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HARNESSING THE SACRED BEAST
INTRODUCING OX-CULTIVATION TO THE PASTORAL TOPOSA, SOUTHERN SUDAN

Arne Olav Øyhus

INTRODUCTION

The objective of this paper is to analyse a particular agricultural extension enterprise that took place in the Equatoria Province of Southern-Sudan in the period from 1983-1986, namely the rather successful introduction of ox-cultivation to the pastoral Toposa. To accomplish this analytical task a cluster of explanatory factors believed to be of importance to the process are surveyed. These factors include the theoretical framework underlying the extension activities; the bio-physical environment of the Toposa; important socio-cultural factors signifying the group; the concrete steps of the introduction process; and lastly, a comparison between the Toposa and the agro-pastoral Lotuho where a similar process was less successful.

The extension agency behind the ox-cultivation programme was a non-governmental organisation (NGO) that run an integrated rural development programme on the East Bank (of the Nile) in the eastern part of the province. The NGO had been present in the area since the end of the civil war in 1972.

ADAPTING EXTENSION ENTERPRISES

Up to 1983 extension had not been a structured service rendered to the farmers in the area neither by the NGO nor by governmental officials. It was at this stage that the NGO introduced the World Bank's Training and Visiting System for agricultural extension to the project area. The first idea was to introduce it part and parcel to the whole area. It was soon realised, however, that it was not appropriate to introduce one standard package to twelve different ethnic groups living within widely different ecological settings, organized socially in a great variety of ways, each holding a rather unique cultural pattern.

From a technical point of view, one fundamental condition that had to be taken into consideration was that while some groups had an almost purely pastoral adaptation pattern based on a high degree of mobility (the Toposa and the Boya), others applied a more mixed agro-pastoral adaptation strategy (the Lokoro, the Lotuho, the Lokoya, the Lango, the Lopit and the Didinga), whereas the rest leaned more clearly towards a typical sedentary strategy based on arable farming, even though keeping a small stock component (the Madi, the Acholi, the Bari and the Lulubo). The various adaptive strategies were, to a large extent, a function of local agro-ecological conditions. The pastoralists inhabited the semi-arid areas in the east typified by a sparse steppe/grassland-savanna vegetation. The arable farmers inhabited the sub-humid and rather fertile areas to the west, i.e. the areas closest to the Nile, typified

by a richer forest-savanna vegetation. The agro-pastoralistS lived in the central area typified by a bush-savanna vegetation. The high occurrence of Tsetse flies closer to the Nile was, of course, an inhibiting factor on livestock keeping among the western groups.

To secure a high degree of correlation between the needs, problems, constraints and possibilities of the local communities, on the one hand, and the extension services, on the other, a separate community survey within each group was conducted. This work commenced in the spring of 1984, and was completed for all groups early 1985. The survey was based on a methodology that today would have been called "Participatory Rural Appraisal". We did group interviews, household interviews, transects, wealth rankings, and so on. From these surveys we, together with local representatives and "youth" (especially trained youngsters from each of the communities, functioning as "barefoot" extensionists), staff from the governmental agricultural offices, and researchers/specialists from the NGO, elaborated an agricultural development programme for each area consisting of, (a) *an extension programme*, a general programme describing what should be done and why; (b) *a plan of work*, a detailed statement on how the extension programme will be carried out; and (c) *a calendar of work*, a timetable showing when the various operations are to take place (see Savile 1965). The agricultural programme was discussed in workshops held in all districts except for Lulubo, Bari, Lokoya and Lopit.

Due to the civil strives that started to escalate at the end of 1983, and which became rather serious at the time when the community survey had been completed, the extension programme had continuously to be adjusted to the local political situation, meaning that the process was a bit stochastic. Lokoro had to be deleted from the programme at an early stage as the rebel forces from SPLA (Sudan's People Liberation Army) entered that area in mid-1985. Then the rest of the East Bank was gradually pulled into the war zone. The areas where we could operate on a more regular basis were around the towns of Torit, the centre of the Lotuho area, and Kapoeta. It was decided that the latter area should be particularly focused regarding the extension programme. Kapoeta is, besides being the administrative centre for Kapoeta Area Council, also the "capital" of the Toposa ethnic group.

THE EAST BANK SETTING

The East Bank had, according to the official census taken in the early 1980s, a population of about 500.000. They were living in three Area Councils which again consisted of seven Rural Councils. These councils belonged to the official governmental set-up in the Sudan, and were in practice rather impotent as they lacked trained people and resources to run their affairs. The most important reason for their lack of influence was, however, that they were not respected by the local groups. In general, local people perceived governmental officials as aliens with an illegitimate authority.

The only authorities that were respected and considered legitimate among the local groups were the "traditional" leaders, i.e. leaders that founded their power and authority on traditional structures and institutions. Among the eastern group, i.e. the

Boya, the Toposa and the Didinga, these leaders were in general the "elders" within the indigenous age-group organizations (see e.g. Kitonga 1985, Müller 1989, Kronenberg 1972, and Øyhus 1992). In the western groups, i.e. the groups living closer to the Nile, the leaders either came from various "royal" families, as for instance in Madi and Acholi (see e.g. Allen 1985), or from particular councils (*monyomiji*) in Lokoro and the Lotuho groups (see e.g. Smith and Ojetuk 1985, and Lundstrøm 1990). But even for these traditional leaders authority was limited. In general, we might say that the most important socio-political units were the local communities themselves, and the kinship groups (clans and sub-clans).

EXTENSION: THE THEORETICAL FRAMEWORK

Farmers in developing countries are, as farmers all over the world, rational producers trying to maximize their production according to local cultural, socioeconomic and natural circumstances. For a great number of them, may be even the majority, the strategical rationality underlying their choices and actions is the viability of the household. Hence, the production process is geared more towards securing the viability of the household than to make a profit. This is particularly true in societies based mainly on subsistence farming. The means at the households' disposal in such communities are first and foremost their skills and knowledge; their labour power; their access to land and animals; and their vital alliances to the rest of the community. The material equipment is generally simple, often produced by the farmers themselves, or within the local communities, and money, quite regularly, plays a minor role in the production processes. The farmers are generally open and ready for any change they feel will improve their living conditions as long as it is acceptable within the local social and natural framework.

The majority of farmers in the developing world may thus appear as poor in material assets common to agricultural producers in the industrialized countries, but they are rich in one critical asset: knowledge about their local socio-ecological environments. This resource is crucial in a process of rural development and true social improvements. The success or failure of any development process is fundamentally dependent on making the best use of available resources, of which human capital is the most indispensable.

