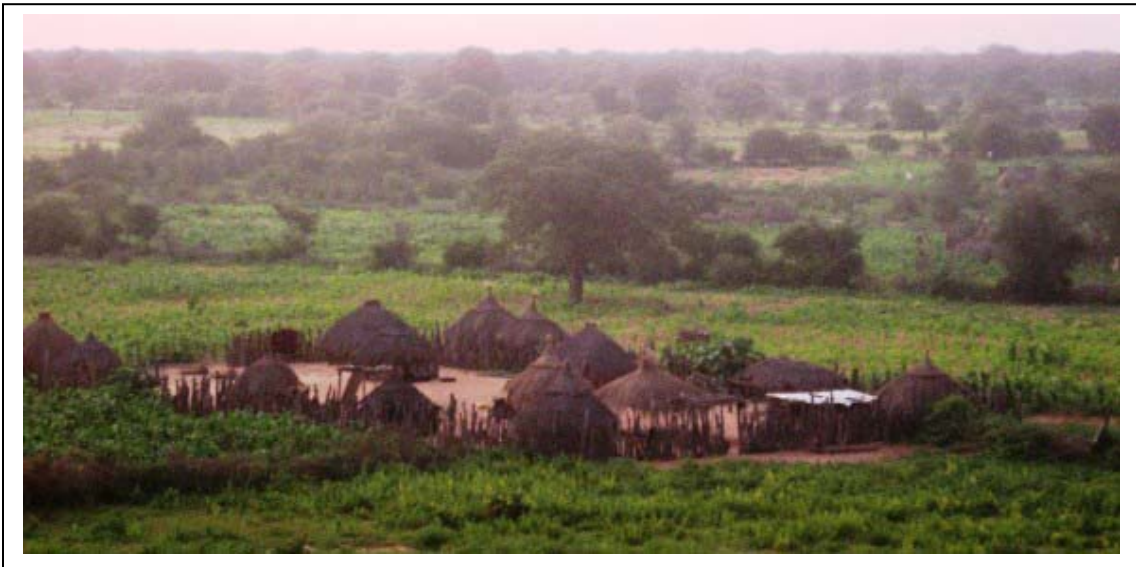




LAND USE PLANNING FRAMEWORK FOR THE KAVANGO REGION OF NAMIBIA WITHIN THE OKAVANGO RIVER BASIN

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Team members

The following organisations and people contributed to the planning, fieldwork, analysis, discussions and drafting of this report:

Organisation / affiliation	Names	Contact details
Namibia Nature Foundation (NNF)	Dr Chris Brown	cb@nnf.org.na
	Ms Dorothy Wamunyima	dorowams@gmail.com
	Mr Alfons Kapere	
	Mr Mwazi Mwazi	mm@nnf.org.na
	Ms Antonia Baker	ab@nnf.org.na
Ministry of Lands and Resettlement (MLR)	Mr Christopher Mujetenga	mujetenga08026@itc.nl
	Mr Eddie Mukuahima	
	Mr Olaf Haub	Olafhaub@yahoo.de
	Mr Christian Groeneveld	C.Groeneveld@GTZ.de
Southern African Institute for Environmental Assessment (SAIEA)	Dr Peter Tarr	peter.tarr@saiea.com
RAISON	Dr John Mendelsohn	john@raison.com.na
Independent Social and Institutional consultant	Mr Brian Jones	bjones@mweb.com.na
Independent Natural Resource Economics consultant	Dr Jon Barnes	jibarnes@iafrica.com.na
Independent biodiversity and wildlife specialist	Mr Jo Tagg	jotagg@mweb.com.na
WWF in Namibia	Dr Greg Stuart-Hill	gstuart@wwf.na

Please direct correspondence to:

Dr Chris Brown
Namibia Nature Foundation
PO Box 245, Windhoek
e-mail: cb@nnf.org.na

or: Mr Christoher Mujetenga
Ministry of Lands & Resettlement
Private Bag 13343, Windhoek
mujetenga08026@itc.nl

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List of frequently used acronyms

CBNRM	Community-based natural resource management
CBO	Community-based organisation
CDC	Constituency Development Committee
CLB	Communal Land Board
EA	Environmental Assessment
FAO	Food and Agricultural Organisation
IEM	Integrated Ecosystem Management
IMSCLUP	Inter-ministerial Standing Committee on Land Use Planning
IRBMP	Okavango Integrated River Basin Management Project
LUEB	Land Use and Environmental Board
LUP	Land Use Plan
LUPF	Land Use Planning Framework
MAWF	Ministry of Agriculture, Water and Forestry
MET	Ministry of Environment and Tourism
MLR	Ministry of Lands and Resettlement
MRLGHRD	Ministry of Regional and Local Government and Housing and Rural Development
NGO	Non-governmental organisation
NNF	Namibia Nature Foundation
RDCC	Regional Development Co-ordinating Committee
TA	Traditional Authority
VDC	Village Development Committee

Executive Summary

This report provides a land use planning framework for the Kavango Region of Namibia. It has been commissioned in order to assist in developing an approach to land use planning for the Okavango River Basin. In addition, the Ministry of Lands and Resettlement (MLR) in Namibia is starting to develop Regional Land Use Plans for the country. This Kavango land use planning framework provides experience and lessons to both initiatives. It is envisaged that the framework will support the production of one land use plan serving both the needs of the Okavango River Basin and Namibia's Regional planning process.

For the purposes of this report we view land use planning as the "systematic assessment of land and water potential, and of alternatives for land use and economic and social conditions in order to select and adopt the best land-use options." The purpose of land use planning therefore is to select and put into practice those land uses that will best meet the needs of the people while safeguarding resources for the future. Land use planning should not take place in isolation from other development planning. They should be integrated.

This report provides background data on the Kavango Region and on the main land uses in the region. Some important findings include the following:

- Most rural residents derive most of their income from other livelihood activities than farming.
- Crop growing in Kavango is difficult because of poor soils, the variable climate, and distance from markets. Residents practice shifting cultivation in order to cope with these conditions.
- There are opportunities to increase crop yields and avoid shifting cultivation through measures such as minimum tillage conservation farming and combining fields of individuals for economies of scale.
- There is conflict between residents over the need for land for crop growing and the need for land for livestock grazing in areas close to the river. Residents call for separate areas to be designated for each activity.
- While large areas of land have been allocated for leasehold livestock farms for individuals, these farms are in remote areas where there is little or no infrastructure, limiting the potential viability of these farms.
- Tourism has become well established in and around Rundu and in the Mukwe Constituency. There is potential to increase tourism development and increase the economic impact of tourism in the region.
- There is potential to develop different forms of wildlife use in some of the more remote areas of the region. In some cases this could be a means of diversifying land use on the individual leasehold livestock farms along with the harvesting of timber and non-timber forest products.
- Low input fish "ranching" in large ponds and backwaters has the potential to provide higher yields than high input cooperative fish "farming". Fishing lodges can bring higher economic returns than fishing for local consumption or sale, and could be developed in specific areas along the river, together with fish sanctuaries.
- Large-scale irrigation of staple crops is not financially or economically viable. In order for irrigation to be financially and economically viable a large proportion of high value crops needs to be grown. There is potential for small-scale market gardening producing vegetables.

- Due to a proliferation of policies and laws in different sectors, many different stakeholders affect land use planning and land use including line ministries, Regional Councils, Traditional Authorities, conservancies, community forests, farmers' associations, etc. In many instances overlapping authorities over land and land use leads to conflicting allocations of land.
- Community stakeholders wish to have the final say on how the land is used. They say the fact that they have described problems in meetings does not give central government or NGOs the right to dictate to them how land use should be changed. Local communities do not want to see their land given away.

The findings and analysis in this report suggest the need for some changes in approach for some of the main drivers for land use in Kavango:

Diversification of livelihoods and land uses

An important driver of land use in Kavango has been the assumption that improved livelihoods for most rural residents will be achieved through improved and increased crop production and livestock farming. Government and donor inputs have focused on strengthening the agricultural sector with limited results. Most people derive most of their income from off-farm activities. In addition there is increasing urbanisation. This suggests that any land use plan for Kavango needs to recognise the limitations of farming for supporting livelihoods and needs to aim to keep options open for the development of other livelihood activities based on the comparative advantages of the region.

Using irrigation strategically

Due to the lack of viability of using irrigation for growing staple crops, irrigation should be strategically used to grow high value crops that are financially and/or economically viable. Development of any irrigation project should be undertaken with caution and only after a detailed feasibility study that includes an environmental impact assessment. Subsidies should only be provided where economic viability is indicated but where financial viability is marginal.

Promotion of Tourism as a land use

Tourism, like farming, is not the sole development solution for Kavango. However, there are some areas of the region where tourism has a comparative advantage over other forms of land use and should be actively promoted. The area along the river from Mukwe to Mahango should be identified as a tourism growth area, including the east bank of the river. In this tourism development zone, other forms of land use such as irrigated farming should be secondary. In addition suitable areas for tourism development should be identified in other areas along the river, linked to wildlife corridors and fish reserves.

Promotion of wildlife as a land use

Again, the use of wildlife and the development of wildlife based industries will not solve all the development problems of Kavango. But there are areas of the region where the use of wildlife can help diversify livelihoods and land uses and contribute to overall economic growth. Key zones for the development of wildlife as a land use should be on land adjacent to protected areas and particularly where conservancies or community forests have been formed close to protected areas or to areas with wildlife and tourism potential. Areas suitable for game ranching with high value species should be identified.

Flexibility for leasehold livestock farms

Just as with many freehold livestock farms, the viability of the leasehold farms in Kavango is likely to depend upon their potential for diversification. Land use and development planning should ensure flexibility to enable the farmers to respond to market changes. Avoiding the fencing of these farms would allow wildlife use and safari hunting to be integrated or for zones to be allocated to wildlife and hunting within a larger bloc of farms. In addition farmers would be able to develop the utilisation of various forest products such as timber and plants such as Devil's Claw.

Incentives for business development and trade

Development policies and approaches for Kavango should identify Rundu as a business and trade hub and provide appropriate incentives to attract businesses. In more rural areas there is a need to streamline and clarify processes for acquiring land for business development and promote business development and job creation close to identified development nodes.

If the above changes in thinking regarding key drivers of land use were applied, opportunities for changing the development path of the Kavango Region could emerge. The following is a scenario or vision of how land use and development could be in the future if new approaches to land use are applied and diversified forms of land use promoted.

With appropriate incentives, job creation and provision of improved services, more people move off the land to **development nodes** along the river around existing large villages, and to settlements along the main tarred road between Rundu and Divundu. At these development nodes there are schools, clinics, water and electricity, government extension offices and offices of the traditional authorities, constituency development committees, etc.

In **farming areas** between these development nodes there are large consolidated fields where individuals have cleared their own area of land. Each person has his or her own fields but there is a marketing cooperative. In these consolidated areas of fields conservation farming is practiced which is increasing yields and removing the need for shifting to new fields after a few years.

