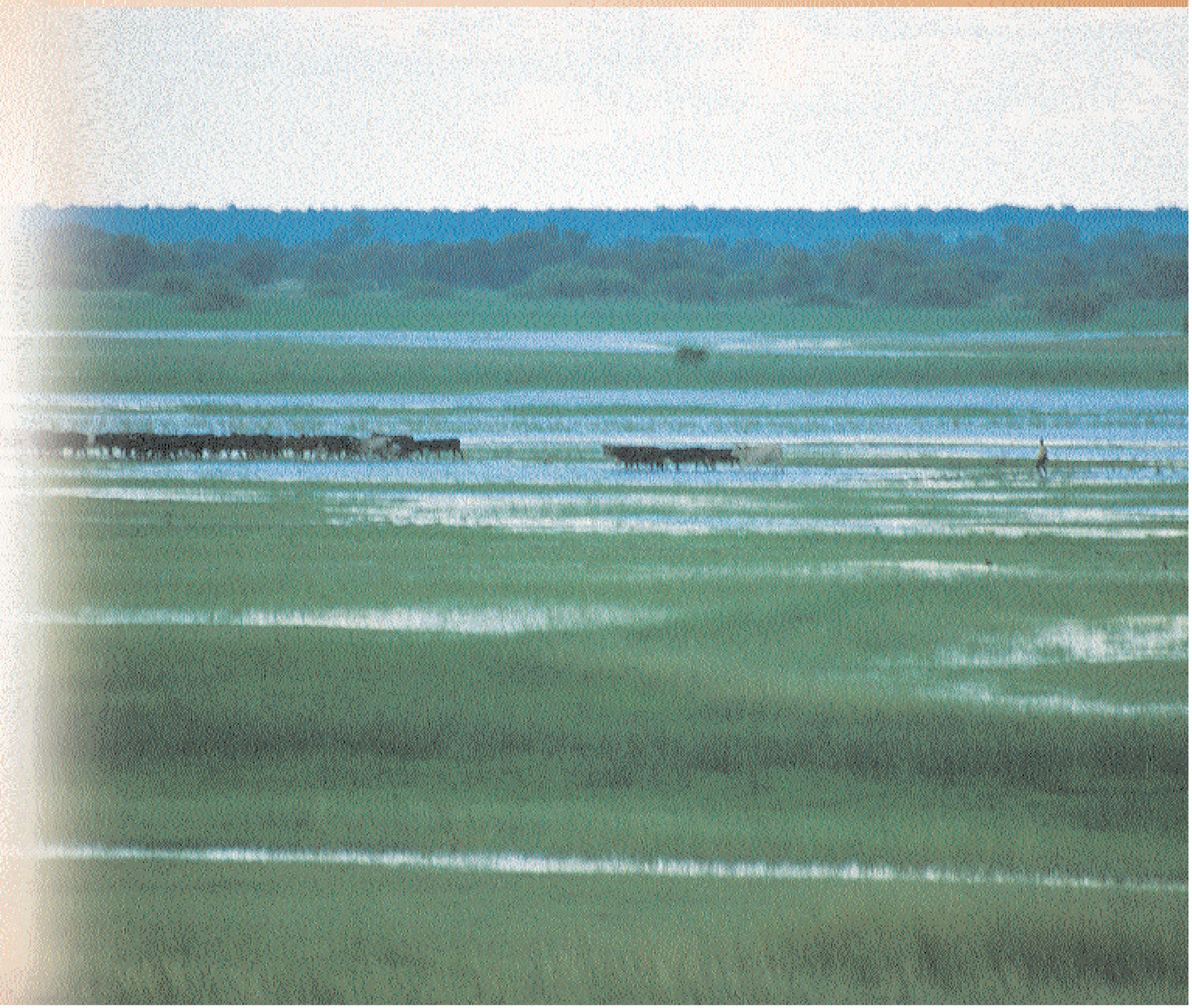
VIII SAND AND WATER

CHAPTER
EIGHT

WELFARE

Making a living



This lengthy chapter is about rural people in Kavango. They are the people who live in about 23,800 households and make up roughly four-fifths of the region's population. More than anyone else, these are the people who make much greater and more direct use of natural resources: soil, water, grazing pastures and wood for building and cooking, for example. These and other resources are also used in diverse ways. Life in the countryside may be seen to be simple, but rural livelihoods are actually complex associations, household economies being comprised of a variety of incomes contributed in varying ways by different people. Some incomes are in the form of cash (such as wages, pensions and profits from the sale of wood) while others come from material or in-kind goods (for example crop harvests, wood, labour or fish).

Rural lives are also changing very rapidly, and the changes are happening in a variety of ways. In fact, we often forget just how quickly livelihoods in Kavango have changed in recent years. Just 75 years ago, few people had any schooling and most had never benefited from modern medicine. There were very few cars or roads, no public telephones, and not many people had ever seen or heard of sources of energy such as electricity, gas or paraffin. People also had very little experience in having cash incomes or in buying food. Almost everybody was wholly and directly dependent on resources provided by the natural environment.

Surveys of income sources have only been done in recent years and so exact measures of economic changes from earlier years are not available. The broad patterns are fairly clear, though. The biggest and most obvious change is the increasing contributions of cash incomes. Migrant labour to mines and farms to the south of Kavango provided the first such incomes during the earliest years of the 1900s. Then came a steady increase in the number of paid jobs as teachers, nurses and other civil servants, labourers on agricultural projects, and much more recently in small-scale informal businesses in Rundu and small centres such as Divundu and Nkurenkuru. New cash incomes have also come from the sales of farm produce and crafts. These may amount to significant sums for certain households, but their overall contribution to the flow of cash in the region is small.[1] Indeed, the total amount of cash in the region remains very low, at least compared to other communal areas such as those in the north-central regions and Otjozondjupa.

A second major change involved a reduction in material incomes from hunting, fishing and the gathering of resources from wild plants, such as fruit. With a small population of people scattered along the length of the river in the early 1900s (see page 35), there was abundant wildlife, perhaps similar to the numbers of hippos, lechwe, giraffe and oryx now seen only in the Mahango Game Reserve. Many traditional poems and songs pay tribute to hunting forays, serving as reminders of successful hunts in the past. Just how badly fish populations have declined is hard to say (see page 54), but most people agree that fish were much more abundant in the past. Fishing was also serious business. Charles John Andersson, the Swedish explorer and so-called discoverer of the Okavango River, wrote in 1861 'many of the natives devote a considerable portion of their time to fishing, and employ various simple, ingenious and highly effective contrivances for capturing the finny tribe'.[2]

Incomes from crop production may also have dropped, especially along the river where soil fertility has declined as fields are used year after year with little use of fertilizers, manure or compost to replenish soil nutrients. The growing number of people has limited the area in which new fields can be cleared. There has also been a decline in incomes from livestock because there are now far fewer cattle in relation to the number of people than before (see page 104).

Much of the chapter focuses on farming because most rural households are involved in some kind of crop and livestock production. Many people depend on farm produce for at least some of their food intake, and they may derive incomes from the sale of farm products. Through clearing and grazing of vegetation, farming has a greater impact on the natural environment than any other activity. Wealthier people often invest their savings in farming, for example by acquiring additional cattle and larger fields. Finally, people have been farming over many generations and an understanding of agricultural practices provides a useful view of how people have adapted to conditions that surround them. Likewise, an appreciation of established values attached to farming provides perspectives on how people may face changing circumstances in the future.

CROP FARMING

Crop farming in Kavango is a peculiar enterprise! On the one hand it is a major activity of almost all rural households, and crops provide a good deal of the food that people eat. But on the other hand, crops are cultivated ineffectively, the whole system being characterized by low inputs and low outputs.