Interfacing knowledge systems

To generate a process of rural development an on-going dialogue must be established between local sociocultural structures, on one hand; and researchers, extensionists, project designers and administrative officials, on the other. In this dialogue farmers must contribute with their "within" expertise on the physical, economic, and social environment. Due to their local experience and insight they must also anticipate and evaluate some possible outcomes, positive or negative, regarding the adoption of an innovation. The "external" specialists have expertise on new crops, cropping techniques, tools, etc.. They are also experts on potential solutions to certain agricultural constraints, and in testing and adapting agricultural innovations to specific biophysical environments. The union of these two systems of knowledge and experience

will, under most circumstances, provide an adequate context in which to develop technological solutions which will be viable and beneficial to farming communities. To unite these two knowledge systems must be the central objective in a complex process of socioeconomic change. But the professional system of knowledge must be humble and prudent, and keep in mind that for thousands of years agricultural systems worldwide have achieved tremendous increases in productivity and efficiency by incorporating additional components (innovation) such as new crops, new livestock species, new husbandry systems, new tools, and new knowledge. These achievements have taken place without the interference, or assistance, of modern, exotic, scientific expertise. Hence, in a process of rural development and agricultural modernization we have to acknowledge the role of locally developed knowledge. Therefore, there is a need for sensitivity to the communities' customs and traditions and the indigenous knowledge systems, and the complex ways these systems have to assimilate, and adjust to, the modern, scientific information systems (Rolls, Jones and Garforth 1986).

Developing human resources

Rural development depends fundamentally upon the development of human resources. This does not mean that increased agricultural productivity, increased social welfare and economic growth is non-essential. It is only to remind us that the most important resources for development will always be found within the communities themselves. Improvement of a system necessarily implies innovations, but they must build on, and be used to develop the resources already existing within the communities, i.e. the innovations must first and foremost be used to develop human resources - the human capital.

This understanding implies more than anything else that an extension system has to be looked upon as a communication system. In all extension efforts communication is the core feature as extension involves the conscious use of communication of information in order to help people form sound opinions and make good decisions (Van den Ban and Hawkins 1988).

But as Bunting (1986) correctly argues, a key role of extension is also to comprehend the social, economic, ecological and cultural environments of the farmers, their objectives, resources, methods and problems, and to use this information to construct, together with the producers, a system of communication and technical assistance.

A "human resource development" strategy to agricultural extension (see Røling 1986) thus puts a heavy emphasis on communication and information as the crucial factors for sustainable socio-economic growth founded on the local cultural fabrics and a sound management of the natural resources. The extension services rendered must be seen as part of the knowledge system for agriculture modernization and rural development. In addition to being a part of the system the extension services will also be partly responsible for the establishment and management of that knowledge system (Rolls, Jones and Garforth 1986).

Diffusion of innovations

Basically, any actual extension effort concerns the diffusion of innovations. E.M. Rogers define diffusion as the process by which an (1) innovation is (2) communicated (3) through certain channels over (4) time among the members of a social system (Rogers 1983). It is a special type of "communication" since messages are concerned with new ideas. It is the newness of the idea in the message content of communication that gives diffusion its special character since the newness means that some degree of "uncertainty" is involved.

For an innovation to be operational, effective in practice, it must be extended or diffused. It has to enter the arena of human communication. Diffusion is perceived by Rogers as a kind of "social change", defined as the process by which alteration occurs in the structure and function of a social system.

Innovation and adoption

A process of agricultural modernization is generally dependent on technological innovations. From the farmers' point of view adoption of innovations will be dependent on two general types of conditions: (1) *necessary*, whether the farmer will be "able" to adopt the innovations, and (2) *sufficient*, whether the farmer will be "willing" to adopt the innovations (Norman, 1986). While *ability* is related to conditions outside the direct reach of the farmer - agroecological conditions, social acceptability and availability of socioeconomic resources; *willingness* is a more subjective matter, e.g. compatibility with farm families' perception of risk, their goals, and how the innovation can be accommodated to current practices.

If we want innovations to be adopted by small farmers, they must be relevant, i.e. attractive to their preference structure and feasible within the limits of resources and other constraints (Ruthenberg and Jahnke 1985). If this requirement is fulfilled it can be assumed that there is an incentive for adoption of the innovations. But we have to be cautious: it is the recipient's perception of the attributes of an innovation that matters if it is to be adopted. The experts' opinion of the positive effects of an innovation is of little value in the adoption process if the local farmers are not convinced. A technological innovation, even if representing an opportunity for a higher income or reduced insecurity will always create some kind of uncertainty in the minds of the potential adopters. When we know that for most smallholders in the developing world risk avoidance is a major objective in agricultural production, the certainty-uncertainty aspect of innovations is of crucial importance.

Factors influencing the adoption rate

The adoption rate of an innovation is one way of measuring the success of the extension efforts. According to Rogers (1983) the adoption rate is usually a function of: (1) the relative *advantage* of the innovation as perceived by the farmers, (2) the *compatibility* of the innovation related to sociocultural values and beliefs, previously introduced ideas, and farmers' felt needs, wishes, and aspirations, (3) the *complexity* of the innovation, (4) *trialability*, the degree to which the innovation can be subjected

to simple and non-consequential trials on the farm; a low degree of trialability means a high degree of uncertainty, and hence little possibility of adoption, and (5) *observability*, the degree to which an innovation and its effects are conspicuous.

These attributes of innovations may lead us to believe that the type of innovations most likely to be adopted in a traditional farming community are those most closely resembling the already existing components of the local agricultural system. But in many instances the opposite might be the case. Ruthenberg & Jahnke (1985) claim that tropical smallholders are remarkably open to innovations if the innovations are, without doubt, advantageous to them. Additionally, it seems that innovations have a greater chance of success than improved traditional methods. This feature can be comprehended more readily if we are aware of the two-componential aspect of technological innovations: the "hardware" component, i.e. the tool or physical object that embodies the technology, and the "software" components, i.e. the knowledge or information base for a tool (Rogers 1983). While it can be difficult to raise the farmers' interest and motivation in improving the software components of a traditional technology when the hardware components remain more or less the same, their willingness to adopt new software components is normally much greater when also the hardware is new. When introducing Katumani maize and Serena sorghum to some areas on the East Bank in the early 1980s, we experienced that while it was rather easy to implement new production practices regarding seed bed preparations, planting, intercropping patterns, timing of operations, and spacing of plants when it came to the newly introduced varieties, it was very difficult to change the production practices related to traditional varieties. Hence, in agricultural extension it is in many situations easier to innovate, to introduce something entirely new, than to improve the established practices provided that the innovations are compatible both on a *general level*, i.e. compatible with agroecological, socioeconomic and cultural conditions external to the potential adopting units, and on a *specific level*, i.e. compatible with the internal resources, constraints, problems and needs of each individual unit. When we, therefore, observe farmers that stick to sub-optimal practices in spite of their knowledge of new methods, we must look for the underlying causes which - knowing the farmers' needs, problems and wishes - will most likely be quite rational in explaining the non-adopting behaviour (Ruthenberg & Jahnke, 1985). Farmers' *tradionality* is generally not a psychological trait of character but a rational response to their natural and sociocultural setting.