Grazing areas exist towards the inland away from the immediate vicinity of the river and where cattle posts are established with adequate water. Cooperative herding is practiced as part of a holistic range management approach. Cattle dung is collected for fertilization of the crop fields under conservation farming. Improvement of livestock is taking place, farmers are supported to market livestock, and sufficient quarantine and feed lot facilities exist.

Two types of **irrigated farming** are taking place. Close to development nodes and Rundu farmers are producing vegetables for sale. In designated areas along the river high value crops are being produced.

Lease-hold farming areas are being managed cooperatively through holistic range management although each individual farmer retains title to his or her land. Diversification has taken place through wildlife use in certain areas such as trophy hunting, and farmers are cooperating in the marketing of timber and non-timber forest products. Some farmers have gone into game ranching.

Pockets of **forest and undeveloped areas** along the river are conserved as part of conservancies and community forests. They are developed for tourism and as corridors for wildlife between Namibia and Angola. At the river these areas are developed as river/fish sanctuaries and fishing lodges attract additional tourists. New tourism products have been developed such as canoe trips down river from Rundu stopping at these wildlife corridors and using facilities in conservancies.

Selected backwaters and large ponds are developed for fish ranching with low input systems. Sufficient fish are produced for sale.

A large part of the Mukwe Constituency is designated as a **tourism growth zone**. On the east bank of the river farming takes place in designated areas in consolidated fields which are protected from elephants and hippos. Most of the river front on the east bank is available for tourism development. This area has become a launching point for tourism into Angola from Namibia and a stop over for tourists traveling from Botswana up river to Angola. Tourists are able to drive through a continuous wildlife area from Kaudum National park to the Mahango section of the Bwabwata National Park. Conservancies are benefiting from concessions in Kaudom.

Tourism facilities are developed in the **Mangetti National Park** which are contributing to the local economy through jobs and implementation of a benefit sharing agreement.

Game ranches are developed in selected areas for the production and sale of high value game species.

Trade and export opportunities have increased and are boosting **business development**, particularly in Rundu. Small industries such as an abattoir and tannery making leather products and a timber processing factory have been established. These industries depend on a supply of hides from

conservancies and farmers and on a supply of timber from community forests. Business development is promoted and bureaucratic processes for establishing a business are streamlined.

In addition to the above, new opportunities in Kavango could be unlocked if:

- a) Communities were able to obtain secure rights and tenure (e.g. leasehold) over the remaining “communal land” and charge rentals for the use of the land for irrigation schemes, tourism developments, etc., or sell sub-leases so that the land has a tradeable value.
- b) Villages/Communities could gain secure rights and tenure over the land so they could better control the use of grazing land and other natural resources and have the right to charge other people for the use of their resources.
- c) The veterinary fence could be moved to the Angolan border.

Consideration needs to be given to the implementation of any land use plan for Kavango. Development planning and Land-use planning are two sides of the same coin. They cannot be done separately. At the moment, these two planning processes reside under the responsibilities of different Ministries. One institution (which can be a collaboration between different organizations) needs to have clear responsibility for “integrated land and development planning” and implementation, and the plan needs to be understood and used by all relevant stakeholders. A specific programme should be developed to ensure that the plan is distributed to all relevant institutions and that stakeholders understand the relevance and use of the plan.

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1. Introduction

1.1 Background to the report

This report provides a land use planning framework for the Kavango Region of Namibia. It has been commissioned in order to assist in developing an approach to land use planning for the Okavango River Basin. In addition, the Ministry of Lands and Resettlement (MLR) in Namibia is starting to develop Regional Land Use Plans for the country. This Kavango land use planning framework provides experience and lessons to both initiatives. It is envisaged that the framework will support the production of one land use plan serving both the needs of the Okavango River Basin and Namibia's Regional planning process.

The Kavango Region of Namibia contains the active component of the Okavango River Basin in Namibia. While the full demarcation of the Okavango Basin in Namibia extends to the source of the Omatako Omurumba in the Omatako hills south of Otjiwarongo, and to a number of east-draining Omirumba in the Otjozondjupa and Omaheke Regions, these ephemeral drainage systems have not flowed to the Okavango River within living memory. As a result, Namibia considers the Kavango Region to be the area containing the active Okavango River Basin in Namibia.

At the outset it should be clarified that, in Namibia, the inhabitants of the Okavango River Basin refer to the river as the "Kavango" River. In Angola, the main two tributaries making up the "Kavango" River in Namibia are the Kubango and Cuito Rivers. In Botswana the river is called the Okavango. International convention directs that, when referring to a river system, its formal basin-wide name is taken as that used at the down-river end, normally where the river enters the sea. In the case of the Okavango River, its down-river end is located in Botswana and the name used in Botswana is taken as the overall name for the system. This implies no disrespect to names used in Namibia or Angola.

The Integrated River Basin Management Project (IRBMP) of the Okavango River Basin, working for the Okavango River Basin Commission (OKACOM), is supporting the development of this Land Use Planning Framework (LUPF). OKACOM is also preparing an integrated environmental plan for the basin through the development of a Strategic Action Programme (SAP). This Kavango LUPF will provide an important foundation and input to the basin-wide environmental plan.

This report aims to review current land use in the Kavango region, to look at the policy and institutional setting in Namibia for land-use planning, to reflect the views, ideas and opinions of the inhabitants of the Kavango region on present and future land use options, and to present a strategic assessment of current, pipeline (ideas on the table) and optimistic (the perceived ideal) land uses.

1.2 Background to land use planning

There are many publications on, and guidelines for, land use planning. Most of these address an industrialised situation where there are clear institutional authorities and responsibilities, and where land uses are already well established and demarcated. The situation in a rural area such as the Kavango Region in Namibia, requires some original thinking, the careful selection and design of approaches that are suitable for local and national conditions and the implementation of these approaches using the correct regional and local institutions and mechanisms. As a starting point, the following concept of land use planning was adopted:

"Land use planning means the scientific, aesthetic, and orderly allocation and use of land, water, other natural resources, facilities and services with a view to securing the physical, economic and social efficiency, health and well-being of urban and rural communities" (Canadian Institute of Planners).

In a nutshell, this means adopting the best use of land, natural resources and competitive advantages for people's long-term socio-economic development.

The United Nations Food and Agriculture Organisation (FAO) is more oriented towards land use planning in developing countries and provides the following definition, which is useful for our context:

"Land-use planning is the systematic assessment of land and water potential, and of alternatives for land use and economic and social conditions in order to select and adopt the best land-use options."

The purpose of land use planning therefore is to select and put into practice those land uses that will best meet the needs of the people while safeguarding resources for the future. The driving force in planning is the need for change, the need for improved management. Land use planning should not take place in isolation from other development planning. It should be viewed as one of the foundations for such planning.

Land-use planning can be expressed in the following questions:

- What is the present situation?
- Is change desirable?
- If so: What needs to be changed?
Land-use problems and opportunities are identified by (a) discussions with the people involved, (b) by the study of their needs and the resources of the area, and (c) by strategic assessments of options.
- How can the changes be made?
Planners seek a range of ways to make use of the opportunities and solve the problems.
- Which are the best options?
Decision-makers choose the best option, based on forecasts of the results of implementing each alternative.
- How far is the plan succeeding?
Once a land-use plan is put into effect, planners monitor progress made towards its goals and change the plan if necessary.

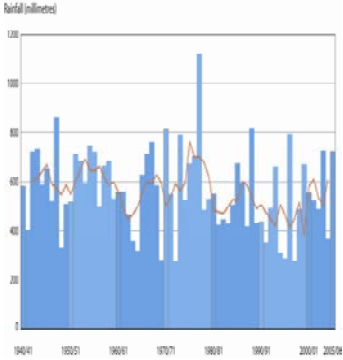

There are two overriding components that must be borne in mind when doing land use planning:

Planning is for people. People's needs drive the planning process. Local land users, local elected politicians, traditional authorities and the wider community who depend on the land must be involved at the forefront of the process and share their ideas and vision for the future.

Sustainability. Sustainable land use is that which meets the needs of the present while, at the same time, conserving resources and options for future generations.

Land use planning is an important part of social policy, ensuring that land is used efficiently for the benefit of the wider economy and population as well as to protect the environment.

A land use plan brings together Information, Ideas & Reality

<p><u>Information</u></p>  <p>Rainfall (millimeters)</p>	<p><u>Ideas</u></p> <p>?</p> <p>Tourism? Business? Forestry? Improved agriculture? Etc.</p>	<p><u>Reality</u></p> 
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A land use plan must be dynamic & flexible, and responsive to changing conditions & circumstances

This report brings together information from a number of different sources. It draws on existing data regarding the Okavango Basin and the Kavango Region available in various reports and publications. This information is provided in Section 2.

The team carried out a review of Namibian policy and legislation relating to land use planning and land management in order to provide background information and analysis on the main policies and laws affecting land use in communal areas such as Kavango. The review also identifies the main institutions responsible for or affecting land use and land management. It identifies strengths and weaknesses of existing policies and laws, identifies gaps and makes recommendations for

addressing these. The policy review was carried out by means of a desk study which covered policy documents, primary legislation and existing policy reviews of the land and natural resource sectors. A summary of this review is provided in Section 3.

In order to gain the input of local communities the land use planning framework team carried out a series of meetings in the region to assess how people use land currently, how they wished to see it used in the future and how changes in land use could be achieved. The meetings were attended by Regional Councillors, government officials, representatives of Traditional Authorities, representatives of Constituency Development Committees (CDCs) and Village Development Committees (VDCs), Conservancy and Community Forest Committee members, farmers, fisherfolk, representatives of the tourism, craft and business sectors, and interested community members. The agenda for these meetings is provided in Annex 4. The results of these meetings are summarised in Section 4.

In Section 5 the team identifies the main drivers for land use in the Kavango Region and discusses the impacts of each of these drivers.

The team carried out a strategic assessment and economic analysis of land use options in the Kavango Region. The team used a Strengths, Weaknesses, Opportunities and Threats (SWOT) approach for the analysis of 12 different land uses, applying three different scenarios to each. These were i) the current situation, ii) the situation as it is expected to develop or “pipeline”, and iii) the optimistic or perceived ideal situation. Economic analysis was carried out where possible for each scenario for each land use. The results of the strategic assessment and economic analysis are provided in Annex 3.

In Section 6, the team uses the data and analysis from each section of the main report as well as the results of the strategic assessment and economic analysis to provide a discussion of land use planning options for the Kavango Region and to provide recommendations for carrying out further land use planning in the region and the Okavango Basin.

2. The Kavango Region

2.1 Kavango's strategic location

Kavango's central position in southern Africa (Figure 1) presents the region with three main advantages from which improved economic growth could be achieved:

- trading opportunities
- tourism
- custodianship over the central section of the Okavango River Basin.

