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SETTLEMENT SCHEMES FOR HERDERS IN THE SUBHUMID TROPICS OF WEST
AFRICA: ISSUES OF LAND RIGHTS AND ETHNICITY

by

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Settlement Schemes for Herders
In the Subhumid Tropics of West Africa:
Issues of Land Rights and Ethnicity

Clare Oxby¹

Attempts at settling or sedentarizing nomadic herders in semi-arid and arid regions have been largely unsuccessful, partly on account of the difficulty of restricting the movements of domestic livestock in areas where low and irregular rainfall lead to scant and unreliable sources of water and grazing. But for the herders in sub-humid regions, where both water and vegetation resources are much more reliable and substantial, there appear to be different possibilities. This article evaluates the experience of a number of recent initiatives to settle nomadic herders in the subhumid zone of West Africa. In practice, however, numerous problems have been encountered and these are all the more striking in view of the general trend of migration towards and settlement in this region, by crop farmers and herders alike, which is independent of any state-planned initiative.

The West African subhumid zone, the belt of land running from Guinea Bissau in the west to southern Chad in the east, comprises regions with an average rainfall of between 1,000 and 1,500mm. Population densities in this belt are relatively low (usually less than 20 inhabitants per square kilometre) when compared either with the coastal area to the south (in many regions more than 300 inhabitants per square kilometre) or with the dry Sudanian zone to the north (in some areas reaching 250 to 350 inhabitants per square kilometre).²

One reason for this low population density has been the danger of human and livestock diseases, in particular sleeping sickness and animal trypanosomiasis, both of which are transmitted by tsetse flies;³ also river blindness or onchocerciasis. Another reason is to be found in the legacy of slavery: coastal slavers periodically raided these areas until the beginning of this century. Slaving has ceased

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for many decades, however; and the threat of disease has diminished considerably with improvements in disease control. Sleeping sickness has been successfully suppressed in the subhumid zone, though scattered episodes continue to occur (50-100 cases are recorded in Nigeria every year). The incidence of animal trypanosomiasis has been severely reduced, and completely eradicated in many areas. It remains, however, an important constraint not only to animal production in the zone but also to farming and rural development in general.⁴

The most common methods of control and eradication are bush clearance, which destroys the fly's niche; insecticide spraying, which kills the fly; and the treatment of animals with preventative or curative drugs.⁵ In Nigeria about 75,000 square miles (over a million square kilometres) have been sprayed, resulting in the permanent eradication of tsetse flies, and therefore trypanosomiasis, in many parts of the subhumid zone of the country. Even where there have been no planned attempts at control, there is evidence that clearing vegetation for farms, pastures and villages has contributed towards the destruction of the fly's habitat.⁶

Where tsetse is present, the subhumid zone is sparsely inhabited by crop farmers who clear the vegetation for farming food crops for one to three years, then leave the land for long periods of fallow until soil fertility has been regenerated and the process can be repeated. Some of these farmers keep trypanotolerant cattle such as N'Dama which, though smaller in build than the zebu breeds, are not necessarily less productive in terms of milk and meat and reproductive capacity per unit weight of cow. Because of the relative abundance of water and pasture in the subhumid zone, and also because there are not such strong contrasts between dry and wet seasons as in the lower rainfall areas, there is not much incentive to move far. In northern Sierra Leone, animals usually remain within 3 to 5 km of their owners' settlements all the year round; moreover, they usually roam free and unattended, except when they are in the vicinity of vulnerable crops. Settlements are permanent (round wattle and mud-huts with thatched roofs) and food crops are always cultivated in the vicinity. Crops are protected from animals by fencing. In the Fouta Djallon mountains of middle Guinea, fencing is most elaborate and systematic. Ditches are dug around the future fields and settlement areas, and varieties of fast-growing shrubs planted on the resulting mound of earth running alongside the ditch; within four years a thick, high and solid fence-cum-hedge

has been created; cultivation within is multi-crop including fruit trees; compost is spread, and some animals are kept inside at night in order to provide manure for fertilizer.

In addition to these farmers, herders visit the zone in the dry season, when the tsetse flies recede to the more humid south, but immediately at the onset of the rains they take their herds northwards towards their rainy season base in the semi-arid zone. In western Upper Volta, rainy season and dry season pastures may be up to 250 km. distant.