Extension survey

Communication is, as stated earlier, the core element in extension, and to make sure that communication will be able to generate a common understanding we -as external experts- have to know how to communicate, local subjects or topics for communication, and with whom -what kind of people- we are communicating. This presupposes a good relationship with the communities, and a lot of information about central issues in their culture, and their social and natural adaptation. To achieve the knowledge necessary for a fruitful two-sided communication, we have to increase our "local" knowledge. We have to perform -with the villagers acceptance- a community survey.

The community survey is the first step in making an extension programme for an area. The survey is a study of the social conditions and economic resources of the community to discover the community's problems. A proper survey will enable us to map the problems, and look for the underlying causes.

An important aim of the survey is to reveal and map the resources in the community available for improvement as the level and extent of the development process will depend on these resources. Outside assistance should - and could - only be a supplement to local resources. The ultimate purpose of the survey is, however, to suggest solutions to the problems, and propose the actions needed to bring the desired results. The suggestions for solutions and proposals for actions will have to be incorporated in extension programme planning.

THE TOPOSA AND THEIR LAND, AN OUTLINE

The Toposa is bordering Kenya (Turkana Province) in south-east, Ethiopia (Keffa and Omo Provinces) in east, and the Upper Nile Province of the Sudan in north. The Didinga Mountains make the southern border, and the Boya Hills and Kidepo River the western border.

Geographical information

It is not easy to state the exact border of the Toposa area. If we consider the whole area of the East Bank east of Boya and Didinga as belonging to Toposa, the area covers about 40.000 sq.km (almost 50 % of the whole East Bank). But within this area there are Murle groups, Dinka and others using the far northern part as pastures. The Turkana graze their livestock within the Ilemi triangle, and at the Ethiopian border the Nyangatom herd their cattle. On the other hand, there were still some options for the Toposa to bring their cattle to camps both within Kenya and Ethiopia. From this I believe it is safe to say that the more or less exclusive area belonging to the Toposa is between 20-30.000 sq.km.[1]

According to the population census from 1983, there are 188.153 people living in the area, including 5.344 persons living in Kapoeta town.

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[1]K.M. Barbour (1961):"The Republic of the Sudan," University of London Press, states that the Toposa area is 36.000 km^2 (p.68).

Rainfall

The Toposa area, situated at an altitude of 600-700 m.a.s.l., is the driest area on the East Bank. According to records from Kapoeta (Bjørtuft 1985) the average annual rainfall in the period from 1980-84 was 695 mm, ranging from 372 mm in 1984 to 818 in 1982. This is about 450 mm less than Madi and Acholi in the west; 200-350 mm less than Lokoro and Lotuho in the central areas; and about 200 mm less than lowland Didinga directly south-west of Toposa (Bjørtuft 1985). Statistically the months with the highest precipitation are August (100 mm), May (90 mm), July (82 mm), April (76 mm), September (75 mm) and June (73 mm). The months with the lowest precipitation are December (6 mm), January (8 mm) and February (20 mm). Beside a dry spell generally occurring in June, the rainfall is extremely unevenly distributed both in amounts and space. For a particular area the variation from year to year may be more than 100 %, and even within short distances there is a great variation within the same year.

Temperature

The temperature data for the Toposa area are poor, but the records made by NCA (Bjørtuft, 1985) at Kapoeta Rural Development Centre (RDC) for the period 1982-84 give some indications. The most important characteristic is the even temperature throughout the year. The monthly mean maximum temperature ranges from 34.3°C in July to 37.7°C in February with an average of 36.0°C (data for December n.a.). The monthly mean minimum temperature ranges from 20.3°C in January to 23.9°C in October with an average of 22.3°C (data for December n.a.).

Topography and drainage

Topographically Toposa is a flat savannah area descending slightly from south to north and from west to east. The central parts are situated at an altitude between 600-700 m with Kapoeta town at 670 m. There are no high mountains, but some lower hills ("inselbergs") scattered throughout the area. Some bigger, but shallow, seasonal streams are crosscutting the land from south to north. The streams have their origin in the Didinga mountains, and are flooding only during the peak of the rainy season. All settlements are situated at short distances from the streams.

Except for the households in some villages in central Toposa which have got bore-wells installed in the first part of the 1980s, all domestic water and all the water for the animals is collected from the seasonal streams. Since they are flooding only a couple of months per year, the rest of the year people are compelled to dig wells within the sandy riverbeds. In the last part of the dry season they have to dig more than five meter down in the riverbeds to get water. Separate wells are dug for watering the animals. Each herding group has its own wells for cattle watering. Since both the settlement pattern and the mobility pattern of the Toposa are so much determined by the streams, they - in many respects - function as a nervous system of the Toposa mode of ecological adaptation.

Soils

Generally we find two major classes of soils in Toposa. The most predominant is the "cracking clay" Vertisol (Black Cotton soil), called *naro*. This is the soil of the plains. Along the streams and piedmont areas we find the sandy to sandy-clay soils. In the south-eastern corner of Toposa, and in some smaller pockets throughout, the soils are more gravellous, often with large boulders. For most Toposa the sandy and gravellous soils are considered non-arable, but as pasture these soils represent a valuable resource. The only place where the sandy soils are extensively utilized is along Singaita River, south of Kapoeta and close to the Didinga Mountains. This land is mostly used for cassava and durra cultivation, but sesame, maize, millet, and pumpkin are also cropped.

The Vertisol areas (*naro*) have some advantageous qualities making them the most important areas of agricultural production; they have a high waterholding capacity, i.e. can retain moisture for plant growth for several weeks, and they have a high content of nutritional (mineral) matter. Due to these factors the fields on the clayey soils are often cultivated for more than 20 years continuously. The Vertisols do however also entail some serious disadvantages - mainly that they are hard to work. In the dry season the soil shrinks, and the surface becomes extremely hard with deep cracks. In the rainy season the soil becomes muddy and sticky. The tillage operations are laborious as they are undertaken with the long-handled hoe (*emeleko*) as the only implement.