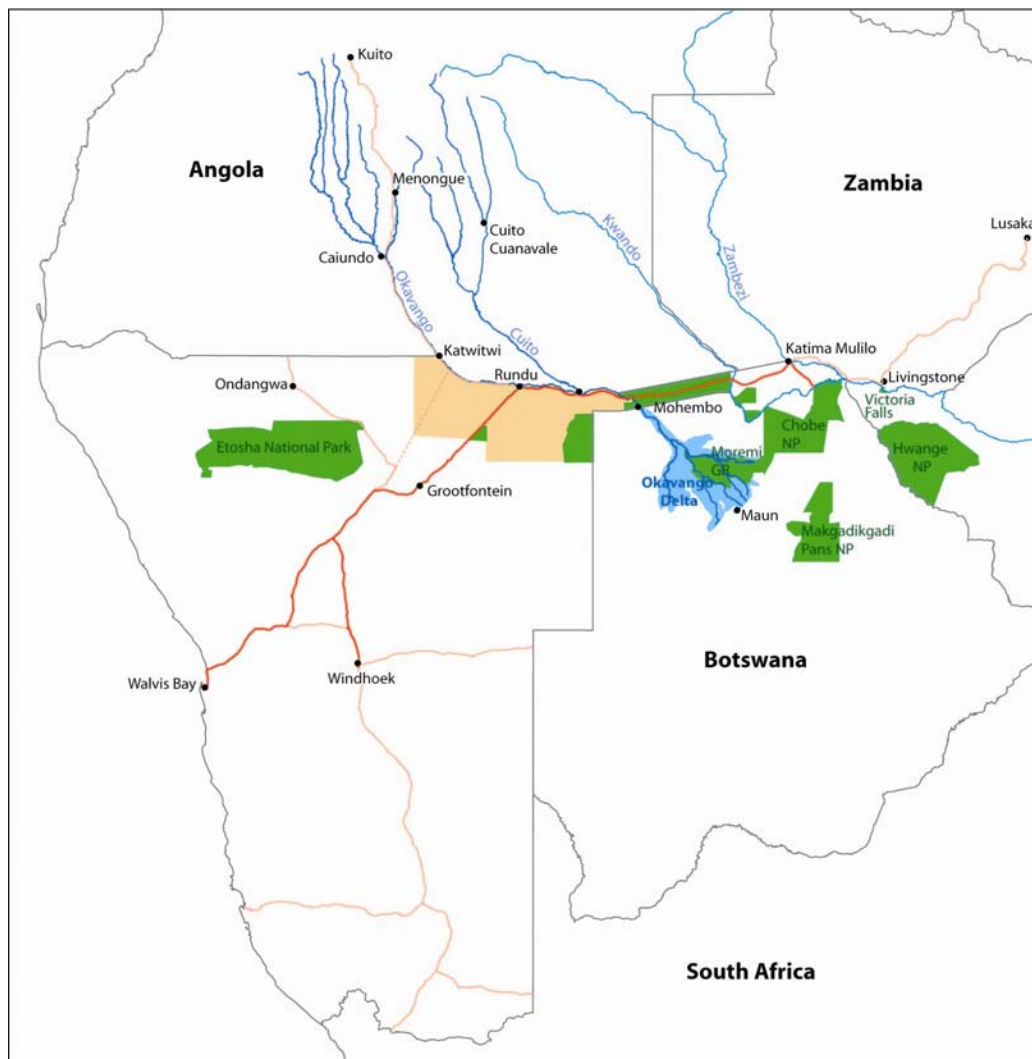


Figure 1. Kavango lies adjacent to Angola and Botswana, placing it well for trade in goods, services and tourism

TRADE: Kavango is becoming a major trade partner and supplier to large areas in northern Namibia and south-eastern Angola. The region also occupies a central, strategic position along the Trans-Caprivi Highway trade route between Namibia and

Zambia, Zimbabwe and Botswana. The same is true for its position along trade routes between Namibia and Angola. The route to Angola is to be improved by a major road linking Tsumeb to Katwitwi.

A key point is that Rundu is the only major economic centre within a huge zone that stretches 900 km west to east from Ondangwa to Katima Mulilo, and about 1,000 km north to south from Menongue to Grootfontein and Maun. Rundu and the region as a whole are thus major suppliers, or potential suppliers to people living in a very large area.

TOURISM: While Kavango offers its own attractions, the Region could benefit greatly by tourist routes that link major tourism areas in the west (Etosha, the Atlantic coast and Kunene Region) with those to the east (Caprivi, Victoria Falls, Hwange, Okavango Delta and Chobe). There is similar potential for developing Kavango as a springboard for tourism into southern Angola.

OKAVANGO BASIN: This is one of the most pristine river systems in Africa. Downstream in Botswana, the Okavango Delta is the world's biggest protected and proclaimed RAMSAR site¹. The Delta is also of strategic value since it provides the basis for most of Northern Botswana's economy. The challenge for Kavango and southern Angola is to expand and exploit the economic value of the Basin that is based on tourism.

2.2 The Okavango River

The Okavango River is one of very few rivers that do not flow to the sea, and its waters are unusually clean and clear. The river flow is not obstructed by dams and it is much less polluted than most other rivers anywhere in the world.

The Delta downstream in Botswana is an oasis of extreme beauty and home to a rich assemblage of wildlife and biological production. The Delta also provides a tourism industry that forms the basis for a substantial part of Botswana's economy. Most formal employment in northern Botswana is based directly or indirectly on tourism to the Delta, and tourism is Botswana's second most-important income.

¹ Wetland protected under the international RAMSAR Convention for the protection of important wetlands

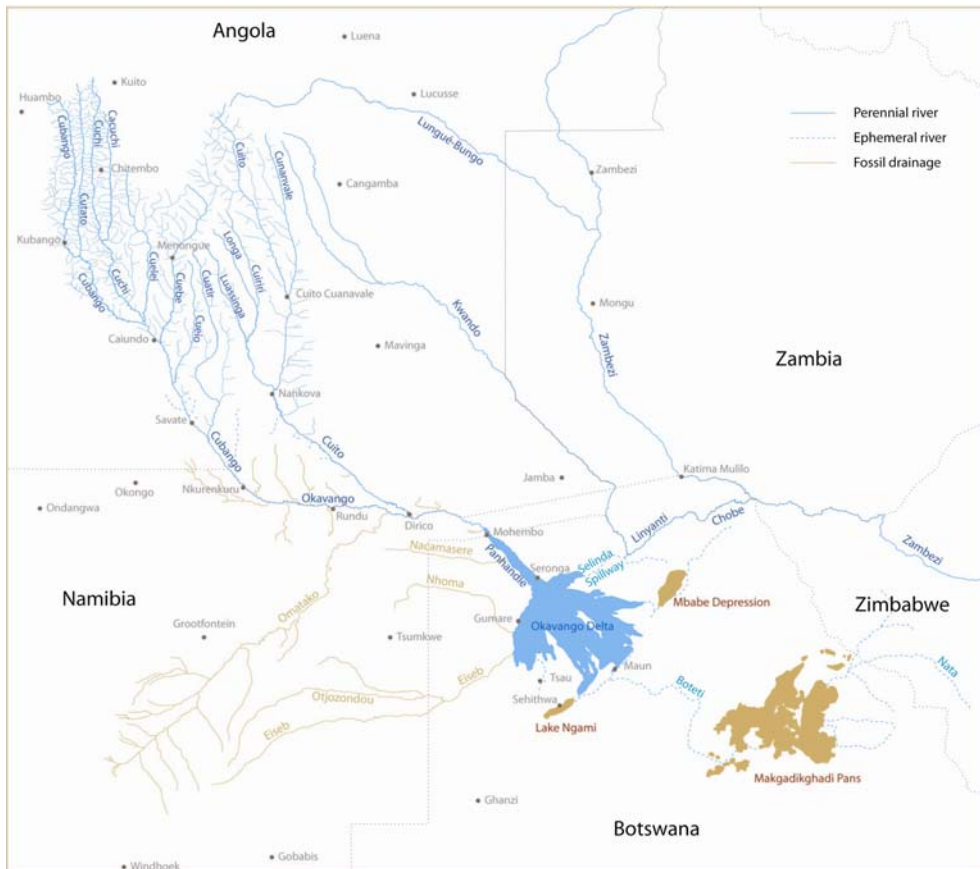


Figure 2. The Okavango River Basin stretches over an area of about 190,000 square kilometres in Angola, Namibia and Botswana. All its water originates in Angola and is deposited in the Delta in Botswana.

The challenge for Kavango and southern Angola is to preserve the quality and integrity of the Okavango River Basin, and to expand and exploit the economic value of the Basin through the development of businesses and trade that provide jobs in urban areas as well as increased tourism and the sustainable use of natural resources. These are the main areas of likely economic growth in the future.

Approximately half the flow of the Okavango comes down the Cuito, while the other half is in the Cubango as it enters Kavango at Katwitwi. Flows along the Cuito are much more stable while those from the Kubango vary much more from season to season. The highest flows follow good summer rain falls in the upper catchment of the Kubango. No rivers or water flows into the river from Namibia or Botswana, and so all the river water depends on sources in Angola. Similarly, the quality and purity of all water flowing into Botswana depends on flow from Namibia.

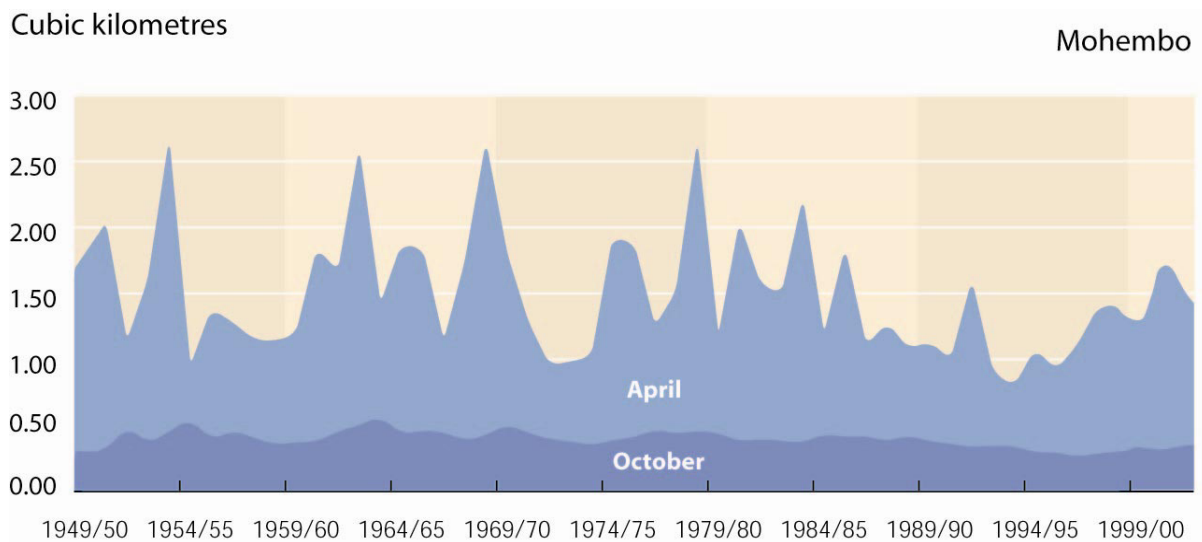


Figure 3. River flows vary substantially from year to year as a result of varying rainfall in the upper north-western catchment in Angola. The graph also shows that flows during the dry season (recorded in October) are much lower, and more stable than those in summer (April). These are flows recorded at Mohembo as the Okavango River leaves Kavango into Botswana.