Following bush clearance and disease control, some herders have chosen to abandon their bases in the semi-arid zone and spend the whole year round in the subhumid zone.⁷ The more recent 'arrivals' look for a rainy season location which is away from the tsetse-ridden river valleys and in areas where they will be accepted by local farmers. Typically they settle at a short distance away from a village of farmers, with whom they exchange animal products like milk and cheese, and also the bay of draught animals, for farm and other produce. These herders plant food crops around their settlements. Maize is the staple in the subhumid zone, in sharp contrast to the semi-arid zone, where, if herders cultivate cereals at all, the crop is millet.

Herds remain within 20 or 30km. of the settlements for most of the year, but are usually led away by herdsmen for two months at the height of the rainy season, to avoid damaging crops and also the tsetse which is worst at this time of year. They return at harvest time. In some cases, especially in years of good pasture, movements may be further restricted so that herds remain near the settlements all the year round. Detailed case studies of such herders-cumfarmers in southern Upper Volta have been written up by Delgado and Matlock.⁸

Herders are not the only people moving into these areas. Being more mobile, however, they are often the first to occupy them: they may then be followed by crop farmers who come from the densely populated areas to the north. For example, important migrations of farmers within and from Upper Volta are documented by Rochette.⁹ The most suitable areas for farming are often herders' old camp sites, which have the advantage of being already partly cleared of vegetation and enriched by manure. The process is therefore gradual and continuous and has been occurring over several decades. Herders act as pioneers in the newly accessible land, and are followed by farmers who transform pasture into

fields; the herders then either move on to new lands, or turn to farming themselves. It is clear that the herders will not have this choice for ever, as one day the pastures that have been 'protected' by tsetse fly will run out. Suitable land is already becoming scarce in some parts of Upper Volta, notably in the south west; this is manifest in the increasing competition between herders and crop farmers over access to land.

The end result is an infinite variety of combinations of crop farming and animal husbandry, each associated with different lifestyles: at one extreme, the settled farmers who keep a few trypanotolerant livestock; and at the other extreme, the dry season visitors, who derive their livelihood from zebu cattle which have little resistance to the animal diseases common in the subhumid zone, and who retain their home bases to the north. And between these extremes are a number of special ecological adaptations, such as the people who lead their herds on a short transhumance between highland rainy season pastures and lowland dry season pastures (e.g. Fulani on the Jos plateau, Nigeria).¹⁰

Government schemes

Encouraged by the new opportunities and quick to realize that the subhumid zone may contribute to solving the problems of overcrowding in other parts of the country, some governments have developed resettlement schemes for small farmers. The Volta River Valleys Development Authority (Aménagement des Vallées des Volta) in southern Upper Volta is a good example. Crop farmers are being resettled on small plots in the sparsely populated valleys of the White, Red and Black Volta rivers where onchocerciasis has recently been controlled with the help of the World Health Organisation. The incidence of tsetse flies in these previously highly infested areas has begun to recede, partly because of localized control efforts but mainly because the change of land-use entailed by resettlement is gradually destroying the fly's habitat.

Such schemes have been aimed primarily at crop farmers, including 'converted' herders; they have not made any special provision for herders who wish to continue relying on animal production. Increasingly, however, it has been recognized that some of the new settlement areas are not uninhabited but are seasonally used by herders who should therefore be accommodated

in the plans. Also, perhaps more important, there has been a need for draught animals on the schemes, and an obvious solution to this problem lies in closer co-operation with the herders. The schemes for herders in connection with the Volta River Valleys Development are mostly at an early stage of implementation." Other schemes for herders have emerged, however, which are not connected with any resettlement scheme for crop farmers. Some of these schemes will be described below.

in 1981 and 1982 I visited Sierra Leone, Upper Volta and Nigeria, and in each country one scheme which included the settlement or sedentarization of nomadic herders as a major aim was selected for study. In northern Sierra Leone, the Koinadugu Integrated Agricultural Development Project was one of several regional IADPs within the country, but was the only one to have included plans for settling nomadic herders. The livestock component included the upgrading of six veterinary posts in the project area, the development of Musaia station with its breeding herd, the establishment of six mixed farm units of 120 ha. as an experiment in the integration of crop farming and cattle raising, and finally the establishment of four 200 ha. ranches for herders who were to settle within ranch boundaries. One ranch was attempted but not pursued due to a combination of impracticability of plans and non-cooperation of herders.¹²

