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CONTENTS

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FARMING, HERDING, WATER AND RANGELAND IN THE BUTANA

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Conflict between crop growers and herders is not a new problem. The nomad has always looked down upon the farmer because farmers are seen as people tied down to a particular place whereas the nomad has the freedom to move around as part of the search for pasture and water for the animals. This ability to move from place to place is important in semi-arid lands like the western part of the Butana plain (Figures 1A & 1B) as rainfall fluctuations bringing drought give the mobility of nomadism a distinct advantage over sedentary cultivation. However, since the 1990s conflict between the two groups has become much more serious. Pressure on water and grazing was noted as long ago as the 1950s. One of the authors remembers in 1957 a *hakra* (tribal gathering) arranged by the Singa District Commissioner, Alim Ramadan, to discuss the problem with the chiefs of the Kenana and Rufa's El Hoi tribes, the outcome of which was to allow some *fereigs* (family groups) who traditionally did not cross into the lands between the White and Blue Niles to do so in the dry season because of a shortage of water and accessible pasture caused by increasing population and an increase in the areas under mechanized agriculture.

This situation has been characterized by animal trespass onto farmer's fields by desperate nomads, destruction of *hafirs* (hollows excavated usually to-day by machinery and placed so as to collect rain run off) intended for livestock to deter herders bringing their animals, the burning of crop remains on the fields to deprive herders of their traditional access to such remains, illegal closure of agreed animal routes and such like. This paper is a brief review of some of these problems in Rufa'a Rural Council and East Butana Rural Council areas. Fieldwork was carried out through