FIGURE 61-
Hot and dry or cool and wet! This graph shows rainfall (blue bars) and maximum temperatures (red bars) each day during December 2000 and January and February 2001 at Rundu. A total of 53 millimetres of rain fell over several days in the third week of December 2000 when many mahangu fields would have been planted. Most days over the next six weeks were then dry, with a total of only 33 millimetres falling during a few scattered showers. It was also very hot, and maximum temperatures rose above 30°C on 39 of the 42 days. A spell of cool and wet weather then followed during the last three weeks in February. By then, most crops planted earlier in December would have died during the hot, dry six weeks and the fields would have had to be planted again.

Relatively few resources and efforts are invested in cultivation and the harvests are correspondingly small.[3] Why, then, is crop farming so unproductive?

Other than a few small vegetable plots, all subsistence crops are grown on dryland fields that are not irrigated. The most important consequence of this is that crop production is heavily dependent upon rainfall and much less stable than other resources. Good years are those when rainfall is both sufficient in quantity and well timed, crops receiving regular falls of productive rain throughout the growing period (see page 43). But the unpredictable nature of rainfall in the region means that productive rains often only start relatively late in the season, which lasts only a maximum of about 120 days. And there is always a good chance of long gaps of hot and dry weather between rain showers, as shown in the example of a three-month period at the end of 2000 and beginning of 2001 (FIGURE 61). Many crops then wither and die, especially if the plants are young.

Such dependence on rainfall leads to one major problem: a high risk of crop failure. But there are other problems that

Rich harvests of tomatoes and other vegetables can be reaped along the river, but such enterprises require hard work and access to markets to be successful.

raise the chances of failure. Most soils are generally low in nutrients and their sandy texture means that they hold little water (see page 62). Rainwater either drains away rapidly or evaporates as a result of high evaporation rates (see page 44). Nutrients in soils that have been cultivated also take many years to be replenished. Attacks by pest insects and birds are frequent threats to a growing crop. Finally a range of socio-economic factors add further risks to crop farming, such constraints as shortages of labour, capital and markets Elements of these difficulties are discussed below.

Mahangu (pearl millet) is the dominant crop because it is the only cereal that can be produced on poor quality sandy soils where rainfall is low with frequent dry spells. Over 90% of cultivated areas are used for mahangu production, largely

using traditional varieties of seed selected from the harvest of the previous year. This is particularly true for families living at the riverside where 45% of all households use traditional seeds. About one third of all households also plant improved seeds (mainly Okashana-1) and 28% use a mixture of both traditional and improved seeds (FIGURE 62). Okashana-1 seeds are usually planted late in the season as they have a shorter growing period. The few large-scale commercial producers also prefer this variety because of its higher yield.

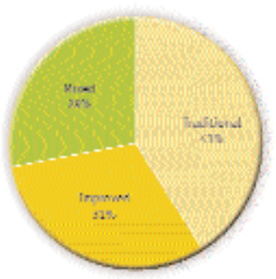


FIGURE 62.-
Traditional mahangu can grow in poor soil with low rainfall, but improved cultivars have shorter growing periods and higher yields. The pie chart shows the percentages of households planting different types of mahangu seed.[4]

Although most farmers also grow maize, sorghum and vegetables, only about 5% of all field areas are planted with these crops. Sorghum and maize are generally planted on more clayey soils, often in the valley bottoms of omurambas. Much of the maize is consumed as green cobs, while most sorghum is used to brew beer. Vegetables, such as melons, beans and pumpkins, mutete, bambra nuts, cowpeas and groundnuts, are generally planted in amongst the mahangu. A few women cultivate small vegetable gardens along the river, watering their tomatoes, cabbages and carrots by hand. Proportions of households growing different crops vary slightly between the river zones and the three inland zones of the region (FIGURE 63).

The area cultivated by each household varies a good deal, most fields being between two and four hectares along the river and three and six hectares in the inland areas. But several other factors also have an impact on field sizes. First, the size of cultivated area is related to rainfall: a survey in 1992/1993 (a bad rainy season) showed that while 70% of households intended to cultivate more than one field, only 44% ended up doing so.[5] Second, male-headed households cultivate 25% more land than female-headed households. Third, cultivated areas vary in relation to a household's size, assets and wealth. Thus, homes with cash incomes cultivate areas 25% bigger than those lacking any cash income, and families having their own oxen or plough cultivate double the area of those having no draft power or equipment. Similarly, cultivated areas vary in relation to the number of livestock, as shown in the table below.

Average areas cultivated per household compared to the number of cattle owned by the same households.[6]

Area cultivated (hectares)	Average number of cattle
Less than 1	5
1-3	10
3-5	16
5-7	22
7-9	25
More than 9	25

Fields are often cleared before the first rains, and all other events during the crop calender (FIGURE 64) follow the onset of the rains, generally in November and December. Most fields are concentrated along the margins of the Okavango River valley, in inter-dune valleys and in the dry omuramba valleys (see FIGURE 74, page 114). New fields are cleared on an on-going basis, mainly as a result of shifting cultivation as the fertility of existing fields declines. However, this is now really only possible in inland areas where woodlands can be cleared to open up new fields. Along the river, by contrast, there is almost no arable land that has not been used.

Overall, about 91% of cultivated land is ploughed with oxen, 5% by hand and 3% is ploughed with tractors.[7] Households that plough with oxen or tractors cultivate double the areas of those that plough by hand. People who hoe by hand generally do so before it has rained and many of these farmers also plant their mahangu before the rains. These make up about 15% of all farmers, while the remaining 85% plough their fields after the first good rains have fallen using oxen or tractors. This is so even though only about 53% of households actually own oxen or ploughs. Ploughs and oxen are thus frequently borrowed or hired, and 30–40% of all households report hiring ploughs.

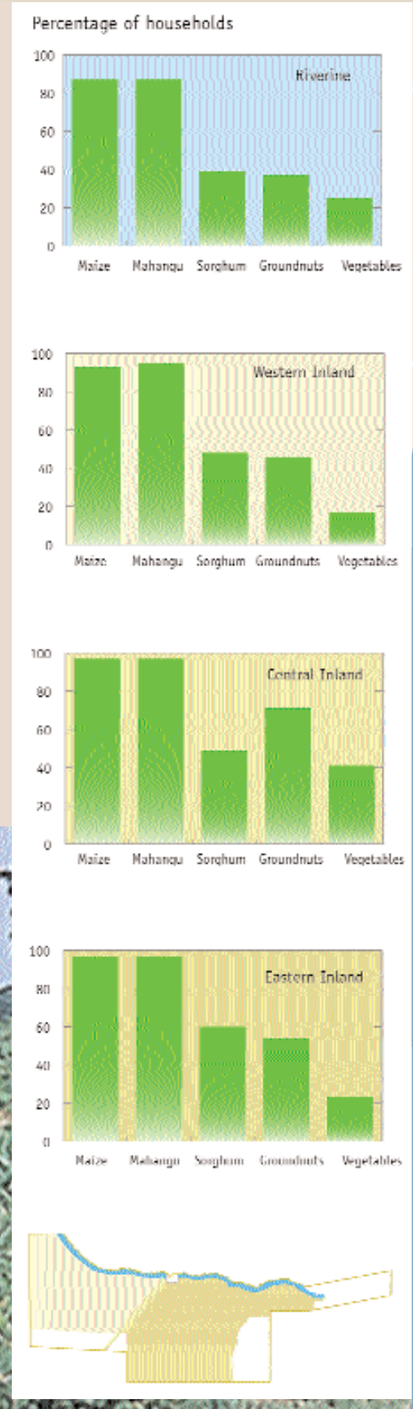
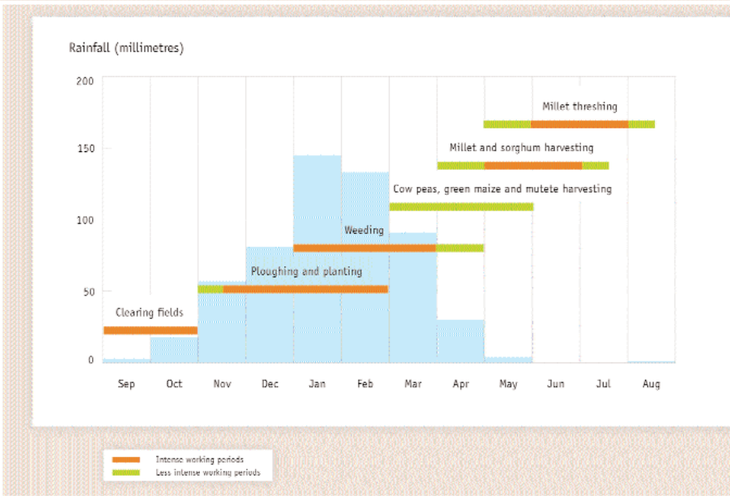