The proposed ranches were to occupy the same site as an earlier scheme for the settlement of nomadic herders: the Cattle-Owner Settlement Scheme, initiated under the colonial government in the early 1950s.³ The aim of the scheme was to limit the movements of the more nomadic herders by persuading them to contain their cattle within suitable areas of approximately one square mile each (1,581 ha.). These would be improved by planting fodder crops. The scheme was ambitious, and planned for 270 settled and improved areas by the end of 1960, given the co-operation of the chiefs of the local crop farmers. Seven-year leases were duly signed by herders in a few 'pilot' areas near the Musaia station; herders paid rent both to the colonial authorities and to the landowning tribal chiefs. Both schemes failed to settle any herders on the designated areas for any length of time. We shall see why below.

In southwestern Upper Volta, the West Volta Livestock Development Project (Projet de Développement de l'Élevage Ouest-Volta) aimed to settle nomads on group ranches which would involve groups of herders in their management. Other components of the

same project were a steer fattening centre, the construction of a livestock market and the renovation of a slaughterhouse. Severe administrative and personnel recruitment problems have hindered the progress of the project, and initial plans for nine group ranches had to be changed to three, varying in size between 15,000 and 70,000 ha. By 1981, after five years work, twelve families had settled on the first ranch. They had all built mud-brick huts with thatched roofs, and were grouped together in one village. One of them was building a permanent house with cement walls and corrugated iron roofing. Their animals were marked and remained within the ranch boundaries all the year round, and they all cultivated maize around the village. A further forty-five families were temporarily camping in the second and third ranches, in mat tents, and their animals had not yet been marked. These people may settle on a permanent basis. There are now plans for a fourth and fifth ranch.

Finally, after several years of intensified work, the Kachia Grazing Reserve in Nigeria has succeeded in settling twelve families within its 30,956 ha. This reserve is one of many that were established after the Grazing Reserves Law was passed in 1965. Since then plans for registering land and developing and managing the reserved areas have been progressing gradually. The size of the reserves varies from 100 ha. to 122,000 ha. (Rumka, in Kaduna State). Not all of these areas have been developed, but by 1980, 149 wells, 61 boreholes, 177 dams, 68 staff houses, 25 office/clinics and 18 stores had been constructed or were underway. The development of Kachia Grazing Reserve is advanced in comparison with other reserves: the Federal Livestock Department, the Livestock Project Unit and the International Livestock Centre for Africa (ILCA), which has a research station there, are all involved in its development. There are twenty-four staff: a range management officer and his assistant, four grazing control assistants, a veterinary assistant, one typist, one driver, three plant operators, five permanent and five casual labourers, and two watchmen; all have permanent housing on the reserve for their families. Ten earth dams have been constructed but only four are in use since there are not enough animals on the reserve yet. A smallholder dairy scheme supplies supplementary cattle feed on credit to nineteen local farmers, of whom only six are members of the grazing reserve and the remainder live in nearby villages. Strips of the fodder crop, *Stylosanthes*, are sown in the reserve and in 1981 two herders on the

reserve were helped to sow 4 ha. of *Stylosanthes* each as 'fodder banks' alongside their food-crop fields.

Out of the total of twelve herding families settled in the reserve in 1981 half came only the previous year. Two families have built small European-style houses with window frames and corrugated iron roofs. One has built mud-brick thatched huts. The rest live in tents covered in grass, stubble or reed mats. The twelve families average about 45 cattle each, the wealthiest owning 150 cattle. All of them farm food crops around their settlements in the reserve.

Although the projects do not have precise targets as to the numbers of people they aim to settle, it is quite clear that these numbers are much lower than expected. The allocated sites in Upper Volta and Nigeria are capable of supporting many more. The investment in ranch personnel and equipment is in all cases enormous in comparison with the number of herders who have settled on the ranches. It is therefore worth asking why there has been such a bad success rate. The following are some explanations that were arrived at after discussion with herders and with project administrators.