Vegetation

Except for the riverine forest, the landscape is dominated by savannas with short grasses and scattered thorny trees and shrubs. Common woody species are *Acacia* spp, *Balanites aegyptica* and *Ziziphus spina christi*. Tall grasses, so common to the rest of the East Bank, are only found along the streams. Bushfires are, thus, rare in Toposa.

Land use zones

The Toposa are divided into sections or divisions, each named after the clan which first settled the various areas. New sections are usually formed when old sections grow too big. Each section contains two land use zones: the central zone (usually along the streams descending from the Didinga Mts) and the peripheral zone (along the borders). The central zone is a "stationary" zone with more or less continuous arable farming sustaining permanent settlements. The peripheral zone is a pastoral zone utilized by mobile herding units. In many respects it can be said that the central zone represents the "feminine" sphere and the periphery represents the "masculine" sphere. Farming, housebuilding and domestic work, all taking place in the central zone, are dominantly female activities. In the periphery, animal husbandry mainly based on mobile herding performed by men, are - even more - dominantly a male activity. It must be added, however, that men do, to some extent, take part in farming activities, and also that substantial animal husbandry activities take place in the central zone, especially during the rainy season.

Sociocultural features

Culturally the Toposa belong to what Gulliver (1952) has denoted the "Karimojong Cluster", including also the Jie, Dodos and Karamoja of Uganda; the Turkana of Kenya; and the Nyangatom of Ethiopia. Other authors denote this group "Ateker", including then also the Iteso of Uganda (see e.g. Müller 1989). Before and during the colonial period the borders between the countries of Kenya, Uganda, Ethiopia and the Sudan created few obstacles for the mobile pastoral groups of the Karimojong cluster, and all the way up to about the mid 1970s the Toposa, the Nyangatom and the Turkana did regularly cross the international borders to utilize the natural resources in each other's territories. The firmer control over the borders within the last couple of decades has meant that some of the eastern Toposa sections have had a limited access to parts of their traditional grazing land. The international borders have also meant an increased ethnic "distance" between the Toposa and their neighbours. This has had some obvious negative effects, most importantly that the earlier mood of cooperation has been replaced by a prevailing state of antagonism.

The Toposa bovine idiom

The Toposa is very much characterized by what Herskovits (1926) has called the "East-African Cattle Complex", and Evans-Pritchard (1940) has called the "Bovine Idiom", both characterizations implying that livestock play a significant role in Toposa economy and culture. Even though most men participate to some extent in cultivation, their existence and attitudes are overwhelmingly determined and dominated by livestock, in particular cattle. The only other group on the East Bank that can be compared to Toposa in this respect is the neighbouring Boya. While arable farming traditionally was performed by women with some assistance from their men for some particular operations, livestock husbandry has strictly been a male business. Even though the Toposa have lost a rather large number of cattle due to drought, diseases and raidings, their livestock "biased" culture has only been affected to a limited degree.

Analytically four major areas in which cattle play a dominant role can be discerned: economically, securing the supply of essential foodstuff - milk, blood and meat; politically, maintaining and increasing the social units' strength, size, prestige and power through marriages and other forms of social alliances where cattle are exchanged; ecologically, providing a viable adaptation to a harsh and unpredictable natural environment by converting non-consumable natural resources into edible resources for human consumption; and ideologically, endow meaning, motivation and explanation to Toposa customs and style of life. All these areas are closely interrelated, and - in essence - they all add up to securing the social, spiritual and material viability of the family group: securing survival, continuity and growth both within a long- and short-term perspective.

The cattle are both the means and objectives of social life. Even if the focus of attention is on cattle, the cattle must be seen in a broader perspective: they are not only a means and an objective in itself, they are also the basic means to reach other objectives such as wives and children, power and prestige. The Toposa see no

purpose of collecting large numbers of animals if they are not converted into wives, and a main purpose for getting wives is to beget children. But the process does not halt at this stage: more children, in general, means more cattle. Through daughters a Toposa receives new supplies of animals in the form of brideprice and, in addition, new alliances are established. Through sons a Toposa increases both his herding capacity, a most important feature in their pastoral adaptation, and his group of political followers.

Among the Toposa families there is a tremendous variation regarding the number of cattle controlled by each ownership group. Usually the Toposa do not count cattle in accurate figures but in number of stables. The number of cattle in one stable will, on average, constitute somewhere around 300 heads. Even if the cattle in each stable is usually a mixture from different herd owning units, the richest herdowners may control cattle equivalent to three stables. We even heard about herdowners controlling 2000 heads. The poorer strata of the population will have from zero up to 10-15 heads of cattle. As an average, an "educated guess" will be that a herd owning unit controls between 50-60 heads of cattle. This number is based on interviews with local herdowners, and there exist very little valid statistical information that can confirm this number. According to the "Sudan National Livestock Census and Resource Inventory, Vol. 29" (1976) the mean number of cattle per herd (stable) was 207,50. They also found that the mean number of cattle per family head was 15,4. There is, however, certain problems involved in applying these numbers to describe the actual situation. First of all, the sample of Toposa families participating in the census was very small (only six families), and secondly, the (nuclear) family in Toposa is generally not a separate herdowning unit.

It is difficult to get the total picture on cattle ownership since there are a lot of cross-cutting rights (individual, exclusive rights rarely exist), and because people are not open and eager to discuss this issue. If you, for instance, ask a son of a rich man how many heads of cattle he possesses, he may answer that he is without cattle, or only have some few, even if he - at a later stage - will inherit a substantial number. A herdowner telling you that he does not know the precise number of heads he owns can, without big problems, describe each and every animal in his herd.

Smallstock, even if much appreciated, are in lower esteem than cattle. While a cow or a bull is an object of investment and savings, a sheep or a goat functions as petty cash. And while a lot of religious and cultural idioms are related to cattle, you will find nothing similar related to smallstock (with some exceptions to castrated billy-goats that can be used for certain rituals). According to my information an average household controls 100-200 goats and sheep. As a rule, there seemed to be little difference in preference between the two species. The prevalence of one species over the other must be related to the feeding habits of the two. In areas with an open grassland vegetation (mostly to the west and north), the sheep were more prevalent. In the drier areas with thorny shrubs (mostly to the east and north-east), the goats were dominant.