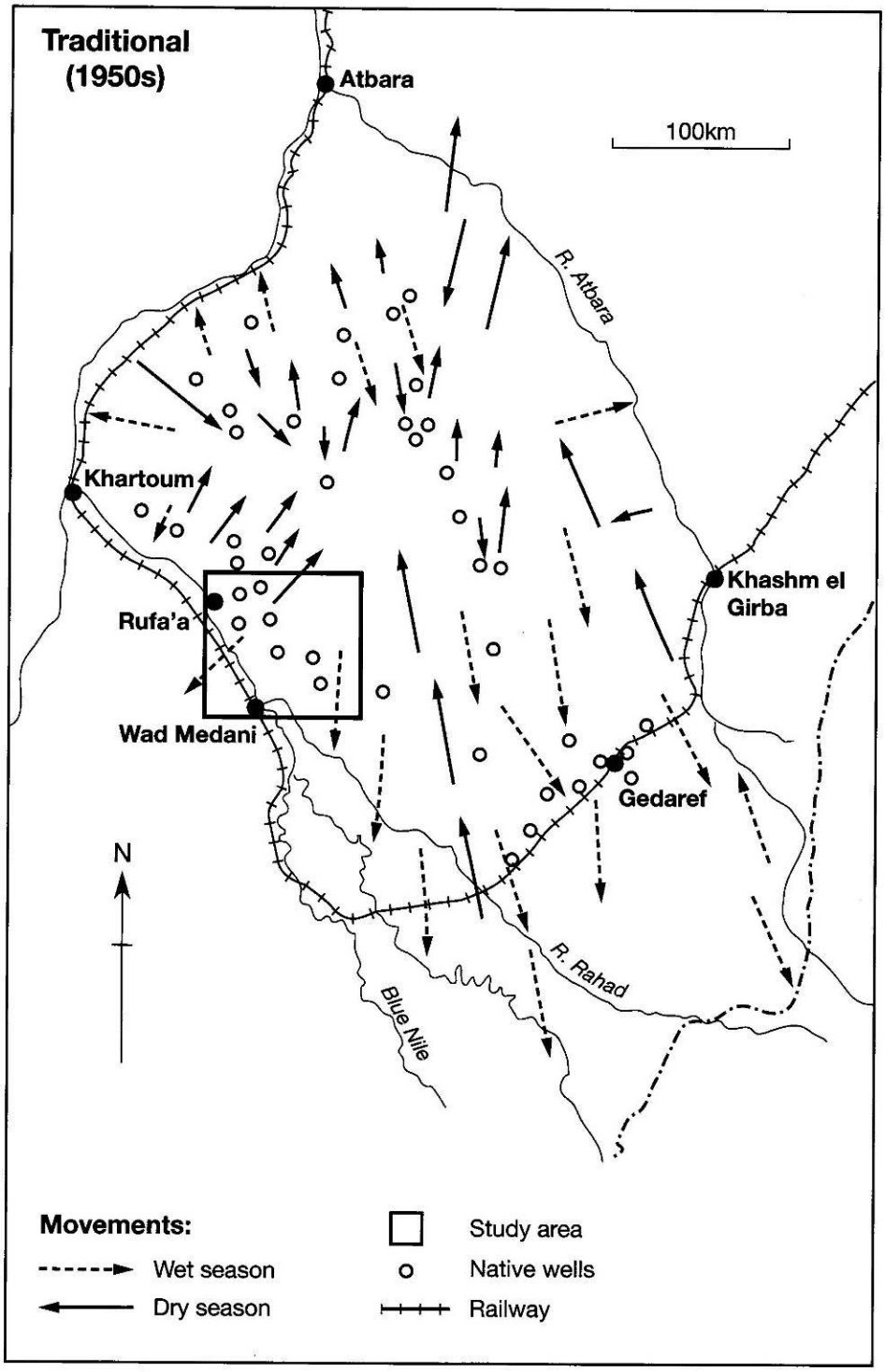

Figure 1a: The Butana

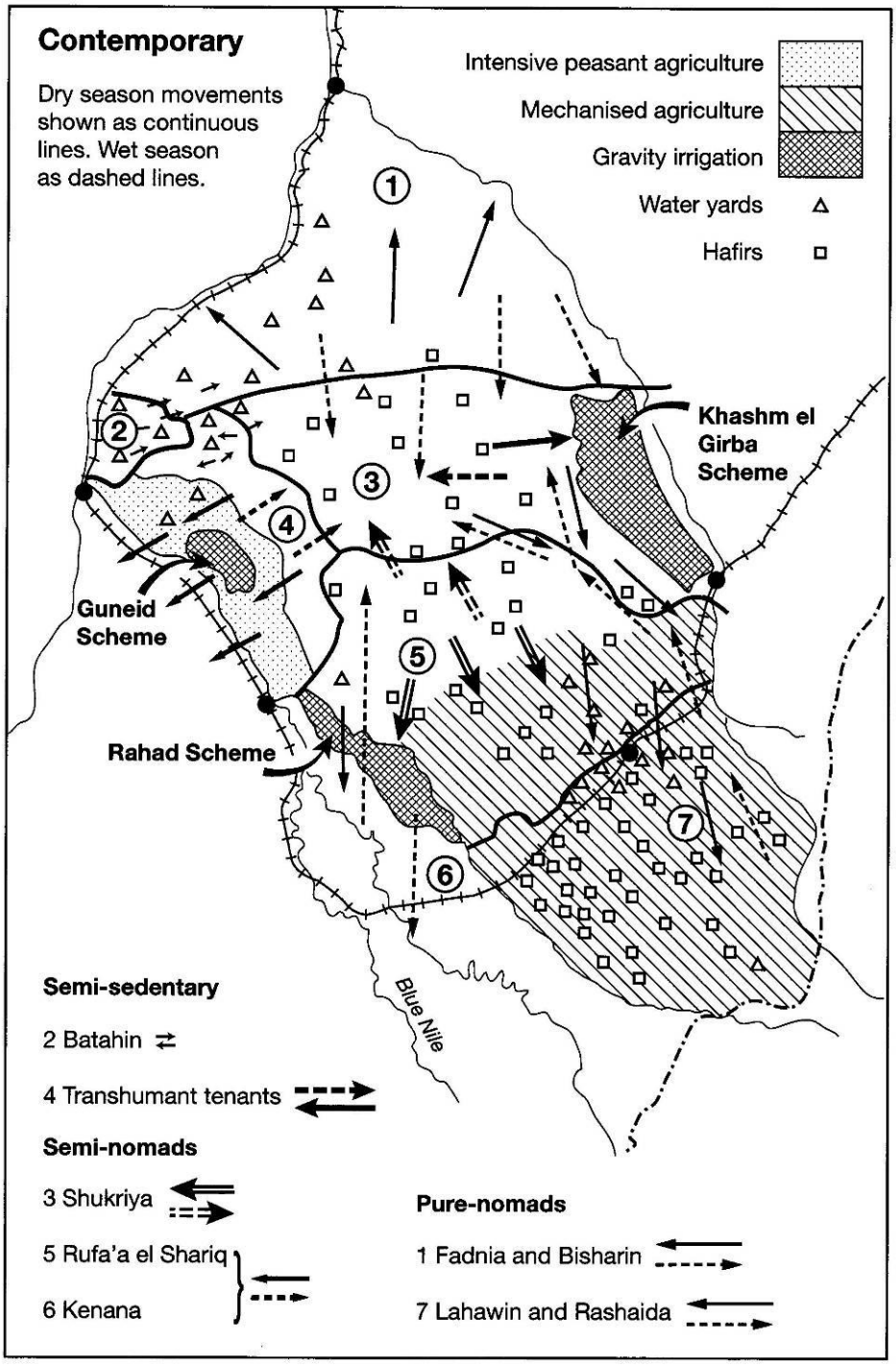

Figure 1b: The Butana

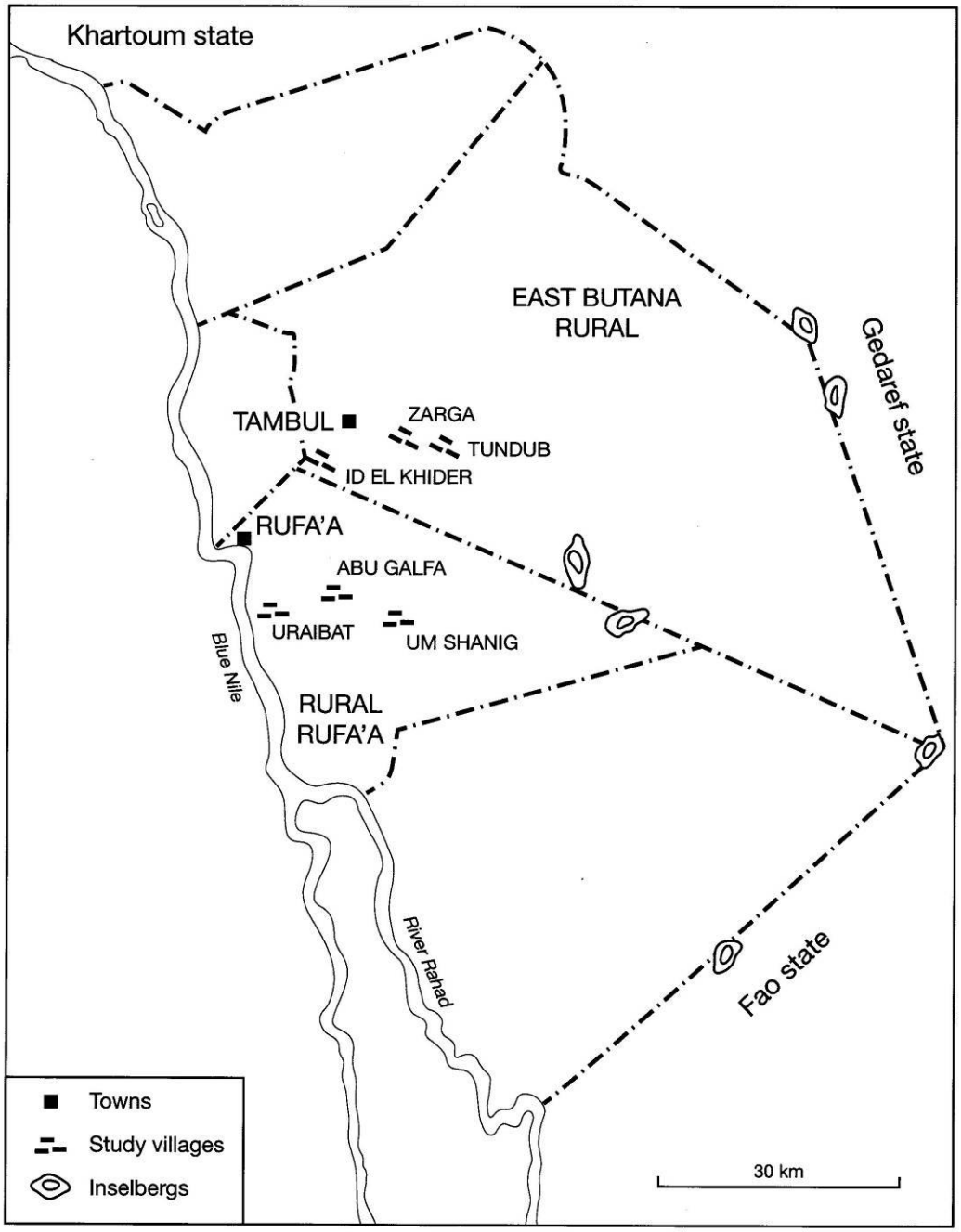

Figure 2: Study area

general discussions and by questionnaire survey in 6 representative villages. In Rural Rufa'a Council area these villages were Uraibat, Abu Galfa and Um Shanig Sa'ad and in Rural East Butana Council area Tundub Abu Kilaiwa, Zarga Ahmed Sa'eed and Id El Khidr (Fig 2).

TRADITIONAL RAINFED AGRICULTURE

This is the major economic activity among those in the survey. 74% owned farms with an average size of 12 feddans and depend on rainfall. They operate the *teras* system which uses bunds across the slope of farm land to hold back the flow of any rainwater with the object of encouraging it to sink into the soil. 62.5% use tractors to plough their lands in order to reduce the need for family farm labour. Older people interviewed indicated that in the past they used to restrict cultivation to a portion of their holding and employed a fallow period for the rest regardless of the reliability or otherwise of the rainfall. 78.5% said that they now cultivate all of their lands having abandoned the fallow system entirely. This figure rises to 99.7% in years of good rainfall. This change has a clear impact upon the amount of land on or near farms for grazing. 48.7% of interviewees gave the narrowing of the grazing area as an underlying cause of conflict.

NOMADISM