Reasons for slow progress

Uppermost in the herders' minds are the continuing animal health problems experienced in the allocated ranch sites. Any area that has been declared free of tsetse is subject to reinfestation from neighbouring areas, unless there is a protective natural boundary such as mountains, or the habitat of the fly has been destroyed for good. In northern Ivory Coast, herders who had emigrated from the Sahel and joined a project that had constructed villages and dams for them at great expense, fled leaving behind ghost villages when trypanosomiasis caused high losses among their zebu cattle.¹⁵

In the West Volta Project, Upper Volta, the whole of the area set aside for group ranch development, some 250,000 ha., is infested with tsetse flies - three different species, two riverine and one savannah. There have been localized attempts at controlling tsetse but herders complain that reinfestation has occurred. The area poses special problems for eradication since it borders on Mali and is not far from Ivory Coast: international co-operation would therefore be required in order to prevent reinfestation, and this poses almost impossible administrative problems.

* See note on page 233

Kachia Grazing Reserve, Nigeria, is within the tsetse belt but the area was sprayed in 1967 and declared a tsetse-free zone. Herders continually complain about animal disease, and tsetse flies can be seen in certain valleys in the centre of the reserve; however, neither the local veterinary service nor ILCA, which has a research station on the reserve, have verified any recent cases of animal trypanosomiasis. There are plans to respray the area soon, and meanwhile state veterinarians administer prophylactic trypanocides regularly. This health risk may account for the fact that certain parts of the reserve are avoided by herders and that only a few have settled there. Some Fulani from Abet, a nearby village, declined to join the reserve because they said the area was notorious for disease and they preferred to remain in their home area. Others said they were waiting to see what would happen to those Fulani already settled in the reserve.¹⁶

Animal health considerations are only part of the story, however, and there are other ways of explaining the projects' lack of success. The failure to recognize the range of previous uses of areas allocated to projects, and of the different categories of users, has led to further problems. Projects in the subhumid zone are usually implemented on the basis that the land allocated to them is empty, unused. This is invariably a misleading assumption. Land may be used on a seasonal basis, or as a resource for bad years; it may be used for shifting cultivation, for hunting game, for collection of fruits and other forest produce, or for grazing. The administration of the projects visited has thus been severely hampered as the project authorities have gradually become aware of the various patterns of land-use in the allocated areas, and have been unable to deter people claiming long-standing use rights from farming within the grazing areas or grazing their animals on a seasonal basis within the ranch boundaries, with no reference to the project authorities.

A major reason why original proposals to create nine group ranches in Upper Volta had to be abandoned was because aerial photography of the project area showed that there was much more crop cultivation than expected, that fields were widely scattered, and therefore that certain areas would not be suitable for ranch sites. The project authorities have subsequently been unable to prevent a steadily increasing number of crop farmers from cultivating the areas that had supposedly been allocated as grazing areas. And this despite a fifty-year lease of the land by the project

for grazing purposes. Furthermore, the vegetation inside the first ranch has been extensively burned in successive years. Early in 1979 a particularly damaging fire removed most of the dry matter and also burnt most of the 900 ha. of the Ranch Centre including the 20 ha. of *Stylosanthes*. The fires were almost certainly started deliberately and, it is presumed, by villagers who have always used the ranch area as a traditional hunting territory.⁷ Plans to regulate grazing and to improve the pastures with planted fodder crops have thus been impossible to implement. In consequence registered herders have lost faith in projects as they realize that, despite the claims of the project authorities, the practice of animal husbandry and the profits to be derived from it do not vary much outside and inside the designated areas.

Kachia Grazing Reserve in Nigeria, on the other hand, has come across rather different land-use problems. Here cultivation by non-members is strictly forbidden; indeed one can recognize the boundaries of the reserve in some areas as a line of field boundaries. It is the seasonal visits of herders with home bases to the north that cause trouble to the reserve authorities: these herders ignore the reserve boundaries and lead their animals to the pastures within. It is therefore extremely difficult to attempt to improve animal husbandry through the introduction of rotational grazing, since herders who do not belong to the scheme may exploit the reserves of fodder which have been set aside for ranch members.

Similarly a major reason why the Cattle-Owner Scheme failed in Sierra Leone was because of the difficulty in getting permanent access for the herders to enough suitable land. The five-year leases were not long enough to give herders security of tenure; and the areas allocated, one square mile per family, were too small and became overgrazed before the five-year period was up. Crop farmers came to resent the presence of the herders and began to farm so close to the settlement areas as to deliberately make it impossible for the animals to graze without damaging crops. The result was that after a few years all the selected areas were gradually abandoned and relations between herders and landowners were worse than ever.