FIGURE 63-
Almost all households in inland areas grow both mahangu and maize whereas about 15% of riverine households do not grow these crops, perhaps because they have cash incomes and have stopped farming or because of the limited land available for cultivation. These are percentages of households planting different crops in four zones.[8]

FIGURE 64-
The farming calendar in Kavango shown against average rainfall per month at Rundu.



The ownership of oxen and ploughs varies in relation to a number of factors (see table below), so that more households along the river have ploughs and oxen than those in inland areas. More male-headed households have ploughs and oxen than female-headed ones. Households with wage incomes are more likely to have oxen and ploughs than those with smaller or no cash incomes.

Percentages of households having oxen and ploughs.[9]

Zone	Ploughs	Oxen
Inland	61	58
Riverine	45	40
Head of household		
Male	51	47
Female	41	38
Cash incomes		
No income	40	38
Pension	53	48
Remittances	49	43
Wage	60	56

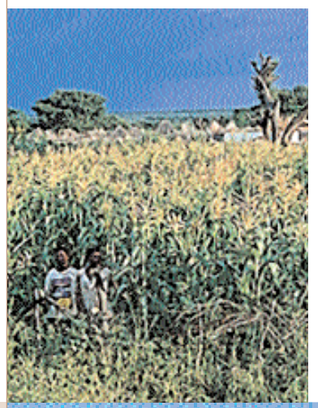
Labour is the most valuable input to crop growing. Most estimates put the average time spent by a household on cultivation per season at between 100 and 160 days.[10] More time is spent on fields that first have to be cleared or ploughed by hand. Households with larger fields also devote more labour time than those with smaller fields. Members of the family provide most labour: women work for an average of 62% of worked days, men provide 33% and the remainder is contributed by children under 15 years old and people over 60. Women are generally more engaged in cultivation while men are more involved in the clearing and preparation of land. Very few fields are fenced and one consequence of this is the need for children and other family members to tend cattle and goats during the crop season.

It is also common practice to hire labourers or to exchange labour between households, especially during busy periods of weeding. Hired labour consists either of groups of workers or individuals, and the labour is usually paid in-kind, for example with mahangu, meat or beer. Approximately one-third of all labour inputs are provided by hired people, with women supplying most such labour. The main benefit of hiring labour for wealthier people is that they can cultivate fields larger than would be possible if they relied solely on their own families. On the other hand, poorer people benefit from incomes paid for their work.

Yields and production are usually too low to provide households with significant surpluses, but some homes have huts called shiietes *in which occasional surpluses are stored.*

The Salem farming project just east of Rundu, one of the very few agricultural development projects to achieve a measure of success.

Weeding, as the most time-consuming component of crop production, is done once and sometimes twice during the season. This is in contrast to central-northern Namibia where weeds are removed at least twice each season. Less than half of farmers are reported as thinning their mahangu, a practice that would lead to greater production. The use of fertilizers and compost is also very limited. Along the river, only 2% and 8% of households apply fertilizers and compost, respectively. The use of fertilizers on inland fields is non-existent, while 8% of all households report using compost. Likewise, manure is little used, two estimates being that only 16 or 22% of all farmers apply it to their fields.



Fields are more often than not bare, largely because of inadequate soil fertility, rainfall and effort to fertilize and tend crops. However, the stubble on this field is perhaps the remnant of a good crop of maize, such as the one enjoyed by these children.

Harvesting usually starts in April. Mahangu, maize and sorghum grain are stored in a variety of different containers such as in 50-70 kilogram bags, traditional *shiietes* (small huts) or in drums. About 20% of households store mahangu without threshing and the heads are gathered in bundles of stems. Households do not mix the harvest of the previous year with the current one, and most mahangu is stored for an average of two years.

As with so many other aspects of crop farming, yields also vary a great deal: from field to field and from year to year. The greatest factors to limit yields are the low inputs made to crop growth (especially the low use of manure, infrequent thinning and weeding), the poor soils (see page 62) and frequent shortages of rain. Bumper crops may provide several hundred kilograms of mahangu per hectare, but yields of about 100 kilograms per harvested hectare are more normal.[11] These are usually insufficient for the cereal needs of most households. One analysis of yields showed that rural homes in Kavango produced an average of 115 kilograms per household member each year, enough for only 87% of the cereal needs of a household.[12] Poorer people in Kavango suffer most frequently from homegrown cereal shortages, mainly because their fields are too small to provide for their food needs or because their households are so small that there is insufficient labour to properly tend their crops.

The great bulk of crop produce is consumed at home. Some surpluses may be sold in good years, but this is rare as a result of infrequent surpluses and the low returns most small-scale farmers would get for a few bags of mahangu. The only real commercial producers are large-scale mahangu farmers, of whom there are less than 70 in the whole region. Each of them plants between 100 and 500 hectares of mahangu, and their harvests are sold to the only two commercial millers at Katjinakatji and Nkurenkuru in Kavango and to buyers elsewhere in Namibia and in South Africa. Most of these large farms are far to the south of the river and to the west of the Mururani-Rundu road. There are, in addition, the large irrigation projects on government farms at Musese, Shadikongoro, Shitemo, and Vungu Vungu, which produce mainly maize, cotton and wheat.[13]

Numerous horticultural projects have been started at various places over the past 30 years. Almost all have failed for two reasons. The first is that most projects relied on a co-operative approach, expecting groups of farmers to collaboratively operate the gardens for everyone's benefit. A second problem has been one of marketing, the farmers finding it difficult to store their perishable produce and to find regular buyers. The gardens were also unable to provide reliable and adequate supplies for large-scale buyers such as supermarkets in Rundu and hostel caterers.

An exception to this succession of failures is the Salem vegetable garden a few kilometres east of Rundu. While a management committee organizes aspects of the water supply, the 50 farmers run all other business individually and competitively. Profits are good, with one farmer making more money from his half hectare than his other job as a teacher at a local school. Produce is sold in Rundu and the presence of this large market nearby is key to the success of the enterprise. However, even this project is probably not sustainable because the costs of pumping water are still subsidized.