While the focus of Botswana's use of the Okavango has been on its tourism economy, Namibia has viewed the river more as a passing resource to be exploited before it leaves the Kavango at Mohembo. Thus, the river is perceived as a source of water for irrigation and to provide water for domestic and industrial needs in the central regions. Other uses include supplying water to Rundu, fisheries and potential hydropower at Popa Falls. A number of lodges and camp sites have been developed by private individuals and companies, and by one conservancy, but the government has paid little attention to the creation of wealth and jobs through tourism to the Okavango River.

2.3 Socio-economic setting

Kavango is one of the poorest regions in Namibia. This is clearly reflected in a report by the United Nations Development Programme on trends in human development and human poverty (UNDP 2007) which presents data on the Human Development Index (HDI) and the Human Poverty Index (HPI) for Namibia's 13 regions.

The HDI provides a quantitative representation of three main dimensions of human development: a long and healthy life, knowledge and a decent standard of living. Each of these dimensions is assigned corresponding quantitative indicators. The HDI is then the simple average of the three indices (UNDP 2007). Table 1 indicates that of the 13 regions, Kavango has the second worst life expectancy at birth, third worst literacy rate, sixth worst gross school enrolment ratio and the second lowest annual average per capita income.

Table 1. HDI Indicators for Namibia

	Life expectancy at birth		Literacy rate, + 15 years (%)		Gross enrolment ration, 6-24 years (%)		Annual average adjusted per capita income (N\$)	
	2001	1991	2001	1991	2001	1991	2001	1991
Namibia	49	61	84	76	66	68	10 358	5 448
Caprivi	41	53	80	66	60	66	6 411	2 413
Erongo	59	65	94	85	58	63	16 819	8 189
Hardap	50	60	86	79	60	63	12 092	8 977
Karas	57	60	92	88	58	59	12 706	10 049
Kavango	44	57	72	62	63	66	4 427	2 662
Khomas	58	68	96	91	59	57	25 427	17 152
Kunene	55	63	59	51	45	50	7 240	3 327
Ohangwena	41	63	80	71	72	74	4 304	1 616
Omaheke	60	59	67	57	56	51	12 232	5 955
Omusati	45	65	84	78	77	84	5 466	2 193
Oshana	46	62	91	86	75	77	9 963	2 902
Oshikoto	46	61	84	78	71	71	5 895	2 537
Otjozondjupa	61	61	75	66	56	52	9 457	5 525

Source: adapted from UNDP (2007)

These figures result in Kavango having the second lowest HDI (0.410) for Namibia after Ohangwena (Table 2).

The Human Poverty Index also concentrates on three essential dimensions of human life; longevity, knowledge, and a decent standard of living. However, whereas the HDI provides a measure for the capabilities of individuals, the HPI focuses on deprivation in the same three dimensions (UNDP 2007). Thus the first deprivation relates to survival or vulnerability to death at a relatively early age; the second relates to knowledge or being excluded from the world of reading and communication and the third relates to a decent living standard in terms of overall economic provisioning or poverty as measured by income. Table 3 shows that of the 13 regions, people in Kavango have the fourth highest probability at birth of not surviving to age 40, the third highest illiteracy rate and the second highest share of the population in households that spend more than 60% of total income on food. These indices result in Kavango, along with Omusati and Oshikoto, having the highest Human Poverty Index (45) of the 13 regions (Table 4).

Table 2. HDI Namibia 2001-2004 and 1991-1994

	Human Development Index	
	2001-2004	1991-1994
Namibia	0.557	0.607
Caprivi	0.421	0.441
Erongo	0.705	0.690
Hardap	0.572	0.637
Karas	0.664	0.666
Kavango	0.410	0.480
Khomas	0.732	0.784
Kunene	0.504	0.509
Ohangwena	0.403	0.524
Omaheke	0.627	0.528
Omusati	0.476	0.595
Oshana	0.548	0.602
Oshikoto	0.490	0.555

Otjozondupa 0.638 0.567

Source: adapted from UNDP (2007)

Table 3. Indices for Survival, Illiteracy, and Income Poverty

	Probability at birth of not surviving to age 40 (%)		Adult illiteracy rate (%)		Share of population in households that spend more than 60% of total income on food (%)	
	2001	1991	2001	1991	2003/04	1993/94
Namibia	42	18	16	24	32	38
Caprivi	55	28	20	34	40	46
Erongo	25	14	6	15	5	27
Hardap	39	20	14	21	25	19
Karas	28	19	8	12	18	25
Kavango	50	23	28	38	50	71
Khomas	27	10	4	9	3	8
Kunene	33	16	41	49	39	39
Ohangwena	57	16	20	29	27	40
Omaheke	27	22	33	43	40	53
Omusati	52	13	16	22	50	39
Oshana	49	16	9	14	33	47
Oshikoto	49	16	16	22	53	36
Otjozondupa	24	18	25	34	20	43

Source: adapted from UNDP 2007

Table 4. HPI Namibia 2001-2004 and 1991-1994

	Human Poverty Index (%)	
	2001-2004	1991-1994
Namibia	33	29
Caprivi	43	38
Erongo	18	20
Hardap	30	20
Karas	21	20
Kavango	45	52
Khomas	19	9
Kunene	38	39
Ohangwena	42	31
Omaheke	34	43
Omusati	45	29
Oshana	37	33
Oshikoto	45	27
Otjozondupa	23	35

Source: adapted from UNDP (2007)

According to NPC (2007) agricultural output alone is not sufficient to sustain most households. Livelihoods therefore are considerably diversified and a major source of income for many families is wages and salaries. Non farming activities, pensions and cash remittances are also important.

About 70% of the whole population lives within a ribbon 10 kilometers wide along the River. This is where people first settled because water was available and soils and pastures were most suited to farming. Nowadays, people are also attracted by greater economic opportunities, especially in Rundu and growing settlements, and by services that are more available along the River than elsewhere. Settlements away from and to the south of the river developed for several reasons:

- A lack of open, arable land and grazing along the river led people to seek areas which they could farm
- The provision of water from boreholes
- The opening of roads allowed people easier access to unsettled areas
- Wealthier farmers with large cattle herds established cattle posts which later expanded into small villages

Living conditions in small, remote villages away from the river and main roads are difficult, however. The people are far from services and they have little chance of participating in Kavango's retail and cash economy. Land available for crop cultivation is often limited. As a result, many of the villages have shrunk, often causing local public services such as schools to become redundant or uneconomical.

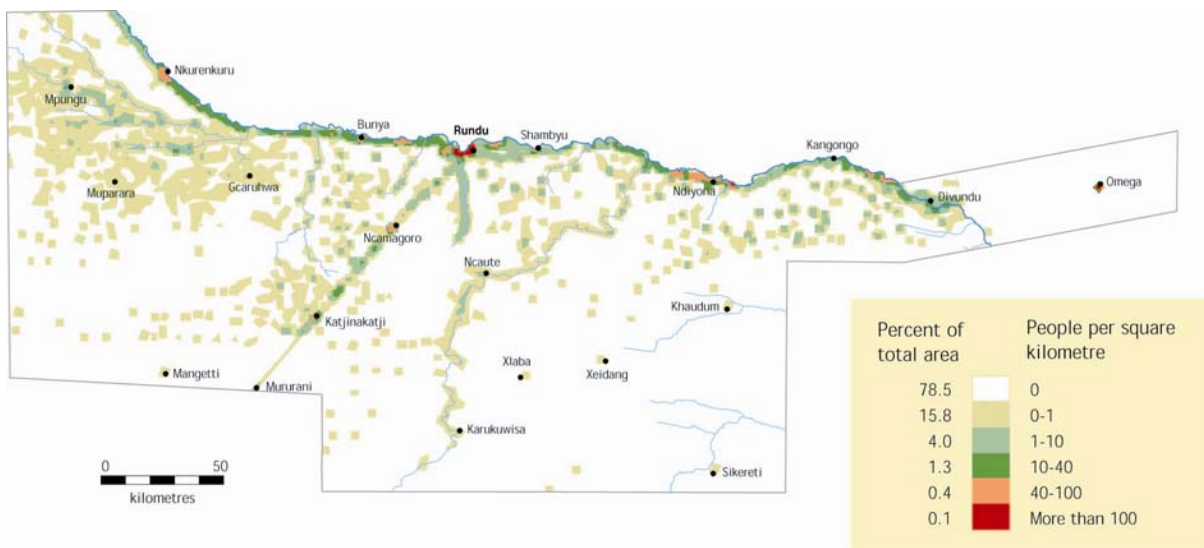


Figure 4: The distribution of people in Kavango

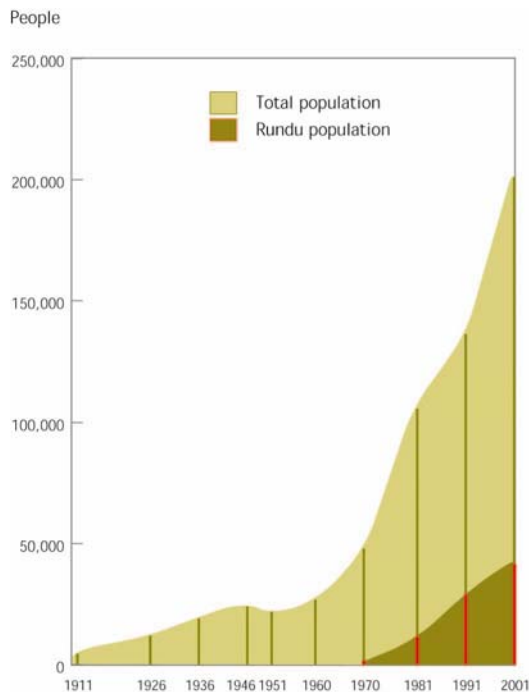


Figure 5: Population growth in Kavango over the past 65 years

Kavango has experienced very rapid population growth of the population, much of this being due to the many immigrants from Angola, especially during the 1970s and 1990s. More than half of all people in Kavango are thus immigrants or children of recent immigrants. Immigration has largely stopped as a result of the peaceful conditions in Angola. The population of Kavango amounted to 201,093 during the last census in 2001. At an annual growth rate of 3%, the population in 2009 probably totals about 254,000 people.