Farming

During the last twenty to thirty years, and especially after the civil war ("*Anyanya*")[2] the importance of arable farming has increased substantially, even to the degree that sorghum has become the most important food stuff for that part of the Toposa population which lives most of the year in the permanent villages, i.e. women, children and the old men. The increased importance of farming can be connected to three main conditions: Firstly, the cattle sector was in deep trouble because of recurrent droughts and continuous raiding activities between the Toposa, the Boya and the Turkana. This means that cattle numbers had seriously diminished. Secondly, the international borders restrained mobility implying that it was more difficult to utilize the natural resources optimally. Thirdly, the Toposa had gradually developed a taste for cereals which they earlier often traded with their farming neighbours. The dominant cereal cultivated in Toposa was sorghum. A guess would be that more than 75% of the produce coming from arable farming was sorghum. Besides contributing to the diet, the farming sector has also significantly increased food security among the Toposa.

The uneven and erratic rainfall pattern in the area makes crop husbandry extremely vulnerable. What frequently happens is that after the first heavy rains, when the people have dug and planted their fields, they have to wait for up to one month for the next rains. Even though the Black Cotton soils have a high waterholding capacity, the seedlings do generally wither after 10-14 days. It is hence quite common to seed two to three times before crops are established. This does not represent a dramatic situation when seeds are in plenty, but in periods when one dry year with low yields follows another similar year, the stock of seeds will diminish, even to the extent that the livelihood of many Toposa are threatened. In 1985 we witnessed that Toposa women mixed seeds with sand, and dug the mixture into holes in the ground to protect it from their hungry husbands and children.

Residential units

The Toposa families live in hamlets or homesteads which are enclosures composed of a varying number of huts and grainbins. Each hamlet contains a kinship segment, usually the wives and children of a group of brothers. The mother and father of the group of brothers, if still alive, will also live in the hamlet, and the father will then be its head, and the hamlet will be called by his name. If he is dead, the elder brother will be the formal head of the hamlet, but the people actually residing there are generally the mothers with their unmarried daughters, sub-adult sons and other dependents. The physical size of the compound will be determined by the number of wives living there, each wife occupying a hut. Since some rich men may have more than 20 wives (even up to 50), some compounds are inhabited by the wives of one man. Although some cooperation takes place within the hamlet (fencing, housebuilding, etc) each and every wife with dependents compose the basic unit for

[2] *Anyaya* is a name commonly used in Southern Sudan for the civil war between the Northern government forces and the Southern rebel forces (Anyanya) lasting from 1956-1972.

production and consumption, i.e. a household.

The kinship group of a hamlet is usually the herdholding unit, and the head of the hamlet will be in charge of the common herd. The unity of the hamlet is frequently broken when the old father dies. One or more of the brothers may decide to leave the hamlet and settle somewhere else with their families and the animals allocated to them through inheritance.

Except for the Jie sub-group in the north, all Toposa compounds are found within a distance of 75 km from Kapoeta town, and 3/4 of the settlements lay closer than 50 km from the town. The compounds are situated in close vicinity to the two major domestic resources, black cotton soil, the major medium for crop cultivation; and water, the major streams. Smallstock and calves are often kept around the settlements throughout the year.

The stables, or cattle camps, are found at some distance from the villages, generally at one-two days walking distance. But while some may have to walk for less than one day (e.g. the herders from Riwoto, Paringa, and Machi), others will have to walk for three to four days (e.g. the Logir herders). Adult men, ranging from about 15 to 45 years of age, do, in general, live in the cattle camps for the major part of the year. The stables are found in areas with dry season pastures and waterpoints. In the dry season many women and children live in the cattle camps since the supply of food is often better there (blood, milk and meat). Before the onset of the first rains, they return to the permanent compounds to prepare for the cultivation season. Some time after the rainy season has commenced, and the vegetation has started to yield grass and leaves (usually in April/May), a large proportion of the cattle are brought to the settlements. After the vegetation cover has dried out (usually in October/November) the cattle are brought back to the stables.

In times of crisis, especially during famines, most people move to the cattle camps where the supply of food is somehow better. But in many respects this habit makes the Toposa more vulnerable to attacks from outside since they are scattered over a wide area. During the drought in 1984-85 the Toposa were exposed to a great number of attacks, in particular from the Turkana.

The sociopolitical structure

The elders, representing their respective kinship groups, form a kind of village communal board where they discuss and make decisions on village matters: movement of animals, raiding activities, initiations, offerings and village ceremonies. As the elders have no authority over each others' family groups, they have to discuss at length to reach a consensus. Even then some families may choose not to follow the elders' advices. The core of elders from a village are often related to each other through a common ancestor which has given name to the village. Even if the elders do not have any direct means of sanction against deviating opinions and actions, the families not following the major directions of the council of elders may run the risk of being ostracized.

INTRODUCING AGRICULTURAL INNOVATIONS TO THE TOPOSA

When the NGO started its agricultural extension activities in Toposa around 1980, it had little competence in pastoralism and livestock matters. When, in addition, it was realised that the Toposa were not particularly eager to expose their livestock, it was decided that attention should be turned towards arable farming.

There were several constraints affecting the productivity of this sector: One is associated with climatical conditions and relates to the fact that agriculture on average was hit by drought once every three years. Another constraint pertains to work efficiency. The land used for arable farming consists mainly of Black Cotton soil. This soil is very fertile, and can be cultivated consecutively for more than twenty years. The problem is, however, that it is very heavy and sticky. For the women, equipped only with a hoe, cultivation was thus an extremely strenuous job. So, even though soil fertility was high, productivity was quite modest.

For the poor portion of the Toposa society (numbering about 25% of the total population), lack of food was more a rule than an exception. This was especially true in times of drought, and during the annually occurring hunger gap. The key condition that created the hunger gap was that the producers were not able to cultivate enough food to carry the household through the whole cycle until a new yield was obtainable. Quite regularly, last year's harvest was already consumed when next year's cultivation process was at its peak. This meant that the producers were often seriously undernourished while digging and weeding; and that cultivation was disrupted since the women had to search for wild food, roots, berries, etc. during the period when the crops needed their attention most.

It was therefore acknowledged that something should be done in the farming sector, and that the efforts should have a dual objective: to improve the working conditions for women; and to increase food security among the poorer section of the population.

To reach these goals, it was decided to focus the extension services on three innovations: to substitute some of the medium to long maturing local sorghums (average growing periods of 6 months) with quick maturing grains (average growing periods of 3 months) including both maize, sorghum, pearl millet, cow peas and pigeon peas; to introduce root crops, primarily cassava, and secondarily sweet potatoes ; and to introduce ox-cultivation.

