power.

The Dioros are powerful, highly organised and decisive individuals, given their background of running the pastures and are accepted as effectively landowners by local communities. They also maintain their influence through powerful links with the administration. The Dioros are the key to the successful functioning of the Foret Villageoise. They alone have the dynamism to make it work once they are convinced of its utility. Equally, once they go against the project it is doomed to failure.

The forestry service has massive 'official' power and the ability to damage seriously any individuals livelihood through inflicting fines. However, the limited amount of time available to a forester for following herd practice in detail in any one area makes day to day control impossible for him.

The fishermen have no power at all in the pasture matters of Bouna. If they wish to take an interest in the management of the wood they could play an important role by preventing the herders from disagreeing too irrevocably. At the other end of the scale, if the Head of the Village is unable to control cutting by fishermen, this may well undermine several attempts by the herding community. Then all that will happen is an endless round of accusation and counter-accusation between the different ethnic groups. Again, the Dioros hold a key position because the fishermen grow rice on their land. They alone have a socio-economic link with the fishermen.

In our view, the best chance of success is to try to channel the group power of the herders through the traditional power of the Dioro into the hands of the forester. This should optimise the wielding of official power for communal benefit.

It is inevitable that there will be tensions, misunderstandings and manoeuvring at the beginning as people adapt, or try not to adapt, to the changing conditions. It is at this point that the project must work hard to prevent serious irresolvable conflicts which may prejudice the long-term success of the scheme.

The success or failure of the project depends on finding two strong, sensible representatives from among the herders who can carry the others with them in the communal interest. This must be done without seriously compromising the existing powers and traditional rights of the Dioros, who would certainly act to break it up if they felt threatened.

4.0 Status of the Bouna Project in October 1987

At the outset, the project was conceived to consist of four main phases:

- Research and consequent development of a management plan
- Elaboration with the forestry service of a proposal to create a Forêt Villageoise as a framework for the application of the management plan
- Formation of the committee and agreement on the details and application of the plan
- Assessment of this pilot Forêt Villageoise two years after its inception

Phase one was completed by August 1986. Agreement with the forestry service was reached by the end of September; a detailed 'Projet de Creation de Forêt Villageoise a Bouna' was presented to the Chef d'Arrondissement for approval in October 1986. Unfortunately this

coincided with the transfer of the Chef d'Arrondissement to a new administrative post, and the incoming Chef d'Arrondissement was unable to give due attention to the proposal until late February 1987. He was basically favourable towards the project. However, the Secretary of the Political Party cast doubts on the veracity of the Dioros' declarations during the meeting and insisted that, given the potentially litigious nature of the action, all members of the Dioros' extended family should be consulted and their agreement sought.

This process is still continuing at the time of writing. It has not yet proved possible to assemble even two thirds of the relevant Peuls in the same place at the same time. They are spread across the pastures of the central delta during the dry season after which they leave for transhumance on a circuit 120 km to the west. We have talked to them all independently, but unfortunately the setting up of this pilot Forêt Villageoise has coincided with other project activities including the development of rolling credit schemes. Everyone has heard about these schemes and there is a lot of suspicion within the Dioros' family that there is money in this for someone and that they are missing out. In addition, several international projects work in the area, one of which is developing gravity fed ricefields on what would otherwise be prime grazing land. The Dioros have lost control over these parts of their pastures as a result of the project. They are understandably wary of our long-term aims at Bouna. Given that everyone has yet to meet to clear the air, there is still a degree of uncertainty, rumour and suspicion. In addition, those that have given their formal approval to the scheme are not prepared to go the Chef d'Arrondissement to make a formal declaration until everyone else also does so, otherwise they fear a split in the family. There are always manoeuvrings for power within the Dioros' family and this does not always simplify discussions or decision making.

Despite the 'in principle' agreement of the Chef d'Arrondissement, we still await the within family agreement of the Dioros before he will sign the proposal.

Although the lack of an official mandate has meant that we could not proceed with the full implementation of the proposals, we have nevertheless made good progress with restructuring the way herding takes place within the wood. This has been achieved by asking the Dioro to nominate three 'stranger' herders in whom he has confidence as camp chiefs, insisting that incoming herders settle in one of the three camps and abide by local grazing rules. If they do not do so they are asked, persuasively, to leave. This is an improvement on the old system where the Dioro rarely visits the wood, stays in Bouna, 3 km away, and is frequently absent while visiting his cattle or other areas of his pasture. He is therefore rarely available to take prompt action if required.

Delegating some responsibility to the herders themselves achieves one of the principle objects of the project, that of increasing the control of users over the resources on which they depend. This process is a slow one, challenging as it does deeply ingrained habits, and it has taken many months of patient discussion and negotiation with the Dioro before he was ready to accept the need to delegate some power of 'self-government' to those who are effectively his tenants.

In retrospect, it may be a good thing that the agreement of the Chef d'Arrondissement was not received immediately. This has obliged us to go more slowly than perhaps we would originally have liked, but we may find that the gradual restructuring results in a more stable and durable management base than would have been the case if we had arrived in Bouna with too many ideas, too quickly.

5.0 Discussion

The work which has begun on woodland management in Bouna is tackling some of the fundamental practical problems associated with a major part of new forestry policy in Mali; how to increase villagers' control and management of their resources. This leads implicitly into how to encourage investment in natural resources (eg. reafforestation or active management) which at present belong to, and are controlled by, the state rather than by collectivities.

At the centre of the problem lies the complicated issue of how to encourage management of open or restricted access common property when the attitude of users leads irrevocably towards a tragedy-of-the-commons situation. Our work has inevitably begun to add restrictions to rules governing access to the woodland at Bouna and is increasing the power of habitual users over itinerant or occasional users.

One of the consequences of this trend will be the development of a protectionist attitude by the herders to not only demonstrate that the wood is truly managed by them, but also to improve grazing quality for their own animals by excluding other herds. The whole concept of carrying capacity must lead to someone having to decide who shall be allowed to graze and who shall be excluded. The situation at Bouna is more complicated than this because of the interests of the Dioro to maximise the number of herds during the regimented grazing period (January to mid-March) as he charges a fixed sum per herd. Nevertheless for half of the grazing season (mid-March to June) access rights for those who have not been present since the beginning of the season are likely to be increasingly restricted.

If such a forestry policy was to extend over significant parts of the Sahelian zone in Mali, what is effectively a trend towards privatisation (even if in the name of communities) could lead to increasing pressure for sedentarisation due to protectionism against transhumant herds. This in turn would restrict the flexibility necessary to transhumant herds to survive unpredictable climatic fluctuations.

Even if a patchwork of Forêts Villageoises which were not contiguous were developed, allowing corridors for transhumant herds excluded from elsewhere, this land would still be open access common property where there will be no structures except the forestry department with its concomitant problems, to manage the area. Under current conditions they would therefore rapidly become degraded and increasingly marginal, thereby defeating the object.

Having cited a few of the theoretical and conceptual problems which surround privatising resources in the name of communities, an element

which might provide the key to socially and ecologically stable relations between communities owning Forêts Villageoises and transhumant goat herders are the traditional links which such herders have with sedentary communities. What will probably happen is that not everyone will be allowed access to all areas of the bush, as is now the case, but everyone will be able to find somewhere with restricted access to graze their animals and where they can participate in a management system. The daily life of rural populations depends heavily on their relationships with other people and other communities. These links have developed over many years and although not formal or recorded, they are largely respected. Kinship relations and mutually agreed reciprocal access rights should be sufficiently stable within a given area to avoid marginalising large numbers of people if Forêts Villageoises should become widespread.