Another major on-going change is urbanization, which has led to the very rapid expansion and development of Rundu, perhaps making it the fastest growing town in Namibia. In 1971, the whole of Rundu consisted of less than 2,000 people, whereas its population now in 2009 probably numbers about 60,000. Close to 30% of all people in Kavango live in Rundu and other emerging urban areas, such as Divundu, Nkurenkuru, Ncamagoro and Ndiyona. In summary, the character of the population is changing from one that was completely rural to one in which urban residence is substantial. The importance of urban areas is even greater from an economic point of view. Similarly, the urban, cash economy is becoming much more important and attractive for many people than traditional, subsistence economies based on farming.

According to the Namibia Labour Force Survey of 2004, 43,2% of the population older than 15 was economically active in 2004, down from 50% in 2000 (NPC 2007).

2.4 Agriculture

About 80% of all land in the Kavango region is used, or earmarked for farming. Small-scale farming on a few hectares of mahangu with small numbers of goats and cattle is dominant, but most of the southern and western parts of the region have

recently been divided into large farms, most of which each cover 2,500 hectares. It is widely assumed that (a) farming is the dominant income for people in Kavango and (b) that the region is well-suited to agricultural production. These assumptions may not always be valid, however.

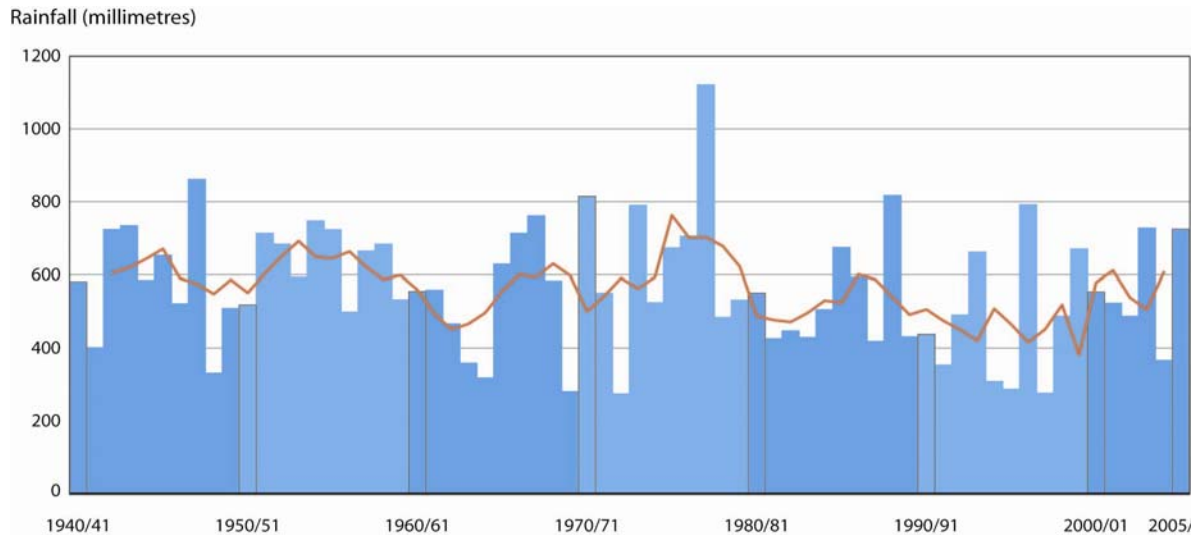


Figure 6: Rainfall recorded each year over the past 65 years at Rundu, showing how falls vary unpredictably

Farm production depends very strongly on two factors: rainfall and soil quality. About 80% of all rain falls between December and April, but the amount, timing and effectiveness of rainfall vary greatly from year to year and also within any one rainfall season. Crops do well when good and regular falls are received, but fail when little or no rain falls. Harvests are therefore variable. Similarly, livestock suffer substantial mortality when conditions are very dry, as happened in 1994 and 1995, for example.

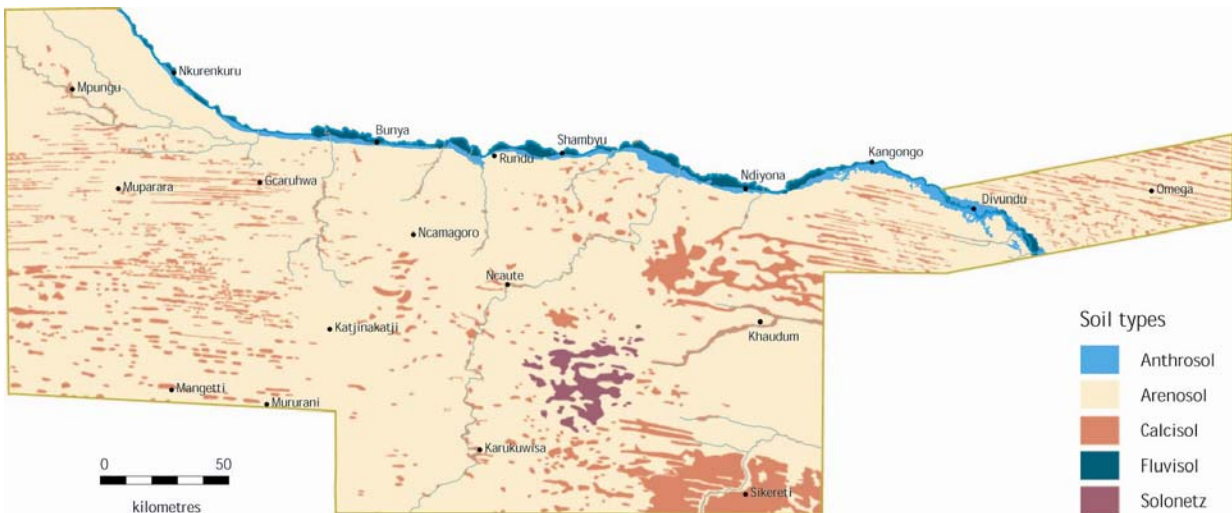


Figure 7: Without very intense management and the application of fertilizers, crops cannot be grown on the sandy arenosol soils that cover most of Kavango. Soils suited to crop growth are concentrated in small areas along the Okavango River, omurambas and in long valleys between old sand dunes.

Small-scale farming, as practiced by the great majority of households is a low input - low output activity that generates little income because:

- fields are small
- soils have limited fertility
- yields are low
- labour is often limited
- surplus harvests are rare, and
- markets are small.

Thus, most rural households obtain much more income from the wages, business incomes, remittances and pensions of family members than from farming. Likewise, any real improvement in economies of rural households must depend on them earning incomes from activities that are much more productive than mahangu and a few goats and cattle. Small-scale mahangu farms provide some food *self-sufficiency*, but little food *security* and no opportunities for economic development or poverty reduction. *The idea that most rural households are farming households that depend on agriculture for most of their income is a myth.* Although several studies have suggested that farming is the main source of income for more than 50% of households (e.g. NPC 2007), the results of these studies are usually skewed because the income of other members of the household are not taken into account in the responses provided by heads of households.

There are however, techniques under the approach called “conservation farming” that can be used to increase yields and avoid the need for shifting cultivation. Table 5 below shows the extent to which yields of maize were increased in Caprivi Region using conservation farming (Mpoyi Rural Development Consultants, 2009). The method used in this case involved digging small holes in the ground at set intervals, mixing in manure and planting in these depressions. Each subsequent year, the same hole is used and the soil improved. The rest of the ground is not disturbed (no ploughing) and weeds are not burned, but laid over the ground around the emerging crop as mulch and ground cover, reducing surface temperature and moisture loss. This is a form of “minimum tillage”.

Table 5. Increased yeileds from maize using conservation farming techniques in Caprivi. (Source: Mpoyi Rural Development Consultants, 2009)

Season	Treatment and yields (Maize kg/ha)		% (x) increase in yield
	Traditional methods	Conservation farming	
1st	800	1,500	88% (1.9x)
2nd	800	2,500	212% (3.1 x)
3rd	800	4,500	463% (5.6 x)

Table 6. below indicates similar increases using conservation farming techniques in north central Namibia. Here the approach was to rip/furrow with fertilizer (75 kg/ha) in seasons 05/06 and 06/07 plus 5t/ha manure mix 08/09. Note that season 08/09 suffered from severe flooding – all yields were down as a result, but conservation farming performed relatively (to traditional methods) even better (NRC, 2010).

Table 6. Summary of Mahangu yields from on-farm, trials / demonstrations 2005-2009 in North Central Regions (Source: NRC, 2010).

Season	Treatment and yields (kg/ha)		% (x) increase in yield
	Traditional methods	Conservation farming*	
05/06	432	1,775	311% (4.1x)
06/07	635	1,565	146% (2.5 x)
08/09	209	1,176	463% (5.6 x)

The development of more larger, irrigated farms – such as those at Vungu Vungu, Shitemo, Musese and Shadikongoro – is often perceived as a solution to Namibia’s food self-sufficiency needs. However, these farms may have significant detrimental effects on the environment, and they are uneconomical for purposes of producing cereals, such as maize and wheat. Better alternatives might be to develop and use smaller schemes to produce high-value crops, beef in feedlots and fish on a commercial basis. A study by Liebenberg (2009) emphasizes that production of staple foods under irrigation is not viable in Kavango. He found that with higher value crops under irrigation, like aromatic oils, all of the capital costs can be recovered at market related prices within 13-years, while staple foods like maize and wheat are not capable of recovering their capital development costs. An investigation by Schuh *et al.* (2006) that included a Kavango Green Scheme case study, showed commercial irrigation to be only viable if a significant portion of the crops planted are of high value. However, a further study by Barnes *et al.* (2009) suggests that irrigation, even with high value crops, would not be financially profitable and only just economically viable (i.e. when factoring in its overall economic impact such as job creation, purchases of goods and fuel etc.)

Although there are more than 65,000 goats and 150,000 cattle in Kavango, traditionally few of these animals have been slaughtered for commercial sale. The development of new large-scale farms in the south and west of the region offers an important opportunity to boost the economy of Kavango if the farms can be used to produce and sell cattle. However, developing and managing those farms will be difficult due to the remoteness of the areas in which they are located and the lack of infrastructure such as roads and boreholes. Although government has committed to the provision of fencing and boreholes for many of these farms, progress has been extremely slow. A report on the Shambyu and Gciricku farms (Jones *et al.* 2009) suggested that due to the size of the farms (too small to be viable as individual units) and lack of infrastructure it could be more efficient and profitable for farmers to combine their livestock herds to farm more extensively and to combine livestock farming with different forms of wildlife use. For more details about the large-scale farms see Annex 2.