Returning now to the question of why crop farming is so unproductive, the low input-low output nature of cultivation is best illustrated by comparing conditions with crop farming in central-northern Namibia. Yields in this area average 300 kilograms versus the 100 kilograms per hectare in Kavango. About 60% of farmers apply manure, roughly three times more than the proportion of farmers doing the same in Kavango. The majority of fields in central-northern Namibia are protected by fences, unlike the almost complete absence of fences in Kavango. Farmers in central-northern Namibia also invest more labour in crop production and, most importantly, use much more efficient methods to store surpluses.

Why should crop farming in Kavango be so unproductive? The five possible reasons offered below are all based on assumptions that farming systems are tuned to the environment and selective processes in which they occur, that the systems evolved over long periods, and that crop farming has generally been unproductive over many years.

1. The risks of crop failure are substantial and so the chances that investments made in crop farming will be wasted are high. This describes a vicious circle: a high risk of failure leads to low inputs, and low inputs contribute to low outputs, which reconfirm that inputs remain low. It is clear that crops have often been lost over many generations as a result of shortages of rain, poor soils, crop pests (insects, queleas and elephants, for example) and tribal raids (see page 35). Several aspects of farming methods have indeed developed to help reduce such risks. Thus, batches of crops are often planted at different times, each planting session following a period of good rain to improve the chances of a portion of the crop being successful if some plants do not survive periods of hot, dry weather. Planting at different times also means that the harvest can be done gradually over a longer time so less labour is needed than if the whole crop had to be harvested in a short period. The chances of a whole crop being eaten by insect pests or birds are also reduced.
2. Potential rewards from crops have been low and farmers thus lack incentives to invest and produce more. This is closely related to the risk of failure, but rewards also come from being able to market occasional surpluses and thus increase household incomes. However, the small number of people in Kavango has meant that local markets were tiny, and the distance to other markets has limited the chances of selling produce elsewhere. Adding weight to the idea of good rewards for farming to be effective is the example of Salem. Most other horticultural projects in the region failed because farmers were unable to profit from their vegetables, whereas the Salem farmers close to the large Rundu markets now invest and reap much from their small plots.
3. The high burden placed on people by diseases has reduced their ability and willingness to work hard. Again, this is related and contributes to greater risks and lower rewards, but diseases on their own would have a severe effect on the physical strength and availability of people to labour at growing crops. For example, over half the population could have malaria during much of the crop season, and people in the region have been living with malaria, bilharzia and other debilitating diseases for many generations (see page 84). It would thus not be surprising if disease prevalence has moulded approaches to farming systems.
4. Large areas of land are available in Kavango, and so new fields can be cleared readily and cultivated for a number of years until soil fertility is reduced. Farmers then move on to clear other areas. The field areas are also quite large, the crops being planted over extensive areas and with comparatively little care. This is especially evident from the lack of thinning and small effort made to apply manure, remove weeds and store surpluses. The expectation, therefore, is that an adequate harvest can be obtained from large areas with a minimum of effort.
5. The historical availability of relatively abundant alternative foods provided other sources of food in the form of fish, wild fruits and animals to be hunted. With such alternatives there would be little need to invest heavily in crops, especially if the risk of failure was high. It could therefore be prudent to invest minimum effort in crops in the secure knowledge that alternative sources of food were available. Kavango has never experienced the succession of devastating famines that killed large proportions of the people in central-northern Namibia, and it is tempting to think that people in Kavango could turn to other food when their crops failed. Of course, the availability of most of these other foods has declined but the increased number of incomes with which to buy food might compensate this. A similar trend may in fact hold true within Kavango itself where farmers in the inland areas are often said to be more serious about crop production than those along the river. Whether this reflects the absence of fish and other natural resources in inland areas or the greater availability of alternative household incomes from wages and business activities along the river remains to be seen.

There are about 150,000 cattle and 65,000 goats in Kavango.

None of these ideas may be mutually exclusive, each perhaps offering part of an overall explanation for the farming systems of today. However, we would argue that the great famines in central-northern Namibia did as much as anything to shape crop farming there. This is why farmers there invest so much in crop production and storage. By contrast, the absence of famines and availability of other foods were probably the major factors to mould farming systems in Kavango.

LIVESTOCK FARMING

Livestock farming in Kavango is dominated by cattle and goats. There were an estimated 137,000 cattle in the region in 2000, and by 2003 the number would have risen to perhaps 150,000. This is based on an annual increase of 4%, the rate at which cattle numbers grew over the past nine years (FIGURE 65).[14]

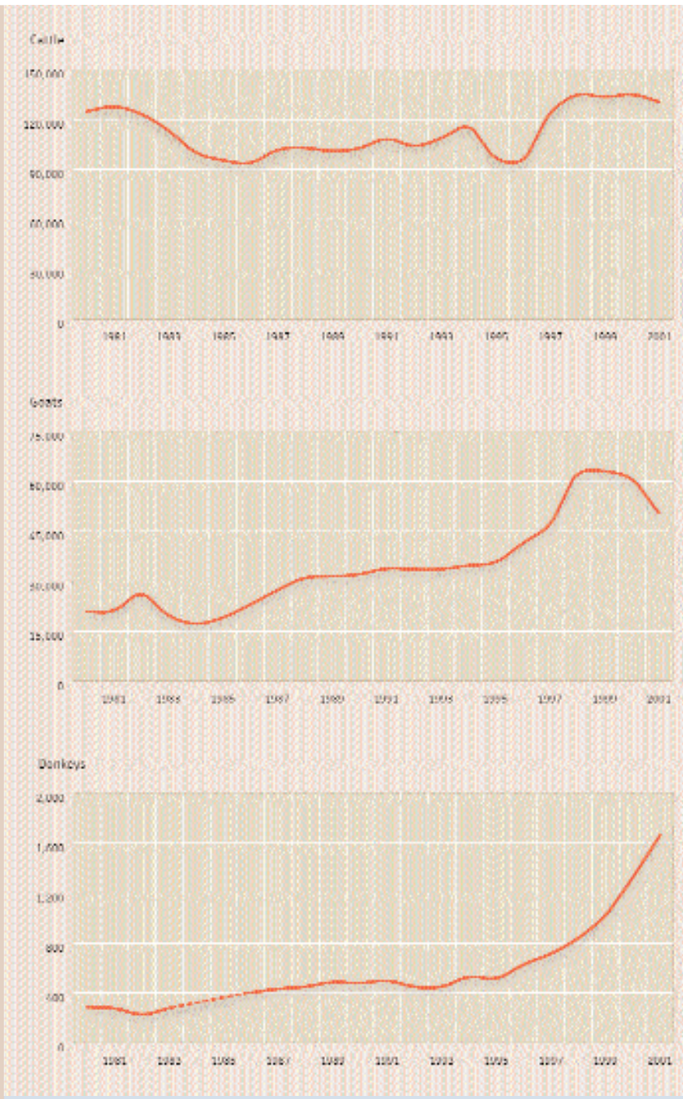
The total number of goats in the region was estimated to be about 64,000 in 1998 and 1999, having doubled and increased at an annual rate of growth of 8% over the past nine years. The lower figures in more recent years are probably due to less complete reporting. Other livestock kept in smaller numbers includes about 3,000 pigs, 1,700 donkeys, 1,200 sheep and some 500 horses in 2001. Taking cattle and donkeys as single large stock units and eight goats as equivalent to one such unit, cattle represent 92% of all large stock units in the region, goats 6% and all other animals about 2%.