What is the basis for these different types of rights to land? To understand this we need to know more about the communities living in the subhumid zone. There is frequently a linguistic and cultural division between the local farming community, whose language and cultural allegiance vary from area to area, and the Fulani (or Fula or Peul), who speak the same language, Fulfulde,

from Senegal in the west to Cameroon in the east. This distinction coincides roughly but not precisely with an economic distinction:

the vast majority of those in the zone who rely primarily on livestock for their livelihood are Fulani, who are renowned cattle-keepers. In most places where they live, they are in a minority, with the notable exception of the Fouta Djallon area of Guinea where Fubfulde is the dominant language. What is more, their access to land depends to a large extent on their relationship with the local non-Fulani, who invariably claim priority of access. This is justified according to traditional patterns of land-use and inheritance; in particular, the use rights that a farmer has over the land he cultivates are seen to be more permanent and inalienable than those that a herder has over the grazing land he uses.⁸ But even where Fulani have settled to cultivate the land, their rights to the land they use are not considered to be as permanent as those of the other farmers, and they may be forced to move if there is land scarcity. Where Fulani have been settled for many generations, however, they tend to lose their cultural identity and gradually become assimilated into the local community and are able to assert their land rights.

Such discrimination operates not only in the context of land rights. Because of the difficulty in sending nomadic children to school, the Fulani generally have less formal education than the national average, and they are badly represented in local government positions. Disputes over access to land, cattle damaging farmers' fields, and other matters tend to be ruled in favour of the local elites and against the 'strangers'. Moreover, some members of the local elites, including civil servants, are finding it an attractive proposition to invest in cattle which are looked after by Fulani. The resulting unequal relationships in which herders are reduced to the status of 'tenants' only exacerbate the discrimination. This background helps to explain why it is often extremely difficult to get cattle-keepers' rights to land, on a permanent or semi-permanent basis, accepted within the local community as a whole, even if the project administrators and the national authorities strongly wish to do so. For the same reason it may be impossible to prevent the encroachment of crop farmers on to designated grazing areas, either because of land shortage or as a way of protesting against what may be considered favouritism to 'strangers'. In southwestern Upper Volta the local extension agents invariably supported the cultivators, and their only contact with the herders occurred when

they were required to assess the value of crops damaged by cattle-keepers. On the other hand, one of the main attractions of the Upper Volta ranch, from the point of view of the herders, was the understanding that crop cultivation, other than by the herders themselves, would be forbidden or at least prevented from spreading within ranch boundaries. It is not surprising therefore that the ranch has caused some increased tension between herders and farmers: the local farmers feel betrayed and the initial enthusiasm of the herders has sometimes led to disappointment.

A further complication lies in the lack of understanding, evident in project documents, of herders' movements, and the confusion over what 'settlement of nomads' would actually mean in the subhumid zone. Planners tend to assume a black-and-white distinction between nomadic and settled. As we have seen, this is far from the reality in the subhumid zone, where patterns of mobility vary between the two extremes according to many factors, such as security of land tenure and the relationship with crop-farming neighbours; the extent of involvement in crop farming in addition to herding; and the availability of grazing in a particular place at a particular time. Project plans should therefore take account of the different types of mobility in the proposed site and adapt proposals accordingly. One reason for this rather crude use of the nomadic/settled distinction is that it tends to get confused with the distinction between Fulani and non-Fulani: in other words, it is sometimes misleadingly assumed that all Fulani are nomadic herdsman. On the contrary, many combine animal husbandry with crop farming or rely mainly on the latter, in which case their economy is indistinguishable from that of local non-Fulani. All of the target groups of the projects considered in this article are Fulani; however, whatever the project documents imply, it would be misleading to think of the beneficiaries as long-distance nomadic herders.