2.5 Land uses and controls

Land in Kavango is traditionally viewed as communal land which is vested in the State and the government administers communal land in trust for the benefit of

resident communities (MLR 2005). In practice many institutions exercise some authority over land (see sub-section 3.6 for further discussion about the implications of the wide variety of stakeholders and institutions involved in land use planning and land management in Kavango). The most important organisations are:

- Tribal authorities
- Regional Councillors
- The Ministry of Land & Resettlement
- Other ministries that control certain areas (for example, the national parks that are managed by the Ministry of Environment & Tourism)
- Individual farmers: both small-scale and those on large leasehold farms
- Conservancies and community forests
- Village Development Councils (VDCs) and Constituency Development Councils (CDCs)
- Land Boards

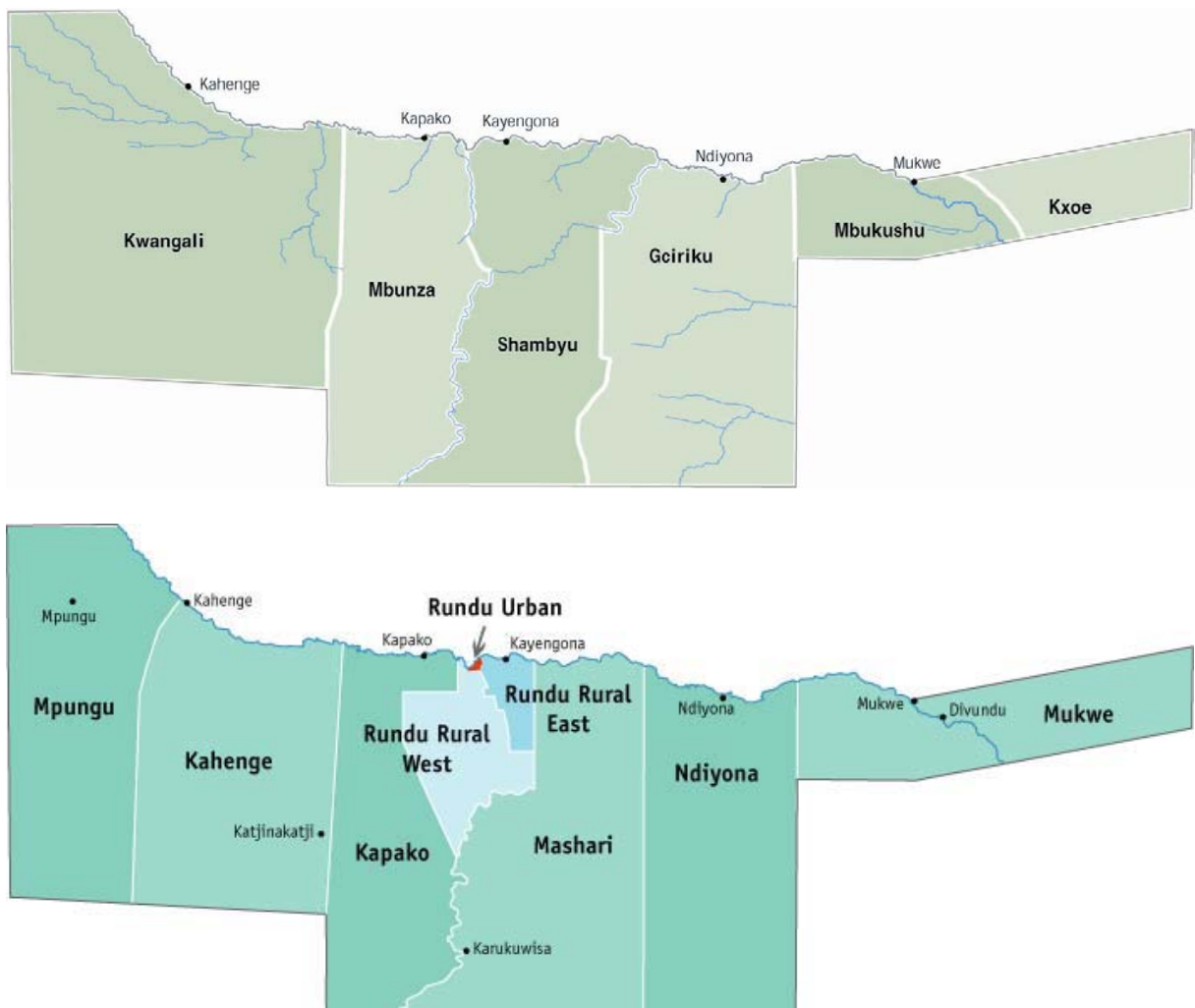


Figure 8: Kavango is divided into six tribal authorities (Kwangali, Shamyu, Mbunza, Gciriku, Mbukushu and Kxoe) and nine constituencies, each represented by a Regional Councillor. The boundaries of the constituencies and tribal authorities differ in many areas.

While land in Kavango is controlled by many institutions, it is also used for many different purposes, the most important of which are:

Land use ownerhip	Square kilometres	Percentage of Kavango
Communal grazing	22,477	46.4%
Private, commercial farms	14,529	30.0%
Conservation areas	7,534	15.5%
NDC farm	1,689	3.5%
Small-scale fields	750	1.5%
Namibia Defence Force	537	1.1%
Quarantine farms	280	0.6%
Resettlement farms	200	0.4%
Urban area	162	0.3%
Government farms	112	0.2%
Forestry area	101	0.2%
Rehabilitation farms	62	0.1%
“Green scheme farms”	23	0.0%
Total area of Kavango	48,456	100%

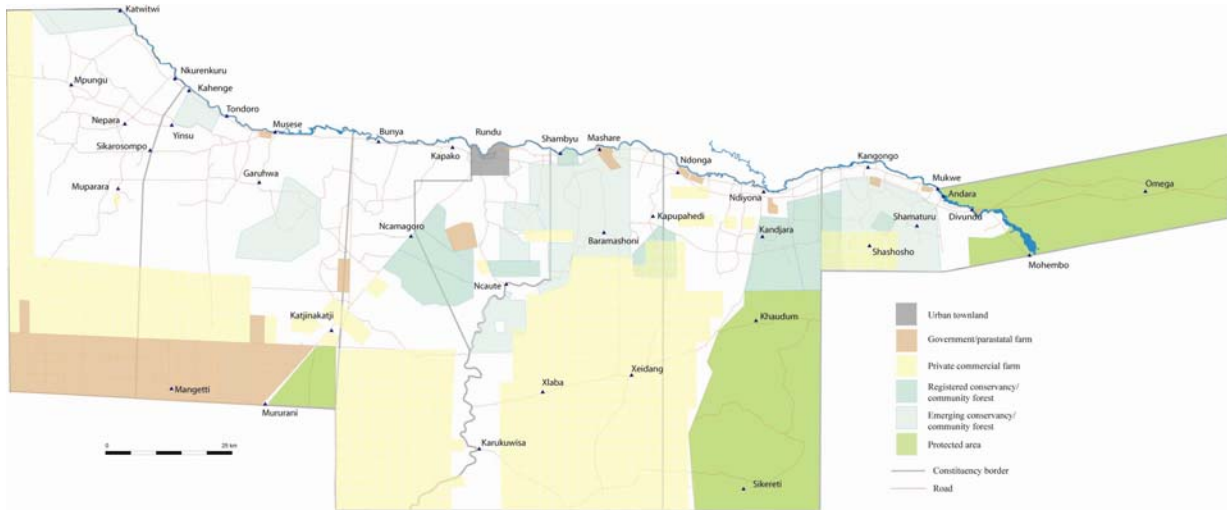


Figure 9: Just less than half of Kavango consists of communal land. The remaining areas are used for a variety of purposes, in particular for commercial farming and conservation.

Each of these different uses of land offers different opportunities (and constraints) for the social and economic development of the Region. It will be the task of the MLR land use planning project to assess these potentials and to make recommendations for the most appropriate uses, whether these are for agriculture, tourism, conservation, forestry or any other use. The project also needs to consider the role of land in providing residents with a secure future. There is an increasing trend and recognition that people should have leaseholds over their land. This will provide small-scale farmers with much greater security, the ability to borrow money using their farms as collateral, and to develop capital assets and investments.

2.6 Natural resources

Kavango's great variety of wildlife and natural vegetation resources are most simply divided between those that are found along the Okavango River and those inland and to the south in the woodlands that grow on sandy soils. These woodlands are dominated by a variety of tree species. The best-known tree is kиаat from which large quantities of timber were harvested over the past 50 years. However, few kиаat trees large enough to be harvested now remain, and the timber industry has been stopped as a result. Much of the profitable craft industry in Kavango depends on the use of kиаat. There are many other valuable plants, such as false mopane or ushsivi (also used for timber), mangetti (for kashipembe liquor) and thatching grass. Many of Kavango's plant species have potential commercial values. Examples are oils for the international cosmetics market from blue sourplum, mangetti, bird plum and baobabs, and liquors from mangetti, jackal berry, and monkey oranges.

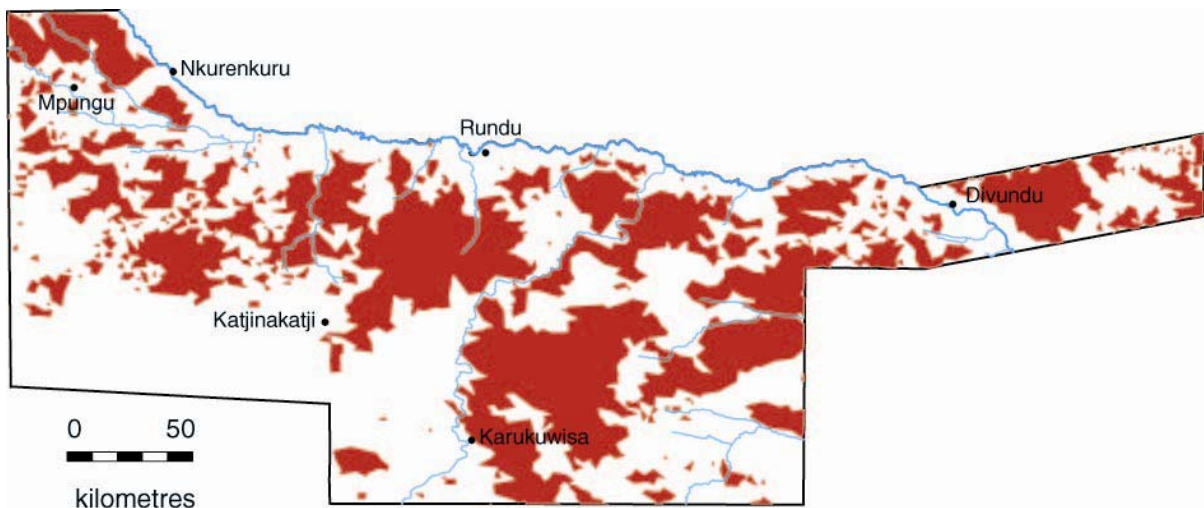


Figure 10: The greatest threats to the woodlands are the annual fires that burn between two-fifths and a half of Kavango each year. The fires kill mature trees, stop the growth of young trees, and destroy large areas of grazing. The map shows the extent of fires during 2003. Fires are most frequent in the eastern parts of Kavango

Much of the wildlife that used to occur along the Okavango River has now disappeared because so much natural vegetation has been cleared by the many people that live along its banks. Most remaining wildlife is now concentrated in the Mahango and Buffalo areas of the Bwabwata National Park, Khaudum National Park and the Mangetti National Park. In fact, Mahango has the highest concentration of large mammals in Namibia, and also boasts the greatest diversity of birds in the country. These animals are important attractions for tourists who bring income by staying in nearby lodges and campsites. Many jobs are also created by the tourism industry.