FIGURES 66 and 67 provide perspectives on the density of cattle and goats, respectively. The highest densities are generally along the river where most people live, but there are also significant numbers of cattle inland, particularly in the west. Areas in which there are more than 10 cattle per square kilometre are certain to be overgrazed. Many areas in the remote south now apparently have few animals, but that will surely change once new farmers establish their large farms and water points in those areas (see page 116). A significant number of cattle in western Kavango belong to farmers from the former Owambo region from where they bring their cattle to graze in Kavango. While some reports of as many as 50,000 cattle being brought into Kavango are perhaps far-fetched, the presence of the cattle is a matter of serious concern, particularly to the Kwangali Traditional Council and resident farmers in that area.

The average number of cattle and goats per household is 29 and 23, respectively, for farmers that keep these animals. The figures are much lower if households that do not have livestock are included: 17 cattle and 12 goats, respectively. The difference in averages between those that have and don't have livestock begin to give an idea of just how variable livestock ownership is. In fact, close to half of all households do not have livestock (41% of households have no cattle and 49% have no goats, as shown in the following table).

Percentages of households having different numbers of cattle and goats.[15]

Number of animals	Cattle	Goats
None	41%	49%
1-10	22%	23%
11-20	14%	12%
21-30	10%	6%
31-40	4%	4%
41-50	2%	2%
51-100	4%	4%
More than 100	2%	1%



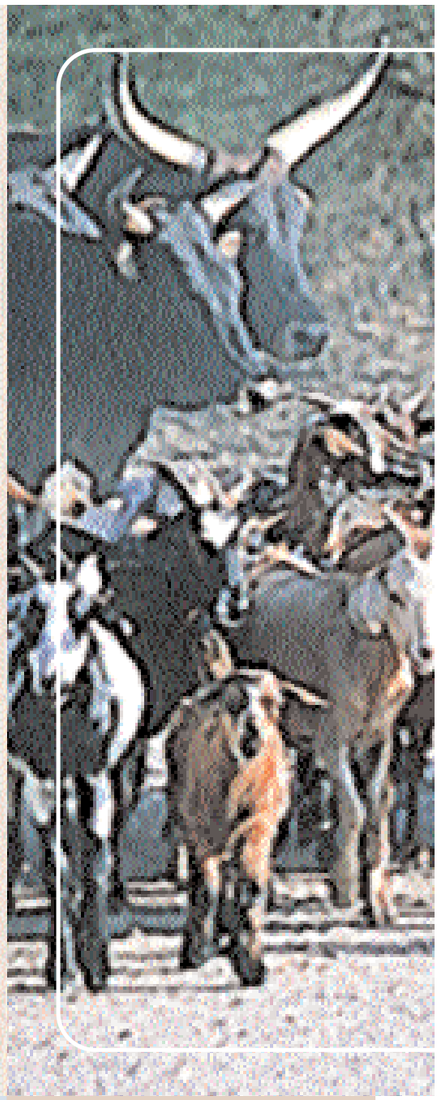


FIGURE 65-
Livestock numbers have increased a great deal in recent years. The graphs show the total numbers of cattle over the past 60 years, and numbers of goats and donkeys over the past 20 years. Earlier reports gave the number of cattle in 1912 as 12,000, in 1926 as 26,262 and in 1938 as 31,849.[16]

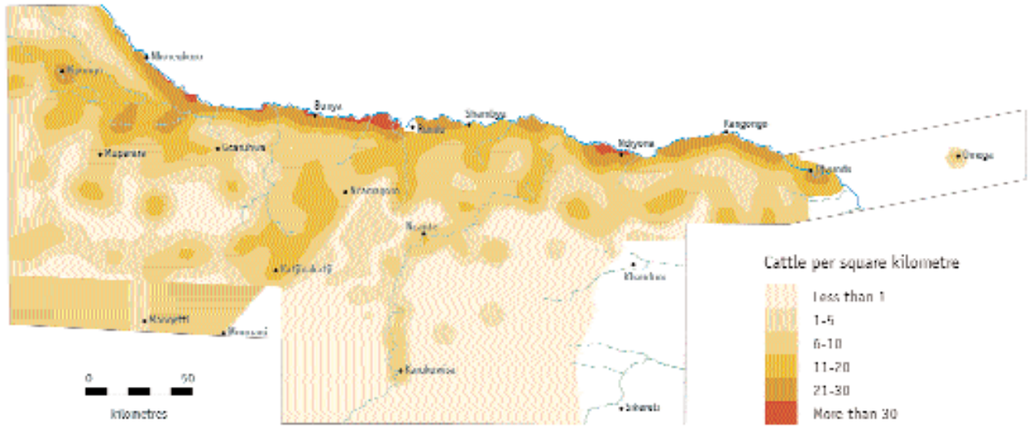


FIGURE 66
Most cattle are concentrated along the river, although there are many places inland where densities of cattle exceed six animals per square kilometre.[17]

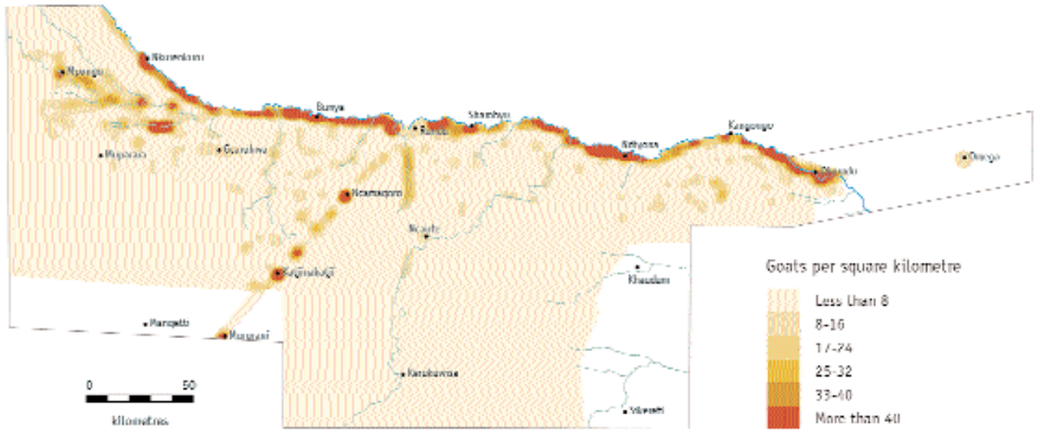


FIGURE 67
The majority of goats live along the river and larger settlements elsewhere. The figures are in groups of eight because eight goats are roughly equivalent to one large stock unit or one cow.[18]

Much of the variation in ownership relates to several factors. Firstly, patterns of ownership vary in the different zones in the region, with about 77% of households in the western interior having cattle compared with only about 50% of those along the river (FIGURE 68). Average herd sizes along the river are 9 cattle and 9 goats, compared with 26 cattle and 16 goats in the western interior (these include households that have no livestock). Many farmers in the western interior also have large herds of more than 50 cattle, and there are also quite a number of farmers with herds of 100 and more cattle. For the region as a whole, 6% of all households have 50 or more cattle and these farmers jointly own about 49% of all cattle.

Secondly, livestock ownership is related to a household's main source of income. Thus, those with wages have about double the number of livestock than those that have no income, as shown below.

The average number of cattle and goats in households having different main sources of cash incomes.[19]

Income source	Cattle	Goats
No income	7	4
Pensions	7	5
Remittances	10	6
Wages	14	8

Note that these figures come from three agricultural surveys. The averages are lower than those reported above because the samples were mainly taken along the river, but the trend in ownership pattern is clear.

Thirdly, large households are more likely to be cattle owners than those with fewer family members, and bigger households also have larger herds (FIGURE 69). Finally, ownership varies in relation to the gender of the head of the household, male-headed homes having about 30% more cattle and goats on average than those headed by women. Surprisingly, there is little difference in herd sizes between male and female-headed households that own livestock, so the 30% difference is largely due to the fact that more female-headed households do not own livestock.