Regarding both the new grains and the root crops they were first tested on the NGO's demonstration farm, and among a group of contact farmers which were directly supervised by local extension workers. A food-for-work programme that was running during the 1984-85 drought was used to introduce the various enterprises. This meant that farmers received food aid while implementing the new enterprises.

The areas mainly set aside for these endeavours were the areas along the major seasonal streams. There were three main reasons for this: These areas were vacant in the sense that they were not utilized for agricultural purposes; they had sandy soils that were lighter to dig and had obvious advantages for some of the enterprises,

especially the pearl millet and the root crops; and, most importantly, they received every year the first soil moisture, i.e. the seepage coming down the streams as the rains started to fall in the Didinga Mountains. This meant that an early stop-gap crop was obtainable.

The Toposa reacted very positively to the innovations, and the river areas that formerly had no cultivation value among them were almost fully occupied during the 1985 cultivation season.

Possibilities and constraints on the use of oxen for cultivation

The item that led to most excitement was the introduction of ox-cultivation. Before embarking on this enterprise a warning was issued claiming that for Toposa men cattle were "sacred". This was somehow true, but only to a certain extent. Most Toposa men had a "favourite oxen", i.e. an oxen that symbolized and represented its owner. It was an identity relationship between the beast and its owner. The young men made songs to praise their oxen, and it was common that both the man and his favourite oxen were called by the same name.

An interesting fact about these oxen was that they were not, as first believed, the breeding bulls within the separate herds, but quite the contrary - they were all castrated. This detail was important since castration is a precondition for a plough oxen. But to ask the Toposa to hitch their favourite oxen to the plough would be even more tactless than to ask a European farmer to use his Mercedes Benz to pull the plough.

There were, in addition, several other constraints pertaining to the use of oxen for cultivation that had to be taken into consideration. One related to the fact that women, the traditional cultivators, were excluded from the cattle sphere. Even milking was considered a male activity. Women and oxen existed, so to speak, in separate worlds. Introduction of ox-cultivation could thus in the long run lead to a situation where women were excluded from agricultural production.

A particular constraint related to the indigenous rules connected to cattle ownership. A Toposa man could be rich in cattle in the sense that he commanded a big herd divided between many stables. But this richness was not a personal and private matter, and he could not use the separate animals for whatever purpose. Several other individuals could have a "pledge" or "share" in each and every head of cattle under his management. These pledges could be dormant for an extended period, especially if the relationship between the pledger and the pledgee was good. But it could also be activated under certain conditions. The herdowner hence owned the cattle as long as he utilized them according to prescribed standards. If he broke the rule of ownership, i.e. if he utilized the cattle in an unacceptable manner, he might loose his usufruct rights over them. If he, e.g. sold a head of cattle at the market, or he used it otherwise inappropriately, the pledges would - most certainly - be activated. He might then run the risk of loosing more money on a market transaction than he actually received for the beast.

What the project did to overcome the complex ownership arrangements was to purchase its own oxen which again were sold on a credit basis to farmers who became interested in ox-cultivation. The credit scheme was arranged so that the trainees should repay the price of the oxen and the plough in instalments over three years. A written contract was signed between the project, the interested farmer, and the local village headman.

A third constraint, although minor, was that both the oxen used for ploughing and the favourite oxen had to be castrated. In this way it was established a competition for steers for ceremonial and practical purposes. A consequence of this was that it sometimes happened that some of the oxen trained for ploughing were later used for ritual offerings.

The most serious constraint to overcome was, however, to create awareness and interest for plough cultivation. Ox cultivation was completely unknown to the Toposa. Besides this fact, there was an inherent contradiction in the whole idea: while oxen belonged to the male sphere of the economy; arable farming belonged to the female sphere. Consequently, two options existed: to bring men into farming, or women into ox husbandry. As men had a full foot in the livestock sphere, and a toe in the farming sphere, it was felt that it would be easier to trigger the innovation process by training men rather than women. Before practical training was initiated it was decided to use whatever time necessary to create awareness and interest.

The innovation process

The first step in the innovation process was to bring some trained oxen to the local Rural Development Centre (RDC) close to Kapoeta where they were exposed to the Toposa by being used to do work on the demonstration farm. These oxen were stolen after some few weeks, and new ones had to be purchased.

The second step was to select some Toposa sections for initial concentration of efforts. The sections selected were those where the importance of arable farming was already substantial. After selection, each section was visited at several occasions at which long and deep discussions with the councils of elders were arranged. They were explained the technical advantages of ox cultivation, especially that it could substantially increase production and food security. As this took place during the 1984-85 drought, the argument was very much accepted. This "awareness" work continued for more than three months. During this period some elders were invited to visit the RDC for a practical demonstration, and some were brought to other ethnic areas where local farmers had already been trained.

After about three months the elders in one section (Riwoto) asked us to bring oxen to make an *in situ* demonstration. A yoke of trained oxen and a pair of trained donkeys were brought.

The demonstration was a big event with several hundred people watching. The elders were particularly impressed by the fact that the oxen could take orders.

Following the demonstration a local chief, as the first one, listed one of his sons for training. In the months to come the list was filled with more and more names. Simultaneously with the on-start of the training programme a particular credit scheme to enable the trainees to purchase oxen and ploughs was established.

As the ox cultivation programme was progressing and expanding, it was felt that despite the fact that things were heading in the right direction, an asymmetrical relationship between men and women had been brought into the agricultural system. Women were important food producers, often the most important among the poor families. If the new system of production became the dominant, it was feared that women, in the long run, would loose a lot of social and economic authority and control. The only way to secure the continued importance of women was to introduce women to ploughing.

The first step in this direction was a new series of discussions with the councils of elders. But this proposition was met with a lot of resistance and head-shaking. Women and oxen did not at all fit together. The elders did not at all accept the idea of training their daughters or wives for this purpose.

As extensionists and outsiders we faced a dilemma. On one side, we felt that it was important to respect the local sociocultural structure; on the other, we felt that we needed to admit the role of women as agricultural producers, and that we had to be careful not to undermine their socioeconomic position. As we perceived the present situation, ox cultivation was an alien innovation, i.e. it was a new item within their sociocultural setting. The adaptation of this innovation would, by necessity have a strong sociocultural impact. But, according to our judgment, it would be even more serious if women were eliminated as central economic actors. So, together with the local Toposa staff, and with the support of some Toposa intellectuals (e.g. the head of the Area Council's Agricultural Office), it was decided to initiate a particular ploughing programme for women.