On the contrary, the projects visited have invariably attracted the more settled herders. The twelve families settled on the Upper Volta group ranches were probably just as 'settled', in an adjacent area, before they joined the ranch. On the Kachia Grazing Reserve in Nigeria, all the herders settled were local people, who previously had permanent or semi-permanent bases very near the ranch. A survey of the settlers was made in the late 1970s by a sociologist working for ILCA. In his report he refers to the five families then settled within or immediately around the perimeter of the grazing

reserve. Together they totalled twenty-four adult males, thirty-three adult females and seventy children. Four of the families were related; the household heads of two of them were actually born in the reserve area, but had to move to Bauchi about twenty years previously due to the prevalence of flies and disease. 'Hearing that the reserve was being established and that the health conditions had improved they were happy to come back to their area of birth, and emphatically claim they won't move again.'⁹ The fifth family was a large extended family (fourteen adult males, fifteen adult females, forty-five children); this family sold permanent houses in the nearby town of Abet to move to the grazing reserve, encouraged by the fear that the Abet area might soon become overcrowded. Contrary to the implicit aims of the projects, therefore, their achievements have been in 'resettling' people - that is, moving them from one locality to an adjacent one - rather than in 'sedentarizing' them - that is, encouraging a change from longer to shorter distance migrations of herds and herders. In other words, the needs of longer distance nomads have not been adequately addressed or met in the projects in question.

There are several problems that affect the longer distance nomads in particular. Because they retreat to drier regions in the rainy season, thus avoiding the worst health hazards of the sub-humid zone, and because their livestock is not so trypanotolerant as livestock that remains all the year round in the subhumid zone, they are particularly vulnerable to animal health problems and therefore especially reluctant to settle permanently in the subhumid zone. Furthermore, these nomads have even greater trouble in securing access to land than the more settled Fulani who cultivate crops. This is because many of them only visit the zone on a seasonal basis, whereas the crop farmers are there for most if not all of the year.

The Cattle-owner Settlement Scheme in Sierra Leone was originally devised for the long-distance nomadic herders who come down from Guinea in the dry season. Locally they are called 'Teluku', as opposed to the sedentary 'Fouta'; both groups speak Fulfulde. In practice the Teluku never expressed interest in the proposed ranches; only the Fouta were involved in negotiations. Therefore, although the scheme was specifically designed to settle the more nomadic herders, the ones who participated in the scheme were those who were already settled in the area. Moreover, it was difficult to persuade the landowning chiefs as well as the settled

Fulani that priority should be given to allocating land rights to the long-distance nomads, a group whose rights are hardly represented at the local government level, who spend a substantial part of the year on the other side of an international frontier, and who are generally considered as 'strangers'.

Conclusions

Despite the absence of reliable regional data, there is little doubt about the gradual migration of herders southwards from the drier towards the more humid areas of West Africa. This follows the growing population densities in many parts of the semi-arid zone, the recurrence of drought there, and the shortage of grazing land; it is also a response to the increasing opportunities for production and marketing in the subhumid zone, following disease control and the clearance of vegetation. But contrary to their aims, government projects and programmes have not been able to speed up or regulate this process in a significant way, even with considerable outlays of time, money and expertise.

A major problem has been the competition between herders and farmers, and between different groups of herders, over access to natural resources, a problem which in some cases the schemes have exacerbated rather than resolved. Both project authorities and beneficiaries have become disillusioned when they realize that, short of policing boundaries, which would be both impractical and undesirable, there is no way of preventing those excluded who believe they have customary rights from continuing to use the designated areas - even in cases where an official leasehold has been arranged and the site allocated for the sole use of project participants. Because the project authorities are therefore not in full control of the grazing resources, it is difficult and often impossible to implement those improvements in animal husbandry, such as rotational grazing and the improvement of fodder species, which provide the main economic justification for the scheme.

The only possibility of avoiding such major problems is if, at an early stage of project planning, a detailed land-use survey is carried out, which would document not only the major uses and users but also the seasonal, temporary and subsidiary uses: for example, seasonal grazing rights by herders with home bases in the semi-arid zone; rights over land left fallow; hunting rights; and rights to

forest products. Such claims would have to be accommodated within project plans, unless alternative locations were available. In any case, representatives from the whole range of users should be involved in project planning.

Another area of misunderstanding has been over the nature of herders' movements, particularly the extent of variability between different groups of herders which is usually associated with the degree to which they engage in crop farming in addition to animal husbandry. This is demonstrated by the fact that the few families who have settled on the designated sites were mostly just as 'settled' in nearby areas before the projects began. Consequently such schemes look more like resettlement projects than sedentarization projects. A clear distinction should be made between these two categories.