Livestock ownership patterns have probably changed in recent decades with more and more animals being owned by fewer people. Early reports suggested that many people owned at least some cattle compared to the more skewed ownership that is now the case.

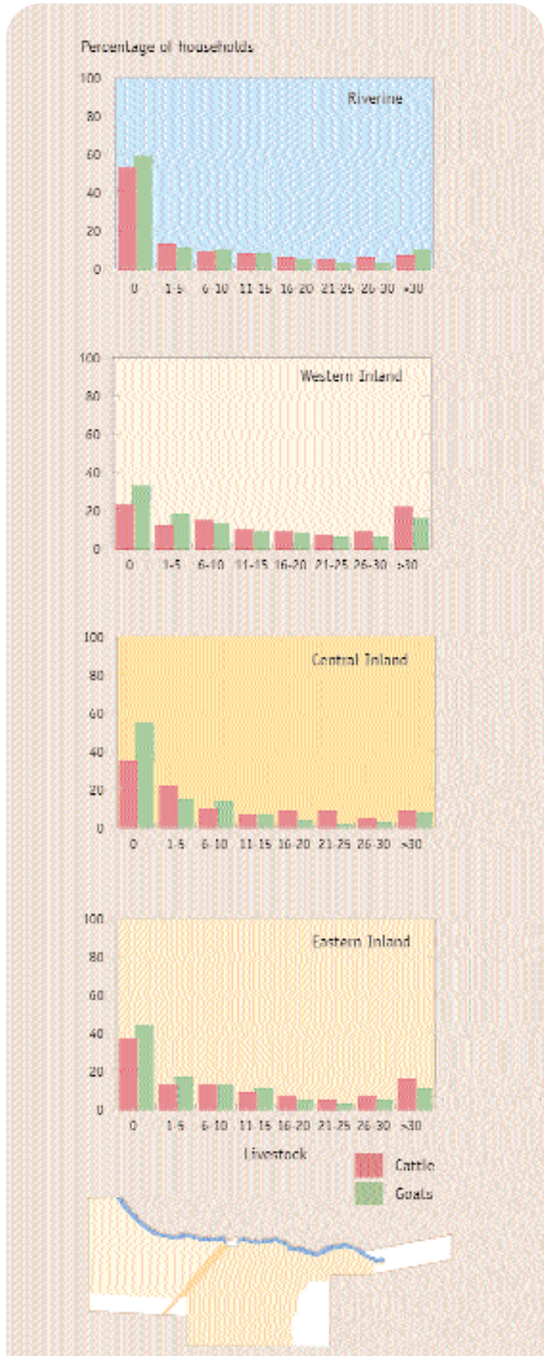


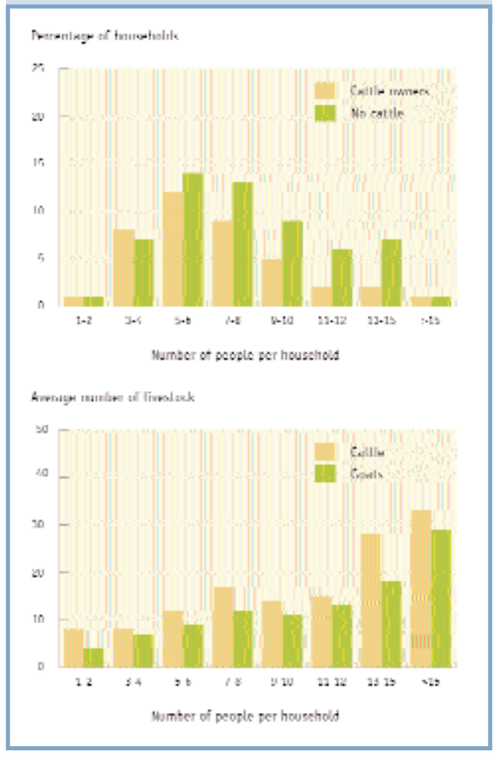
FIGURE 68
Percentages of households in four zones that own different numbers of cattle and goats. White areas are those where there are few or no households.[20]

The number of cattle in the region has also dropped significantly in relation to the number of people with the number of cattle per person now being less than half it was 50 years ago (FIGURE 70).

Livestock in Kavango have always been affected by a host of diseases, and the most important ones to have placed a burden on animals long ago were probably such diseases as January or corridor fever, black quarter disease, anaplasmosis and botulism. The great rinderpest epidemic in 1897 apparently killed most cattle in Kavango, but the most significant diseases nowadays are:

- Foot-and-mouth. The last outbreak was in 1992, but the disease remains a major threat to cattle in the region. All cattle are vaccinated against the disease annually to prevent possible infections from Angola from spreading.
- Lung sickness is also a major threat to cattle, which are vaccinated to prevent infections from spreading. This disease was introduced from Europe.
- Black quarter or black leg poses a significant threat to cattle, and was considered to be the most important cause of stock loss in the early 1900s.
- Botulism is a deadly disease among cattle, and usually occurs when animals suffer from shortages of phosphorous and then chew bones or other animal material.
- A variety of gastro-intestinal parasites lower the condition of goats and cattle.
- Sarcoptic mange is a particular problem for goats.
- Rabies can be a severe disease amongst dogs. The disease was virtually unknown at the beginning of the last century, and appears to have spread southwards from Angola between the 1920s and 1960s.
- Newcastle disease may devastate flocks of chickens because it spreads so rapidly.

FIGURE 69-
Greater percentages of bigger households have cattle, while smaller households are less likely to be cattle owners (top). Larger households also have bigger herds of cattle and goats than smaller homes (bottom).[21]



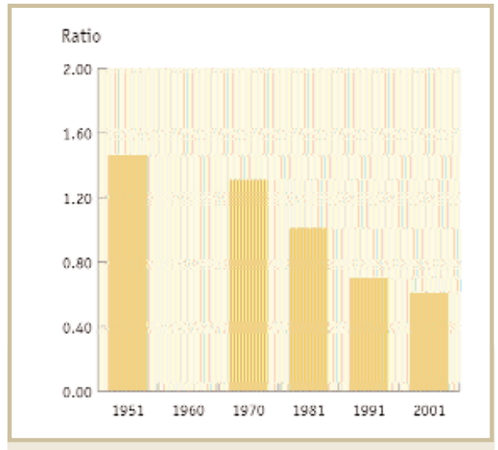


FIGURE 70-
Numbers of cattle relative to the numbers of people have dropped significantly in recent decades, as shown here by the ratio of cattle to human numbers between 1951 and 2001.[22]

Most of Kavango lies north of the veterinary cordon fence (the so-called Red Line), and livestock products from this area can only be exported south to other places in Namibia or to South Africa after going through a period of quarantine and being declared free of disease. This puts a potential limit on cattle marketing, and livestock farmers often claim that they would be more productive if they could sell their animals without veterinary controls. Such claims are debatable, however, because prices now offered by Meatco (the parastatal that buys livestock in areas under quarantine control) are comparable to those paid elsewhere. It is also clear that most cattle are not available for sale.

The low numbers of cattle now sold continues a long-established historical pattern in which most livestock are not kept for purposes of commercial and productive farming. In fact, most animals that are sold belong to farmers with small herds, whereas farmers with large herds make few of their cattle or goats available for sale. The total percentage off-take of all cattle amounts to about 7% per year, and even goats, with an estimated annual off-take of 8%, are seldom slaughtered or sold.[23] About a quarter of all cattle sold are bought by Meatco, which then slaughters and processes most of the animals at the Oshakati abattoir. The other three-quarters consist of animals sold on the informal market at so-called bush-markets along the road. Despite the low levels of sales, it is possible that the growing cash economy in Kavango will oblige farmers to sell more animals to provide them with additional cash.