There are 5 different types of nomadism in the Butana of which the first three could be described as 'traditional' (Fig 1B). First, pure nomadism which implies widespread wandering according to the seasons; second, semi-nomadism as practiced by the Shukriya with permanently designated routes and grazing areas; and thirdly, semi-sedentary including transhumant tenancies whereby the participants have a permanent base with a defined agricultural area with limited amount of animal movement. There are however two more recent forms: *Al Nagla*, a new system where nomads are

associated with an irrigation scheme but still maintain their herds. A good example is that of nomads holding tenancies in the Khashm El Girba (New Halfa) irrigation Scheme. The other recent feature is a grazing farm. This is the An'am el Butana scheme, north-west of Tamboul town. It is a mobile grazing farm for sheep rearing. Water is transported by tankers to areas of sheep gathering in natural grazing areas, so as to prevent excessive animal concentration around water points to enable these natural pastures to be used for a longer period.

WATER SUPPLIES

The main surface waters of the study area besides rain are the Blue Nile and the River Rahad. The geology of the Butana means that many areas, especially towards the east, are underlain by impervious Basement Complex rocks which hold very little water, although some small pockets of underground water are available from shallow wells in the detritus washed down from a few of the hills. 19 ephemeral streams were located in the study area, of which the largest, Khor Wad El A'araki, has a measuring station. Its flow is highly variable like the rainfall. In 1992 it recorded 11.9 million m^3, but less than 320,000m^3 in 1993. In 1992 it recorded 7 flood events, but only 2 in 1993 (Wad el A'araki Station file, 1996).