In recent years Namibia has been developing new ways of using natural resources commercially, especially in communal areas. The most important mechanisms are conservancies and community forests in which residents obtain rights to use and sell wildlife and plant products. In addition, residents have rights over tourism. Some

community-owned tourism enterprises have been developed, while others have been created through joint ventures with tourism companies. Similar joint ventures have been developed with trophy hunting companies, all of which may earn income for communities. Several additional benefits stem from community forests and conservancies. For example, residents gain greater security over communal land and its resources. Wildlife and plant resources are managed more effectively because they now have an increased economic value. In the case of Kavango, the greatest values to be obtained from natural resources are likely to be through tourism along parts of the Okavango River.

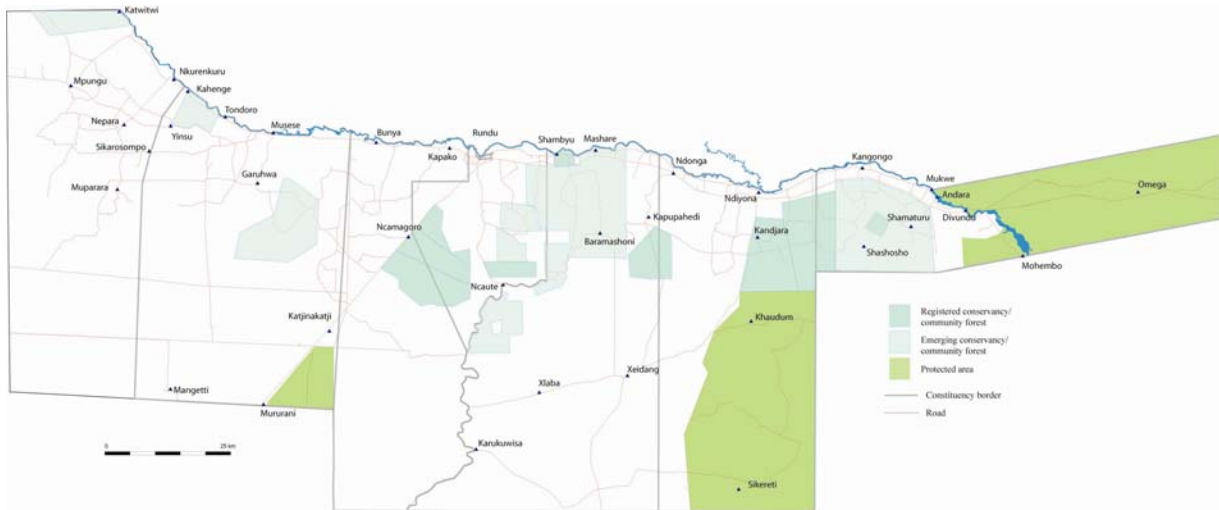


Figure 11: Five community forests and four conservancies have been gazetted in Kavango, while others are in the process of development.

Fish populations in the Okavango River have always been low because the river is naturally very low in nutrients. However, it is widely agreed that fish populations have dropped to even lower levels because of over-fishing. In essence, there is no scope for harvesting more fish for food from the river. Three fish farms have been established in Kavango. However, these are not economically viable which has led to loss of interest by members of the co-operatives and as a result they have failed to produce useful yields of fish. It has been fairly well established internationally that such producer cooperatives do not work well (unlike marketing cooperatives). In addition, these farms are capital intensive, skills intensive and require feed and other inputs from afar, making them economically unviable. In some cases each day of labour by a cooperative member yielded only about N\$1. Much better suited to the Kavango setting would be low input systems where the ongoing natural fisheries are enhanced through selected modifications such as the enlargement of floodplain pools with bunds, where fish can be stored and grown out with only minimal feeding from local sources. This form of “fish ranching” can be managed locally by a family or village.

Other uses of fish can also provide benefits. The results of a quantitative survey² carried out in the Caprivi Region (Namibia Nature Foundation 2010) indicate that on average fishing lodges generate around N\$1.80 million total financial benefit per

² Unpublished data from a survey carried out by the Namibia Nature Foundation

annum (N\$852,000 net economic benefit), equating to N\$1,479 per kg of fish caught and not released or N\$1,563 per tourist per annum. It is estimated that N\$1.06 million of this total is generated on average for local communities in the form of wages. This compares very favourably with the income generated from the “next-best” activity for the area, local fishing, which was estimated to generate (for the equivalent number of employees) a maximum of N\$604,000 total financial benefit per annum (N\$412,000 net economic benefit) from fish sales. This equates to revenue of N\$11 per kg of fish, or less than 1% of the value of the fish caught and not released with fish lodges.

2.7 Services

The provision of services, such as water, transport networks, telephones, education and health, has improved significantly during the past 15 years. There are now about 335 schools in the Region, and 42 clinics, 9 health centres and 4 hospitals. Roads have been upgraded and tarred, cell phone coverage is available in most densely populated areas, electricity supplies have been expanded greatly, and retail services are much more widely available than before. Of course, all these services help to improve the livelihoods of people in the region, and further development is needed in many areas. From a planning point of view, however, it is important to recognize that availability of services has a major impact on land uses. This is especially true for roads and water supply.

The majority of households and villages settlements away from the Okavango River are clustered in areas where major roads have been built. The best examples are along the road from Mururani to Rundu, and along the new tar road from Rundu to Divundu. Large areas of woodland have been cleared along these roads as a result. What is regrettable is that many of those cleared areas were soon abandoned, and now serve no productive use. Likewise, many small villages inland and far to the south of the river have grown following the provision of borehole water. Livestock numbers have increased as a consequence.

Neighbouring areas in Angola lack many services, and there are opportunities for the Kavango Region to assist, and to benefit from providing services to Angola. This is already being done with the supply of electricity to such towns as Dirico and Calai.

The Okavango River is the main source of water for the people living along the river and for their livestock. Of approximately 22 million cubic meters of water extracted from the river every year, 15% is used by rural people and their livestock, 11% is used to supply the town of Rundu, and 74% is used for irrigation on large agricultural schemes. Inland villages depend entirely on ground water.

Electrical power is now mainly supplied from the Namibian electricity grid or from private generators. Plans to build a hydro-electrical scheme at Popa Falls are in limbo. Among various environmental concerns about the Popa hydro-power plant is the idea that the scheme will further spoil the pristine character and concentration of tourism attractions in that area of the Mukwe constituency.

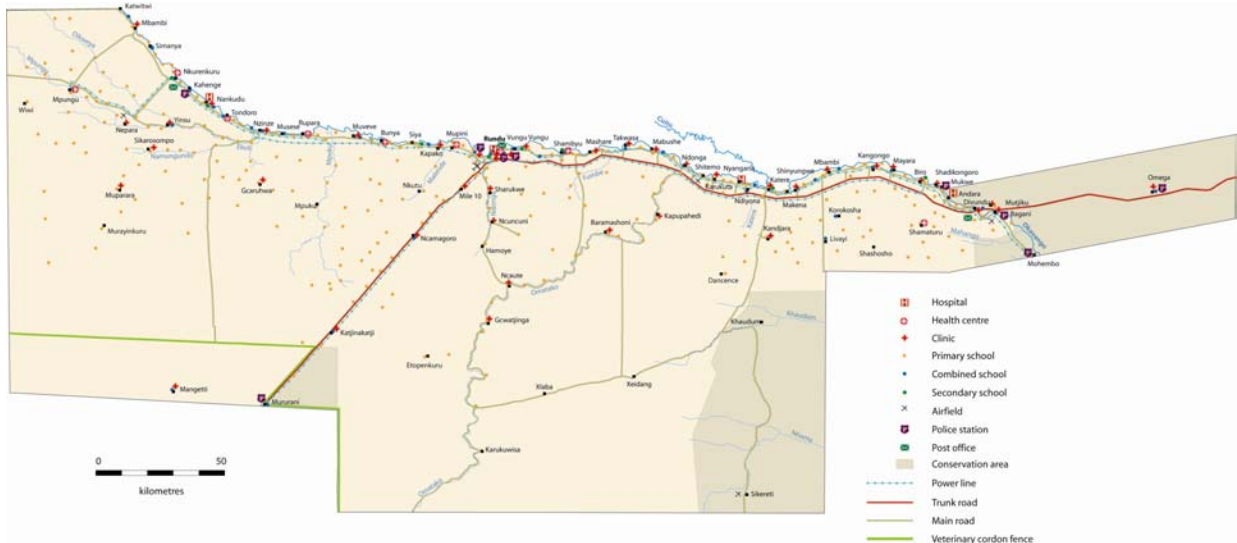


Figure 12: Infrastructure in the Kavango.

2.8 Summary and synthesis

From the material presented above, several constraints and comparative advantages for the development of Kavango should be clear.

Among the most important constraints are:

1. The concentration of people, livestock and clearing of land along the Okavango River, leading to over exploitation of natural resources and limited options for tourism development along the river.
2. Poor soil and climate conditions for agriculture, especially for cereal (mahangu, maize etc) production. Kavango is thus not the breadbasket of Namibia, as is often suggested.
3. Difficulties in marketing within Kavango as a result of the scattered population, and problems in exporting goods to distant markets.
4. The nature of communal land tenure which offers limited security to residents and poor incentives to investors.

But Kavango offers several comparative advantages:

1. The region, and especially Rundu, is well-placed to export services and goods to neighbouring areas in Namibia, Zambia, Botswana and southern Angola.
2. The Okavango River offers potential for increased tourism development, as a result of its close links with the Okavango Delta and the potential for expanding tourism into southern Angola so as to develop the whole Okavango Basin as a tourist attraction. This would be unique in the world since there is no other such pristine river system that could be marketed in this way.
3. Commercial livestock production in the newly established farms in the southern and western areas offers potential if appropriate farming methods are applied.

4. Selective and intensive farming of high value products on a commercial basis along the Okavango River also offers potential. Such products as fresh fish, beef (from cattle in feedlots) avocados, mangos, paprika and aromatic oils should be investigated and developed where possible.
5. Natural resources in the form of valuable plant resources and wildlife can be used to economic advantage through tourism, trophy hunting and the sale of high value wildlife and plant products.

3. Overview of the land use policy, legislative and institutional framework³

3.1 Land use planning policy and land management in Namibia

Namibia lacks an approved National Land Use Planning Policy or set of guidelines for carrying out integrated land use planning. A number of regional land use plans have been developed but these do not consider potential conflicts between competing or incompatible forms of land use and do not prioritise land use according to spatial zoning. In addition, little guidance or direction is available on how land use plans are to be implemented.

Land use is therefore driven by its designation as communal, freehold or urban land, by the priorities and policies of line ministries, the agendas of the private sector and donor funded projects and the priorities of land holders in trying to make a living. Projects and activities are often developed in isolation without regard to existing or other potential land uses. The capability of the land to support a particular land use is often not taken into account.