Total numbers of cattle bought each year by Meatco have generally declined over the past 10 years, despite the opening of new quarantine farms in recent years (see page 113). The highest numbers bought (over 4,000) were in 1992 and 1995 following very dry years, perhaps as a result of a lack of grazing and subsidies from the government to encourage sales. The lowest number of less than 2,000 cattle was bought in 2001. The Kavango Cattle Ranch to the south of the cordon fence sells cattle directly to abattoirs in Namibia. Cattle numbers on the ranch dropped from about 22,000 in the early 1980s to less than 8,000 in 2002. The predecessor of the Namibia Development Corporation started the ranch in the mid 1970s and the NDC continues to manage this huge farm (see page 113).

Other than cash obtained from limited sales, what other values do livestock have? Oxen are of great value in providing draft power for the ploughing of fields, and farmers who use draft power cultivate bigger areas than those who plough by hand (see page 94). Draft power is also used to haul water, wood and other goods. Cows provide milk and some meat is consumed at home, but this is still much less than the value of cash purchases of meat (see page 107). There are also a variety of less tangible benefits that often have greater value than the material benefits. These are the values that livestock bring as capital investments and as hedging insurance when cash might be needed. Livestock are thus valuable savings into which surplus cash is invested. Large herds also give people access to and control over grazing pastures, thus bringing farmers status and a measure of security in the event of droughts or other disasters.

HOUSEHOLD WELFARE

It is often believed – implicitly or explicitly – that rural homes are rather homogeneous, with most people living and subsisting in similar ways. We also assume that most homes experience comparable levels of wealth. However, nothing is further from the truth. The welfare of households depends both on income and access to resources such as oxen, ploughs, livestock, grazing, fields and fish, for example. Variation in income is described below, but a few figures on ownership and access to assets also confirm the high degree of variation between households. For example, about 59% of households have cattle and some 51% have goats, leaving 41% and 49% without these livestock. Approximately 6% of all farmers own about half the cattle in the region, and about 270 people effectively own almost one quarter of all land in Kavango (see page 116). Poultry is owned by 71% of households. Only half of all farmers have their own ploughs, and less than half the households along the river catch fish (see page 54).

Another common assumption is that most people are heavily dependant on subsistence farming to provide them with the majority of their food and incomes. This is correct for a proportion of households, especially those that are very poor, but it is also true that the majority of homes buy much of their food using money earned from sources that have nothing to do with farming. These issues can be explored by looking first at sources of income and second by examining how people spend their incomes. Households obtain incomes from a variety of sources. Some are 'in-kind' or material incomes, such as mahangu harvests or milk from cattle kept at home, while others are cash incomes from wages, trading activities, pensions or remittances, for example. Most households also have several different incomes, and even individuals often have different incomes as well. A small survey of rural households in 2002 found that 67% of homes had two or three cash incomes and another 23% had between four and seven different cash incomes.[24] The following table provides estimates of the total value of income from different sources in rural homes.

Percentages of total household income from different sources in Kavango.[25]

Source	Percentage of total income
Crop production	10
Livestock	8
Non-agricultural resources	19
Non-government employment	50
Government employment	14
Total	**100**

Note: Non-agricultural resources include goods such as fish, wood etc.

The most surprising result in this table is that farming activities generate less than one fifth of all income, compared with almost two-thirds coming from different kinds of employment. Household members who work away from home earn much of the income from employment, and about 46% of homes in 1992 had at least one such income.[26] The same study in 1992 found the value of incomes from employment to be very much greater than those of any others. Thus, the annual income of a home in which one or more people were employed was seven times greater than that of households that had no one working elsewhere.

Turning now to how people spend their incomes, a survey in 1994 showed that 63% of all expenditure was on food in rural homes, leaving 37% spent on other items such as clothing, housing, fuel and transport. Among households in urban areas, expenses on food (49%) were roughly equal to those spent on other goods and services. The table below provides details on what kinds of foods were obtained and their sources as either having been produced at home or bought for cash.

Thatching grass has become an important export commodity in recent years, and now earns the region several million dollars each year. Clay pots sold along the road near Katjnakatji are another recent innovation.

Percentages of total household expenditure on food and other goods and services in urban and rural areas in Kavango in 1994.[27]

Items	Urban	Rural
Cash cereals	16.4%	13.1%
Cash meat	10.5%	4.7%
Cash fish	2.5%	1.9%
Other cash food	15.3%	11.0%
Total cash food	***44.7%***	***30.7%***
In-kind cereals	1.5%	17.2%
In-kind meat	0.6%	2.1%
In-kind fish	0.3%	1.1%
Other in-kind food	1.6%	11.9%
Total in-kind food	***4.0%***	***32.3%***
Total food consumption	**48.8%**	**63.0%**
Consumption on other goods and services	**51.2%**	**37.0%**

Note: Other food includes dairy products, fat and oil, sugar, fruits, nuts, vegetables, and beverages, for example.

While we might expect that most food in urban Rundu was purchased, the figures in this table also show that about half of all food in rural homes was produced at home and the other half obtained from cash purchases. Other interesting results are the much higher expenditures by urban homes on meat and other foods, whereas almost all food obtained by rural homes consists of cereals. Both urban and rural homes also spend significant amounts on alcohol, especially so in rural areas where alcohol makes up 4.5% of the value of all expenditures.

Another way of looking at contributions of home produce and bought items to food needs is to assess the proportions of households consuming food from different sources (FIGURE 71). This shows that a good proportion of homes rely entirely on cereals, meat and fish that have been bought or bartered. Thus, about 28% of households do not produce their cereal needs, 50% do not produce the meat they eat, and 59% do not catch the fish they consume. By contrast, about 13% of households produce all the cereals they eat, while 7 and 10%, respectively, produce all their meat and fish requirements. In between these extremes are those families that both produce and purchase some of the cereals, meat and fish that they eat.

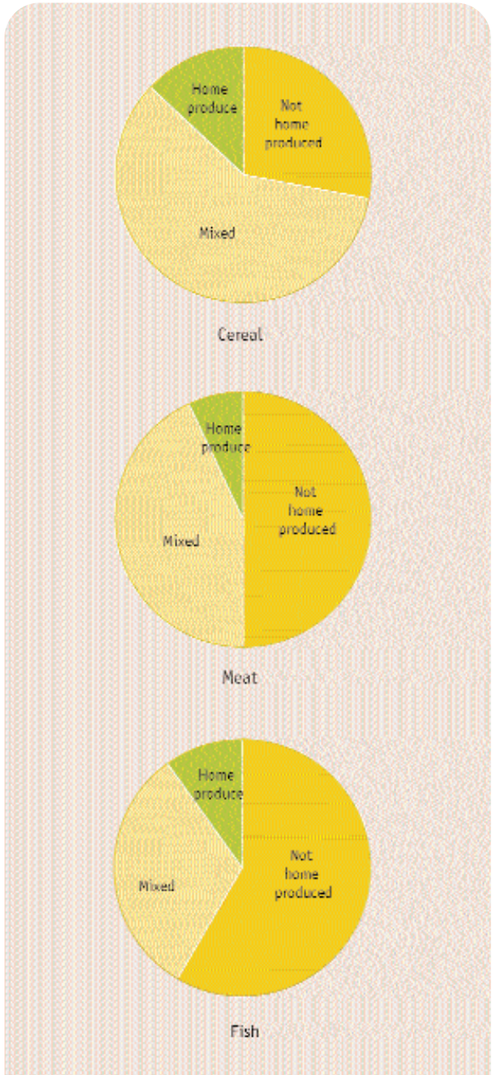


FIGURE 71
Sources of food, showing percentages of households that largely eat food that they did not produce at home, those consuming a mix of home produce and food obtained elsewhere, and those relying entirely on food they produce themselves.[28]

CHALLENGES FOR LIVELIHOODS

Many of the preceding pages have been devoted to farming because so much land is used for this purpose, and farming is apparently an important activity in which most rural households are engaged. However, its importance in contributing to incomes and food requirements is not as great as expected. This is most obvious for livestock farming, where the main value of cattle and goats rather lies in the security and investments they provide. But it is also true of crops since a surprisingly small proportion of the income of an average household comes from cultivation. This is made clear by the high proportion of income obtained from non-farming activities, and also by the large amount of food that is purchased with cash. Many households thus have significant cash incomes from non-farming enterprises, and the incomes come from a variety of sources.