In suitable places near the Blue Nile and Rahad rivers artesian wells can be successfully drilled into the Nubian Sandstone to reach water with increasing depth with distance away from the two rivers from less than 10 to more than 60 metres (Gar El Nabi, 1993). There were 122 water yards supplied by artesian water of which 63 were in Rufa'a district and 59 in eastern Butana (Department of Water Supply, Rufa'a, 1996). The second source of water is the *hafir*. Government ones are confined to Eastern Butana but there are 7 locally dug ones in the study area. Of the 5 government operated *hafirs* in Eastern Butana one was intended

for human use and the others for animals (General File of Hafirs, Rufa'a Province, 1958 to 1996). According to government files there should be more than enough water from these sources for everyone in the study area. Rural Rufa'a is said to have a yield of 5.2 million m^3 from artesian wells against an estimated consumption of 3.1 million m^3 giving it a comfortable surplus. Rural East Butana was said to have a yield of 5.3 million m^3 from artesian sources and a further 0.16 million from *hafirs,* giving a total of 5.46 million m^3 against an estimated demand of 1.8 million m^3, giving a very comfortable surplus (Department of Water Supply, Rufa'a, 1996). However, fieldwork suggests that government figures are simply not met in practice because they are based upon theoretical possible yields without reference to situations on the ground. The true amount available is perhaps not more than 40% of official figures, which implies a substantial deficit.