For this, more information needs to be collected, not only on the nature and extent of herders' movements, but also on the reasons why they move. For example, members of the first group ranch in southwestern Upper Volta were told to group their houses together in one village on the ranch. However, it was subsequently found that ranch members were living so far away from where their herds were grazing that they did not visit them as much as was desirable but left them to the care of herd boys or paid herdsmen. The second and third ranches are therefore divided into ranges, each of which is to support, according to the plan, a certain number of the animals. The owner's camp is to be located on the range, and it is hoped to provide separate water facilities on each range. This example demonstrates that there are important reasons for the siting of herders' camps and that if a crop farmers' village is automatically taken as a model for a herders' village, which seems to be the general practice, there may be serious disadvantages with regard to the practice of animal husbandry.

It should not be assumed that, even if a project were to gain complete control over the grazing resources allocated to it, registered herders would automatically comply with the planners' requirements for the technological and managerial improvements to animal husbandry. Indeed the evidence from the projects considered here is that any changes in herd management are strongly resisted. This can be understood if one recognizes that the main attraction of settlement projects for herders appears to be the promise of secure land rights, rather than any economic benefit from improved animal husbandry. In order to attract the support

of herders, changes in herd management should be profitable from the perspective not only of governments and/or aid agencies, but also of the herders themselves. When the designated areas have attracted the target number of herders, the problem of establishing stock quotas will be as important as it is in the semi-arid zone.

Most planners have underestimated the extent to which crop- and cattle-husbandry activities are combined, often by the same people, in the subhumid zone. For example, herders' settlement schemes generally attempt to prohibit crop farming within the allocated areas, despite the fact that most herders who spend all of the year in the subhumid zone farm food crops for their own consumption. Conversely many crop farmers keep livestock; but with the notable exception of a successful initiative on the Upper Volta group ranches, such farmers are not usually invited to participate in project activities. Moreover, there is often a lack of co-ordination of government services for animal husbandry and crop farming, and this is particularly unfortunate in the subhumid zone where producers are combining both activities. Any attempts to break down such distinctions in project design would not only respond more directly to the needs of herders, farmers, and herders-cumfarmers; even more, it could represent a way of gaining the support of local crop farmers, whose opposition currently poses a major threat to the success of schemes for herders.

Many of the issues raised in this article point to the underlying importance of local sociological relations in determining the success or otherwise of settlement schemes in the subhumid zone. Ethnicity in particular is a major factor in the allocation of rights to land, and in the adjudication of conflicts between herders and farmers which are brought to the attention of the local administration. Schemes in the subhumid zone should address (rather than overlook) such issues by focusing on the points of contact between Fulani and non-Fulani, by promoting co-operation and exchange between them, by encouraging the representation of all groups not only in the planning and administration of schemes but also in local government generally. In doing so, more attention could be given to the process of gradual assimilation of Fulani into the dominant farming community, which is occurring in many parts of the subhumid zone in the absence of government or other planned intervention: the herders obtain permission to settle in the neighbourhood of a crop-farming village and consolidate their networks of exchange of animal for agricultural products.

Gradually the herders increase their subsistence farming activities, and their rights to the land they use become more permanent. Mutually beneficial exchanges thus lead not merely to tolerance of 'strangers' but gradually to their incorporation as equals into the local society.

Meanwhile a rather different strategy is needed for the long-distance nomads who wish to continue to rely mainly on animal production for their livelihood. Given the possibility of continued animal health problems and occasional rivalries with crop farmers over access to land, it is increasingly being recognized that a degree of mobility is essential if animal productivity is to be maximized. It is therefore hoped that development plans for these herders will accommodate their movements, as do the herders' service centres proposed for the Daramandougou area of Upper Volta, rather than obstruct them by focusing on settlement.

Notes

1. Research Officer, ODI. This article is based on two pieces of work carried out for the Animal Production and Health Division, FAO, in the context of its Programme for the Control of African Animal Trypanosomiasis and Related Development: firstly, a study of social aspects of the settlement of pastoral nomadic communities within the subhumid savannahs, arising out of visits to Upper Volta and Nigeria between October and December 1981 (FAO Report No. W/Q0273 in English and No. W/Q2806 in French); secondly, the Report of a Preparatory Assistance Mission to the Mano River Union, resulting from visits to Sierra Leone, Liberia and Guinea in May and June 1982 with other members of a multidisciplinary team (FAG Report No. M/Q3845/E/9.83/1/100).