And so this is what household economies look like today: a blend of cash and farming incomes. Compare this mix with the economies of a hundred years ago when an abundance of natural goods such as fish, wildlife and plant products was available to such an extent that farm products were probably used more as a supplement than as a dominant source of food. Most of the fish, wildlife and plant resources have now gone, but they are being replaced increasingly by cash incomes from jobs and informal businesses. Once again, this allows farming to be practised more on a supplementary basis than would be the case if more farm produce were needed for food.

The mix is also moving and changing extremely quickly as more and more people move into the modern cash economy, leaving behind their dependence on farming and other natural resources. Witness the rapid rate of urban growth of Rundu and the explosion of small business enterprises there (see page 121). Many new jobs have become available in Kavango, the number of teachers having risen by 800 from 1,400 in 1991 to 2,200 in 2002, for example. Add to these other government jobs and those in the escalating retail and other businesses.

And yet most plans for development in Kavango concentrate on one holy tenet: rural development. Some aspects focus on services to support people in rural areas while others attempt to improve household economies, most often by trying to raise production on small farms to provide greater food security and increase sales of farm produce. Irrespective of the particular focus, all the efforts are based on a central assumption that livelihoods on communal land can really be improved. Is this assumption valid? We think not.

A first argument against such a focus on rural development is that most people prefer alternative livelihoods, which they usually seek in towns as waged employees or running informal businesses. The rapid rate of migration to Rundu bears testimony to this. It is true that many people in towns retain links to rural households, and some even grow crops just out of town (see the photograph on page 119). However, movements to town reflect clear intentions to find better lifestyles, and so the promotion of rural, subsistence livelihoods simply runs against the aspirations of many people.

Second, rural life in this environment is hard and insecure because of the poor soils, low and unreliable rainfall, and prevalence of disease. Services are also hard to come by. In many places much of the natural vegetation has been destroyed, so much so that wood and grazing is now available only after a long walk. Water, too, is often far away and often not safe to drink. In short, this is not a place to live a comfortable life, particularly if the most attractive areas are already densely occupied by other people.

As a third and related reason, making a good living in this environment requires much more than the few hectares most people are expected to occupy on communal land. Instead, farming is only profitable if large expanses are available on which to grow hundreds of hectares of mahangu, or perhaps to irrigate maize, wheat or cotton, or the thousands of hectares on which a hundred and more cattle can be ranched. It is remarkable that there are only a few hundred large-scale farmers in all of Kavango, consisting of about 70 mahangu farmers and perhaps 500 cattle farmers who have more than 100 animals (most of these cattle owners are not commercial farmers anyway, because few of their animals are ever sold). The 50 vegetable growers at the Salem project could also be regarded as large-scale farmers. The small plots are only commercially viable because these farmers can sell their produce at Rundu (see page 99).

This raises a fourth reason: the lack of markets where farmers can sell their products to make some kind of reasonable income from their labour. Much of this problem is due to the fact that marketing infrastructure (such as storage and transport) and systems to maintain stable levels of supply and demand are largely lacking. The number of potential buyers is also relatively small, even though demands should increase as the population grows and more people have cash to buy food.

Fifthly, despite the well established practice of hiring labour and earning money from *stukwerk* (odd jobs or piece work), labour for small-scale farming is clearly limited. Many anecdotal reports indicate that people are either unavailable or unwilling to work at such activities. And since labour is such an important input, especially for crop production, it is unlikely that profitable yields will be obtained in the absence of a much greater and reliable supply of labour.

Finally, capital is required for farming activities to develop to a point that they become lucrative and beyond the level of subsistence. It is probably true that every single large-scale and/or commercially active farmer in Kavango had capital to invest in livestock, fertilizers, tractors, seed and other inputs. The capital has usually been saved from a well-paid job or business. Small-scale farmers seldom have access to such savings, and their lack of tenure and assets make it virtually impossible to get loans.

These are all reasons that make rural development difficult, especially for subsistence farmers who face high risks and low rewards, and have such better options elsewhere. Since formal jobs provide incomes many times greater than those from small-scale farming it is not surprising that most people have little interest in investing in farming and less and less attachment to rural life. For the time being, however, many rural people have little immediate hope of moving up the ladder, remaining stuck on the bottom rung where they eke out a living from farming and fishing and gathering.

Compare these rural poor with people who have entered the modern economy, mostly as wage earners working as civil servants or running small, informal businesses. These are Kavango's upwardly mobile set, people who are setting the pace by taking command of much of the economy and the land, while also being important role models for the remaining population. It is this 'elite' group who sets the pace and these are the people who will determine much of how the region's future pans out.

The transition of a society dominated by rural life to one where urban lives are the norm will take some generations. For several reasons, many people will also elect to remain in the countryside. Most of them will be poor and they should not be abandoned. But efforts to support them will be more effective if they are appropriately cast in terms of poverty alleviation rather than as rural development. Effective development can then concentrate on urban areas and those options that recognize and capitalize on real benefits to be gained from rural environments, for example large-scale farming, tourism and the economic use of wildlife.

Key notes

- The variety of risks associated with crop cultivation and low inputs to farming mean that crop farming is generally unproductive.
- Livelihoods have changed rapidly in recent decades, especially as a result of more cash incomes and the reduced availability and use of natural resources.
- Mahangu (pearl millet) is the dominant crop because it is the only cereal that can grow on poor sandy soils where rainfall is low with frequent dry spells. Over 90% of cultivated areas are planted with mahangu.
- Soil nutrients are treated as non-renewable resources since little effort is made to replace them. Thus, minimal use is made of fertilizers or compost, and about only 20% of farmers use manure.
- Average yields of about 100 kilograms of mahangu per hectare are insufficient for the cereal needs of most households.
- Most of the many horticultural projects failed because they were run on a co-operative basis and because produce was difficult to market.
- An absence of famines and availability of other foods were probably the major factors to mould farming systems.
- Livestock farming is dominated by herds of about 150,000 cattle and 65,000 goats.
- Larger and wealthier households own more livestock than homes with smaller incomes and fewer household members.
- Few livestock are available for sale, with the result that only about 7% of all cattle and 8% of all goats are sold each year.
- Rural households vary greatly in wealth and most households have a variety of incomes contributed by different family members.
- Food or cash derived from farming contributes little to an average home's needs compared to the substantial values of incomes from wages and other sources.
- Incomes of homes with one or more employed people may be seven times greater than those of households without an employed family member.
- In rural households, about half of all food is produced at home and the other half obtained from cash purchases.
- Rural development in the region is difficult to achieve, largely because subsistence farmers face high risks and low rewards, and have better options elsewhere.