As no elder wanted to register his daughters or wife, the focus of attention was put on the girls and women living at a Catholic mission station close to Kapoeta. Some of these women were widows, others were orphans. Eleven women of the right age and status (mothers) who were interested and motivated were selected for training.

The training programme progressed favourably, and some of them were included in the credit scheme for the purchase of oxen and plough.

In the time to come other Toposa women, especially widows, approached the project to list up for training. Due to the high demand for training of both men and women, several training centres were established throughout the Toposa area.

During the later part of 1985 SPLA forces entered the Toposa area. This lead to a situation where the NGO had to close down most of its activities, including the extension programme. This meant that the programme of introducing ox-cultivation to the pastoral Toposa came to an instant halt, and has never since been resumed.

CAUSES FOR ADOPTION - A COMPARATIVE PERSPECTIVE

Due to the abrupt halt, the ox cultivation programme in Toposa was never evaluated. What can be said is that its introduction can be considered an achievement in several respects: an awareness for an exotic item was created; the item was socioculturally accepted; and quite a number of people received practical training within a rather short period of time. But is this really so remarkable? Were not all conditions present which would more or less automatically make it a success?

When we in retrospect compare the extension programme in Toposa with similar programmes among the neighbouring Lotuho, we see that among the latter ox-cultivation never really took off. Even though the introduction programme started some years earlier, ox-cultivation was never socioculturally accepted. Relatively few farmers were trained, and not one woman.

I believe that the difference can be attributed to two main factors: central sociocultural features found within the separate groups; and the extension approach.

Sociocultural factors

In the beginning of the 1980s the Toposa elders knew perfectly well that "the times they are a-changin'". Several external and internal factors had created a new "opportunity" situation. One key factor was of course the changed rainfall regime. As with the rest of the African drylands, drought had become more prevalent since the mid-sixties (see e.g. Warren and Khogali 1992).

Other factors related more closely to specific, local conditions. One factor was the scale of warfaring activities which had been steadily escalating since Idi Amin was toppled in Uganda, bringing automatic weapons and turmoil into the entire Equatoria Province. Another factor related to the fact that it was no longer uncommon for young men to go to the towns or the gold mines to seek their own fortune. A third factor was that pastoral mobility and flexibility was seriously restricted as the Toposa had been cut off from traditional grazing grounds. A fourth factor was that cattle were decreasing in number due both to raiding, diseases, drought and lack of pastures. A fifth factor was that the Toposa people had become accustomed to new types of food stuff, especially grain. Lastly, money and markets had penetrated their traditional livelihood.

These circumstantial conditions had made it clear to the people that their traditional livelihood and lifestyle had become vulnerable. The changed socio-natural environment had made the Toposa more open to innovations that could potentially strengthen the viability of both the households and the social units at the levels above. Increased agricultural production was the most conceivable way to go.

The changes in the social and natural settings were perhaps *necessary* conditions for the Toposa to accept ploughing, but they were definitively not *sufficient*. Within the Toposa system of traditional cultural values and beliefs there were some that were certainly conducive to innovations.

If we now, for the sake of comparison, investigate the social system of the neighbouring Lotuho we find, for instance, that among the Lotuho the village appears as a distinct corporation with specialized structures and institutions. It has a clear-cut leadership structure (*monyomiji*), and it has fairly strong measures to enforce social sanctions upon individuals. According to D.V. Smith and A. Ojetuk: "Lotuho society is remarkably cohesive [...] The political system is extremely complex, but the complexity derives not from a hierarchical system of responsibility but from the reciprocal responsibilities of every member to others, and to the land itself [...] The social structure, then, both depends on and creates cohesiveness; the entire group ensures that the general opinion is enforced" (1985: 48,50,52). Equality and conformity were typical cultural idioms, emphasizing the tendency towards a communalistic ideology. For an innovation to be accepted, it should not break with this ideology. Consequently, "Lotuho society seems to have a remarkable resistance to change" (Smith and Ojetuk 1985: 50). The Lotuho were open to external influence, but for innovations to be adopted, they had to be accepted on a communal basis, which might often be a rather slow and complicated process.

Communality was not only typical to the Lotuho, but in varying degree to all farming communities on the East Bank. Due, in particular, to unpredictable climatical factors, especially the erratic rainfall pattern, people were obliged to collaborate in order to secure their survival and continuity. Close cooperation between individual households was hence a typical societal characteristic of the farming communities. This could be observed most conspicuously during the agricultural season when communal labour parties were the common working pattern. As Lundstrøm argues regarding the Lotuho: "Joint work was regarded as the socially most acceptable form of production" (1990: 57).

A labour party meant that a rather large group of people, varying from about 15 up to 100, was called to undertake some piece of work, for instance digging, on a farm family's field. The party was commonly called and headed by the male household head. The wife cooked food and brewed large amounts of beer which was supplied to the participants. During working hours people were not only digging, but also singing and dancing. Thus, it is possible to argue that the labour parties were as much socially as economically important. They were social happenings binding village people together into a kind of corporation based on a mode of reciprocity.

Compared to the Lotuho, Toposa culture typically incorporated stronger individualistic features, i.e. their ideology emphasized individual will and freedom more than rights and duties towards the community. This implied, for instance, that societal structures and institutions were less developed in Toposa. The political leaders above the family group were rather powerless to initiate social action (except for war and defence), and although the oldest generation set in each section had a lot of ritual authority it was serious limitations on converting it into a unified political force. The political structures were in reality arenas where the councils of elders met for discussions. The councils could advice and make recommendations, but they could not make decisions which everybody had to observe. Each family could more or less freely choose if it wanted to follow the advice or not. In general, it is possible to argue that each individual household head had a great scope for making his own

choices. For instance, a Toposa that was not pleased with his kin, friends or neighbour, could rather easily break up and move to another place.

Farming among the Toposa lacked the institution of communal labour. Each adult woman cultivated her land with some assistance from her husband. It could happen that two or more neighbouring women, or sisters, could assist each other for some purposes. But this assistance was between individuals, and it never lead to any stronger corporations. Regarding arable farming it is therefore correct to claim that there existed no institutional level for cultivation above the household.