SPECIFIC EXAMPLES OF CONFLICT

In 1995-96 there were 26 cases of clashes between nomads and settled farmers (Gezira State Police files, 1996) in the study area. However, it is certain that the true number of incidents is very much higher. More than half of those interviewed during fieldwork could be described as in some way being associated with or had direct knowledge of some of these activities. These included destruction of *hafirs*. The reasons for this in the Butana include *Hafir* Wad Bagal, constructed to provide water for livestock but destroyed by farmers to discourage grazers and diverting the stored water for cultivation. Another *hafir* constructed for human consumption was also destroyed because nomads were attracted to it and were proving a nuisance to local farmers.

Fire was also a source of conflict. Although farmers use fire to clean their farms of the remains left over from the previous season to improve fertility, they are now using it to drive away grazers

from their farms. Cases were also recorded of some grazers setting fire to crop remains in order to deprive other groups of grazers from their use and thereby keeping them away from that area. There were also cases of farmers deliberately tractor ploughing their lands so as to destroy plant remains, including the first shoots of the new season, to deter the grazers.

Animal intrusion is common. There are defined routes for nomadic movements and there are some pasture reserved areas, but these are often ignored by farmers who cut off routes and trespass onto reserved areas in order to deter nomads and to use the reserved areas for agriculture. They also interfere with water supplies created to assist conflict-free passage of nomads along designated routes. Inevitably, there will be a re-action from nomadic groups with field invasions, undeterred by threats of fine or loss of animals.

The Causes of Conflict

Population increase

The population of Al Butana Mohafaza in 1993 was about 500,000 (1993 census). This is a 5-fold increase since that of 1955 and the population is still mainly rural with some 80% recorded in 1993 as engaged in rural occupations compared with 90% in 1955. Figures for nomadism are not very useful as the tiny number (c7,000 in the1993 census) is very misleading. Basically you were recorded as ‘nomadic’ only when the enumerator could not put you in another category! Many others with many livestock were thus excluded. These figures alone suggest that there is an enormous increase in pressure over land use and presage likely conflict. The survey identified an overall average family size of 6.5, with 11% of families exceeding 10 persons. 68.4% of the population was aged 15 to 59 and 27.2% under 15. The average annual rate of population increase is 5.7%. In the survey over 20% gave population increase as an important cause of conflict, especially as

this increase in numbers has led to settlement expansion and pressure on rangeland.

Development Programmes

In the past, in spite of various degrees of antagonism farmers and herders got on reasonably well. The herders got the crop remains and access to fallow land and in return the farmers had their fields fertilized. Since the Second World this state of balance has been upset by various agricultural development programmes. Large areas have been taken over by development projects. First was the development of mechanized agriculture which began in 1946 around Gedaref and spread rapidly to other parts of the Butana (Davies, 1964). Mechanised agriculture was developed in order to expand dura and sesame production because during the Second World War traditional farming systems had proved incapable of supplying the country's needs. Mechanization was believed to be the solution. Much of the Butana grasslands at this time were largely unused due to lack of water. Mechanised crop production together with a *hafir* digging programme were believed to be the solution as less labour would be required, especially in the harvest period when water shortage was most severe. The *hafirs* would allow use of formerly waterless areas.

The second important development programme was the expansion of irrigation in the Butana by utilizing the waters of the Atbara through the Khashm el Girba (New Halfa) Scheme which was designed for the resettlement of Nubians displaced by the flooding of their lands by the water stored behind the Egyptian High Dam. It was also intended to encourage nomadic settlement, but in this it was largely unsuccessful. In fact, it disrupted activities downstream of the dam by depriving farmers there of the silt which was now deposited in the reservoir behind the dam. The second major irrigation development was the Rahad Scheme using Rahad River and Blue Nile waters. Thirdly, a short distance north of Rufa'a, the Guneid sugar scheme was developed using Blue

Nile waters. In each of these cases the presence of nomadic owned and other domestic livestock was considered to be incompatible with the scheme's aims. Clearly, all three schemes involved a considerable reduction in grazing lands and, at least to begin with, did not provide water for livestock.