2. ILCA, *Livestock Production in the Subhumid Zone of West Africa: A Regional Review*, ILCA Systems Study 2, Addis Ababa, 1979.

3. To the layman a tsetse fly resembles the common housefly but is easily distinguished by its crossed wings.

4. 5. N. H. Putt et al., *The Social and Economic Implications of Trypanosomiasis Control. A Study of Its Impact on Livestock Production and Rural Development In Northern Nigeria*, Veterinary Epidemiology and Economics Research Unit Study No. 25, University of Reading, 1980.

5. In Bobo Dioulasso, Upper Volta, research workers are experimenting with the 'sterile male release' method, whereby male flies are sterilized and let loose. This method has not yet been put into practice on a wide scale.

6. Gruvel documents this for Upper Volta in FAO, *Programme de Lutte contre In Thypanosomiasés Animales en Afrique de l'Ouest et de Mise en Valeur des Régions Concernées*, Tome HI, Etudes par pays, Vol. 5; Haute-Volta, FAO, 1980, p. 24.

7. J. Defaye, 'Zone Agro-Pastorale de Daramandougou', Projet FED:

Amelioration de l'Élevage Traditionnel, mimeo, Bobo-Dioulasso. Upper Volta, 1979. p. 5.

8. C. L. Delgado, *Livestock versus Foodgrain Production In Southeast Upper Volta: A Resource Allocation Analysis*, Monograph 1, Livestock Production and Marketing in the Entente States of West Africa, University of Michigan/USAID, 1979. and *The Southern Fulani Farming System In Upper Volta: A Model/or the Integration of Crop and Livestock Production in the West African Savannah*, African Rural Economy Paper No. 20, University of Michigan, 1979; W. O.

Matlock, *Final Report of Upper Volta Village Livestock Project*, Tucson, Arizona:

Consortium for International Development. 1980.

9. R. Rochette, *Colonisation Agricole 'Spontane' ou Plan Qiié dans Its Pays du Sehel, l'exemple Voltaïque*, Stage de Formation FAO/PNUAP sur: Population et Planification Agricole et Rurale, Yaoundé, 2-24 mai 1979, Rome: FAO, 1979.

10. M. O. Awogbade, *Fulani Pastoralism: Jos Case Study*, Zaria, Nigeria: Alunadu Bello University, 1983.

11. For example, Rapadama Block, Village No. 10; Sondré-Est Pastoral Zone and Pastoral Zone of the Nouhao. See FAO Report No. W/Q0273, op. cit., p. 16.

12. Huntings Technical Services Ltd. *Sierra Leone Livestock Development Study*, Freetown: Ministry of Natural Resources, 1979, pp. 87ff.

13. D. O. Reid. 'Five Year Plan for the Economic and Social Development of Koinadugu District 1956-60', mimeo, 1955.

14. Nigeria, *Guidelines on the Development of Grazing Reserves*, Memorandum to the National Council for Agriculture and Rural Development, 9th meeting of the Council held at Ilorin, February 1978.

15. 1. Krugmann-Randolf, 'Rural Development in the Ivory Coast. Facets of German-Ivorian Co-operation', *Development and Cooperation*, 2, 1984, p. 24.

16. O. Philippon, *Report on Social Conditions among Fulani and non-Fulani Groups In Southern Kaduna State*, Internal Communication No. 5, Kaduna: ILCA, 1978, p. 11.

17. T. Gooch, 'An Experiment with Group Ranches In Upper Volta', Pastoral Network Paper 9b, London: Overseas Development Institute, 1979, p. 15.

18. C. Okali, B. Sule, P. van der Valk-van Ginneken, *iWo Studies on Lend Use Problenss In Kaduna State, Nigeria*, Working Document, Kaduna: ILCA, 1981, p.

*By 1983,-the figure had increased from 12 to 32. All 'settlers' are settled Pulani agropastoralists, most of whom came from the nearby villages of Kurmin Bin and Abet (see E Taylor-Powell *Comments from Fulani about Settlement and Life on the Grasing Reserve at Kurmin Bin*, ILCA Subhumid Zone Programme, Kaduna, April 1983). The author was able to revisit the Grazing Reserve in December 1984, at which time there were 38 settler households. Some of these had decided in 1983 to send part of their herds outside the Grazing Reserve for the dry season and this was likely to be repeated in 1984.