When it comes to the enterprises related to livestock, lack of communality became even more apparent. The most important communal feature related to this sector was the land tenure system as it was the sections that owned the land used both for cultivation and grazing. But any herder, being a member of that section, could utilize the section's pasture freely, and it was also possible to move to other sections' pastures. Regarding corporation, it often happened that a group of brothers herded their animals together, or that a man could have "bound friends" in other areas with whom he herded his animals together. But it was at each and any instance based on individual relationships and choices, not on communal commitment. Except for raiding and defence activities, commonly performed by young men in the age group of warriors, few communal undertakings were ever pursued among the Toposa.

This difference between a tendency towards communalistic rather than individualistic structures and ideologies among East Bank peoples can, to some extent, be interpreted as a difference in agro-ecological adaptation, and particularly between livestock and land as the basic factor of production.

A general feature of subsistence economies based on arable farming in areas where land is plentiful is that the incentive to accumulate land, the most important factor of production (together with labour) is limited. A household has a particular production capacity determined by the labour power of its members. In correlation to this a household will only cultivate as much land as it finds necessary in order to generate the supply which its members needs.

Most ethnic areas on the East Bank fitted this general characterization: land was not a limiting factor in agricultural production; any household could dig as much land as it wanted; the main limiting factor on arable farming was the household's labour capacity; consequently, there was no reason to accumulate land as this was a free and open resource to anybody belonging to the land-owning community.

The situation for livestock was more or less the opposite. First of all, Toposa cattle keeping was dependent on mobility and flexibility. Heavy and powerful social structures could have a contra-productive impact on economic efficiency. To utilize the natural resources optimally, in particular the pastures, herders depended on quick movements and few restrictions. Secondly, (contradictory to land) it was *practically possible* to accumulate livestock in almost immeasurable numbers as long as the herding capacity of the household was adequate. Thirdly, it was *purposeful* to accumulate large numbers of animals because they could be converted into food,

social security, prestige, power, wives and children. Therefore, it was a goal among Toposa men to accumulate as much livestock, and especially cattle, as possible. And while some in the community, by chance, luck, skill or heritage became tremendously rich, others were exceedingly poor. The poor were, however, not outcasts in the Toposa society but played an important role as herders for the rich. In many respects they existed together in a kind of patron-client relationship. No fixed hierarchy of social strata was established based on cattle wealth. The son of a poor herder could build up a large herd; a rich herder could loose his herd due to theft, drought or disease; a poor herder could marry the daughter of a rich; and so on. What is important in this context is that it entailed no ideological stigma to be either poor or rich. Rich people, for instance, were the pride of both their communities and their kin groups. Even though inequality was not applauded, it was not at all sanctioned. This left a broader scope for individual behaviour, preferences and objectives. Due to these cultural features the Toposa were open to outside influence on an individual basis. This implied, for instance, that the adoption of ox-cultivation could take place through individual adopters. Since the individual is not dependent on full social acceptance, the adoption process can thus take place at a higher speed.

The extension approach

Looking back it is rather easy to see that in Lotuho the programme for the introduction of ox-cultivation was too much based on pure technical recommendations. Local people were assured that ploughing was much more efficient than hoeing, and that it meant a lot less drudgery on the labour force. But no extension survey was conducted, and no strategical analysis was made before the programme started. It was generally believed that proper technical advices and recommendations would suffice to convince the farmers. Consequently, we did not conceive what way to introduce the innovation in order to create the right kind of awareness. To exaggerate the argument a bit we might argue that in Lotuho we launched the ox-cultivation programme before we really knew the local socio-natural conditions; before we knew through which channels we should operate; before we knew how to properly address people; hence, before proper awareness was created.

In Toposa it was possible to build on the experiences from Lotuho. In addition, a community survey contributing with a lot of information on agroecological and sociocultural matters had been performed. Based on both these premises it was decided that an extended amount of time should be used to discuss with the local councils of elders. There were several reasons for this strategy of "making haste slowly". First of all, it was admitted that nothing could really be attained if community leaders used their authority to block an innovation. Although the elders' power was definitely restricted, they had the possibility of cursing and even ostracizing individuals that made serious offenses against the *nyepite kangitoposa* ("Toposa style of life") which had been ordained by *Nyakuj* (god) (see Kitonga 1985). Secondly, we wanted to raise curiosity and proper awareness of what the innovation could mean to the people. Thirdly, we wanted to respond adequately to their questions and comments, and seriously listen to their sociocultural hesitations. Although the innovation was presented according to the best of our ability, we acknowledged that it was the local structures to accept it or reject it. But to minimize

the latter option, we wanted to give the innovation every possible chance.

All our "sittings" under the trees together with the elders exposed us to various constraints, some of more technical character, others of more cultural character, e.g. was ox-cultivation against *nyepite kangitoposa*? How to adapt the use of oxen for ploughing to the livestock ownership structure? It was thus the elders to discuss and decide whether the innovation could be adapted or if it had to be avoided according to traditional customs.

After two-three months of discussions the "verdict" was reached that ox-cultivation was not contradictory to their culture, and by now they wanted to see what it was in practice. As we were told: "We only believe what we see, not what we hear!". Consequently, before animal traction was introduced to the Toposa it had been thoroughly discussed and ideologically accepted. A social consensus was reached that traction could be admitted to their sociocultural system. The individuals who wished to embark on the plough-journey were given the blessing to go ahead.

CONCLUSION

Agricultural extension quite regularly implies the transfer of innovations from a modern, scientific setting to a traditional, indigenous setting. The societies which receive such innovations differ substantially regarding their physical environments and their core institutions and structures. Therefore, there will also be variation in the acceptance of certain types of innovations. While some societies can more readily adopt particular types of innovations, others can be more hesitant. For instance, innovations that will benefit certain individuals or a smaller segment of a society are more easily adopted in societies which admit a higher degree of individual freedom of choice. For societies with a tendency toward more communal ideologies, innovations which could create social inequalities may have problems to be adopted.

In the example above I have made some comparisons between the Toposa and the Lotuho regarding the introduction of ox-cultivation. Although, hopefully, this example has made it understandable why the innovation process was quicker and more extensive among the former than the latter, the basic argument or conclusion is not that the Toposa are more modern or more progressive than the Lotuho. The main argument is that there are particular ideational features that make it easier for some groups than others to accept and adopt certain types of innovations. It seems that ox-cultivation is a type of innovation which, at least under specific circumstances, can be more readily introduced in societies where members have a broader scope for individual decisions. But this must not lead us to the assumption that individuality is more progressive than communality. Each individual can be extremely conservative and traditional in his perspective and approach. An innovation might as well be rejected on an individual as on a communal basis. What the present example tries to demonstrate is that for an innovation to be successfully adopted one has to take particular local environmental and sociocultural conditions thoroughly into consideration.

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