Each of these major developments has had at least an indirect effect on the study area by reducing access to rangeland and some traditional water supplies in other parts of the Butana, and by restricting the areas available for more traditional rainland farming in the face of an increase in the size of the population. However, the Rahad Scheme has had a more direct effect on the study area as 80,000 of its 300,000 feddans lie within it. Further, the Rahad Scheme absorbed some highly esteemed dry season grazing along the River Rahad.

The development of some 200 small pump schemes along the Blue Nile has also had a significant direct impact upon the study area. Many of these were originally *sagia* (animal operated water wheels) schemes and the introduction of pumps has allowed a significant increase in the area they can irrigate. There are also another nearly 300 small irrigation developments in the study area using water from artesian bores and shallow wells for irrigation. All these factors prohibit or restrict severely river access for livestock with the inevitable conflicts over land and water use.

Climatic change

Perhaps surprisingly, only 5% in the survey thought climatic change was significant as the interviewees pointed out that variation in rainfall is simply a fact of daily life. However, it does have an impact on rangeland in particular. At Wad Medani the annual average rainfall for 1951 to 1980 was 343mm. For 1981 to 1990 it was 280mm, a reduction of 19%. In 1990 the fall was 115mm, or 22% below the average and was below the previous low record of 147mm in 1984 (Meteorological Station, Wad

Medani). These figures will inevitably draw herders further south and lead to congestion and serious overgrazing around the most significant watering places leading to much conflict and an eating out of the more palatable grazing species (Zubeir, 1996). Some nomadic reaction to a drought situation is on the face of it logical but could be disastrous. One of the authors recalls a conversation with a group of nomads round a waterhole in the Butana in 1986. He asked how the drought of 1984 had affected them. They said that they had lost a half of their herds. When asked what they would do about it, one said that before the drought he had 100 camels, but the drought reduced his herd to 50, so he would increase his herd to 200 so that after the next drought he would still have 100 left!

Government

Government policy has been a top-down one regarding development. Extending rainland crop production through mechanization was not only intended to increase crop production and improve rural income, but it also had a social element through its 'participating cultivator' scheme (Davies, 1964). The idea was to enable peasant farmers without resources to become involved and held out the prospect of rising up to become scheme owners. As with so many government policies it was not successful because the planners had failed to relate to the culture and aspirations of the people involved. Many of the problems of the New Halfa and Rahad Schemes relate to similar failures.

In a similar way there has been no coherent policy from above to see how all the various developments fit together. In essence, there has not been any proper attempt to involve the people, who are to be most affected, in the early planning stages. Each of the tribes of the Butana has its own traditions based upon a long experience of what works successfully and what does not. These solutions are not static but are constantly evolving. At its worst top-down

development runs the possibility of central planners telling people what is good for them!

All these situations are easily turned into sources of conflict, but are also made worse by other local failures. Thus, the demarcation of livestock routes and regulations about their use, the creation of reserved pasture areas and posited amounts of water available need to be properly enforced and checked. Breakdowns in equipment and failure to supply spare parts quickly will soon make figures for water availability over optimistic. The situation with *hafirs* is a case in point. Unless the guards are given support and inspections are regularly carried out then *hafirs* become increasingly inefficient as sources of water and causes of conflict. *Hafirs* silt up and unless cleaned out regularly hold back less and less water. Unless the banks are maintained properly and the channels that carry run off to them are kept clear, water will not be collected satisfactorily. Unless there is proper maintenance of the fences then water is soon polluted by animals and their faeces making the water unfit for both human and animal consumption.

CONCLUSION

The causes of conflict arrived at through interviews in the six randomly chosen villages resulted in 77.2% declaring that the major source of conflict between sedentary farmers and herders was the narrowing down of grazing areas. 48.7% put this down to the expansion of agricultural land. 20.1% gave settlement expansion due to population increase as a cause, but only 5% thought that drought and a changing climate were important.

Much of the failure here is related to a piecemeal programme of agricultural development, a failure to discuss new developments properly with those likely to be affected by the changes. People need to identify with the proposed programme of development otherwise it is much less likely to succeed. Further, good intentions

and suitable solutions cannot be effective unless proper oversight is maintained to see that rules are enforced. Some consideration of these points might help to reduce the prevalence of conflict between farmers and herders in the Butana.

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