There is some degree of integrated land use planning taking place at community level where community forests and conservancies have been established under sectoral legislation. Community forests need to develop forest management plans in terms of the forestry legislation and conservancies develop wildlife utilisation and tourism plans that include zoning areas of land for wildlife and tourism.

The national constitution is the highest law of the land and Article 100 states that land, water and natural resources below and above the surface of the land belong to the State if they are not otherwise lawfully owned (GRN undated). Generally government ministries and their officials interpret the constitution and the Communal Land Reform Act as meaning that government *owns* communal land and may therefore control all activities on this land. However, communal land is vested in the State and the government administers communal land *in trust for the benefit of resident communities* (MLR 2005), which means there should be a duty of the State to involve those communities in decisions regarding the use and management of communal land.

The National Land Policy gives the responsibility for Land Use Planning to Land Use and Environmental Boards (LUEBs), Regional Land Boards and Regional Councils. The policy also refers to subordinate structures to LUEBs, the Inter-ministerial Standing Committees on Land Use Planning (urban and rural). In practice however, Land Use and Environmental Boards do not exist, the Inter-ministerial Standing Committee on Land Use Planning (IMSCLUP) that existed at the time of the development of the policy has fallen into disuse, Regional Land Boards do not initiate Land Use Planning and Regional Councils focus on the preparation of Development Plans.

³ This section is based on a more comprehensive review carried out as part of the development of this land use planning framework for Kavango. See Jones (2009).

The prime responsibility for the implementation of the National Land Policy is with the MLR and the National Development Plans make the MLR responsible for the preparation of Integrated Regional Land Use Plans. The MLR with support from the German Technical Cooperation (GTZ) is developing and testing new tools and instruments for Integrated Land Use Planning for selected pilot regions. One of the major results of this project will be the formulation of “Land Use Planning Guidelines” to document a new strategic approach for Integrated Land Use Planning in Namibia. Among others, the new land use planning strategy will address:

- Participatory methods and stakeholder involvement as well as collaboration among relevant institutions in the planning process;
- Integration of all relevant plans, including development plans, sector plans, lower level plans and national plans;
- The integration of Strategic Environmental Assessment (SEA) for the sustainable and environmentally friendly utilization of land resources;
- The use of geographical information technology to steer implementation and monitoring.

The project on “Modelling Integrated Land Use Planning” is presently ongoing for the first pilot region Karas. The development of a land use planning framework for the Kavango Region will support this learning process.

3.2 Land and natural resource policy and legislation

According to the Communal Land Reform Act, Traditional Authorities allocate communal land to households for residential and crop growing purposes (GRN 2002). This land is surveyed and then registered by the Communal Land Boards (CLBs) established under the Act to administer communal land. The CLBs may grant leases for the commercial use of communal land for purposes such as tourism. In terms of the Act specific areas of land must be designated for which the CLBs may allocate leases for agricultural purposes. The relevant Traditional Authority must grant consent to any leases allocated by the CLBs.

The Namibian Government has adopted a strong policy of devolving use rights over renewable natural resources to local communities. Following the success of community-based approaches in the wildlife sector, Cabinet approved that sectoral policies on natural resources management, water, land, forestry and agriculture must be revised to give decision-making and management authority to resource-users at a local level (GRN 2006).

Legislation gives rights over wildlife and tourism to community natural resource institutions called conservancies (GRN 1996) and over forestry resources to community forests (GRN 2001). These institutions are able to enter into contracts

with the private sector for the commercial use of resources and they are able to retain and use the income for community benefit.

In the water sector, the Water Resources Management Act of 2004 makes provision for the establishment of river basin management committees and the declaration of the area over which a committee will have jurisdiction. Among the functions of basin management committees are to protect, develop, conserve, manage and control water resources within its water management area and to promote community participation (GRN 2004). The Act has not been implemented and new legislation will streamline the implementation of the basin management committees.

The legislation also provides for the establishment of water user associations and water point committees to manage water points on communal land. The associations are given the power “to plan and control the use of communal land in the immediate vicinity of a water point in cooperation with the communal land board and the traditional authority concerned” (GRN 2004). This is potentially a significant degree of power over land use although it is not clear what is meant by “control” and the “immediate vicinity” of a water point is not defined. Proposed revisions to legislation would enable associations to determine tariffs for water use and to collect payments for such services.

The Act commits the Namibian Government to observing and complying with any treaty it may sign regarding internally shared water resources and to upholding the principles and rules of international law. Further the Act gives powers to the Minister to take a variety of measures aimed at promoting joint management of shared water resources.

The national government has adopted a policy of striving for food self sufficiency and this has a number of consequences. First, regions such as Kavango are viewed as being the ‘bread basket’ of Namibia because of the availability of water for irrigation. This in turn leads to the promotion of irrigated crop farming. Second, the growing of dryland crops such as mahango is promoted on communal land by small farmers. However, in both cases neither the environmental constraints (e.g. poor soil) nor economic realities (e.g. distance from markets) are taken into account.

There is no unifying policy on community-based natural resource management (CBNRM) which promotes integrated planning and management at community level.

3.3 Implications of policy and legislation for land use planning and management in Kavango Region

3.3.1 Land Use Planning

The result of the current policy and legal framework is that land use is developed in an uncoordinated way and sectoral plans are developed and implemented in isolation. In Kavango Region for example, small-scale commercial farms have been allocated to individuals on land that is already occupied by people who have lived on the land for many years and which is partially within a community forest. Some of

these farms are almost directly adjacent to the Kaudom Game Reserve and the result is highly likely to be increased human-wildlife conflict and a reduction in the potential for wildlife to be a productive form of land use in this area.

3.3.2 River Basin Land Use Planning and Management

A foundation exists for the promotion of river basin land use planning and management through provisions in legislation for river basin management committees. However, the powers of these bodies still need to be determined and it is not clear from the legislation how they will be able to coordinate with other institutions responsible for land use. The legislation also provides for joint management of shared water courses. However, Namibia has not developed particular policies to guide its use of the Okavango River. The resulting policy vacuum is of particular concern because resources provided by the Okavango River drive the use of land by the majority of residents in Kavango, and because the Okavango River is shared between Angola and Botswana. With respect to the latter, a significant proportion of Botswana's wealth is derived from the internationally-famous Okavango Delta, which is also the largest RAMSAR site in the world.

3.3.3 Transboundary Collaboration

Only the water sector has legislation specifically providing for transboundary cooperation. However in other sectors policy and legislation do not prevent transboundary collaboration even where there is no specific provision for it. A potential constraint to transboundary collaboration however is the lack of similarity between land and natural resource legislation in Namibia and Angola, particularly regarding community based-management (Jones 2008). Work needs to be done to modernise the Angolan legislation, much of which is a remnant from the colonial era.

3.3.4 Biodiversity and Ecosystem Conservation

The impact of the land and natural resource policy and legal framework on biodiversity and ecosystem conservation is mixed. State protected areas for wildlife or forests should, if appropriately managed, contribute to promote conservation of biodiversity and ecosystems and conservancies and community forests, if appropriately managed, should also make a contribution on land outside formal protected areas. However, the lack of coordinated planning has negative effects on biodiversity outside protected areas and potentially negatively affects the integrity of these areas.

3.3.5 Water use, Management, Supply and Development

Existing legislation provides a foundation for sound water use, management and development and is based to a large extent on a reduction of government subsidies and the "user pays" principle. However, land use planning needs to reinforce and put into practice the existing policies and ensure that appropriate and economic use (that includes environmental costs) is made of water resources. There are overlaps

between the mandates of water point user associations and other local institutions regarding the use and management of communal land.

3.3.6 Community-based Planning, Management and Development

There is a strong policy and legal framework for community-based natural resource management (CBNRM), particularly for wildlife, forestry and water. There is a need to ensure integration and cooperation between the different institutions, particularly as they often operate in the same areas but often at different spatial scales. There is a need for integration at the local level and “nesting” of management institutions at different scales, but these local plans and management institutions also need to integrate with larger scale spatial planning initiatives and their associated institutions, such as river basin planning, regional development planning, sectoral ministry planning of projects and schemes (e.g small-scale commercial farming), etc. The lack of secure group land rights and tenure arguably provides a disincentive for communities to engage in land use planning and sustainable land management as there is often little they can do to exclude outsiders and elites from using their land and resources. An important constraint to the implementation of community-based water management has been the inability of many water users to pay levies for the maintenance of infrastructure and reluctance on behalf of community members to exclude people who do not pay (Zeidler 2006).

3.3.7 Sustainable Development

In a nutshell, the policy and legal framework provides both enabling elements for sustainable development and constraints. Considerable progress towards sustainable development could be made if existing policies were applied more rigorously and vigorously. However, this progress would be constrained by the lack of integration of sectoral policies and their implementation. Piecemeal planning and implementation based on sectoral priorities and agendas produces conflicting and competing land uses and projects that are ultimately likely to be unsustainable. On communal land there is still much to be done to address the issues of land tenure. The use and management of most communal land is left to local users, especially those who wield the most influence and have resources to command control over commonages. Indeed, land use of the commonages appears to be guided by a policy and legal vacuum that provides ‘a free for all’ in which it is in everyone’s interests to make maximum, short term use of land and resources. There is a need for secure group tenure that promotes sustainable land management, particularly of grazing lands and brings together community resource rights with community land rights.

3.4 Key issues in land use planning and management

The following are the main gaps in the policy and legal framework affecting land use planning and management in Kavango:

- a) the lack of an existing approved national Land Use Planning Policy, and the implementation of land use plans
- b) the lack of community control and authority over common grazing lands;

- c) the lack of clarity on group tenure over communal land, and
- d) the lack of a common national policy on community-based natural resource management (CBNRM).

In terms of implementation of the policy and legal framework there are two main problems:

- 1) Insufficient integration and coordination of planning and implementation of projects and programmes due to overlapping authorities, competing institutions and a focus on sectoral agendas and priorities;
- 2) Inappropriate decision-making due to a lack of understanding of policies and legislation, a lack of technical capacity, and a lack of understanding of environmental and climatic constraints to development.

At the same time, there are opportunities for addressing these gaps and problems. At the local level the National Land Policy and draft National Land Tenure Policy potentially provide for forms of secure group tenure that have yet to be implemented. The Draft National Land Tenure Policy proposes a significant departure from the current tenure arrangements on communal land by providing for village tenure over land. It proposes that village boundaries should be demarcated, a traditional leader should be identified for each village, and a constitution for the village should be developed. Once this has been done the village would be registered with the effect that the village “becomes a juristic person in order to give better security to the land tenure of the members of the village. Members of the traditional village will be given formal rights over land and all resources in each village” (MLR 2005:18). These provisions need to be clarified, strengthened and tested in practice.

One option at local level is to identify a site in Kavango where a conservancy could apply for a lease over its land as a pilot initiative. Among the categories of land rights holder provided for in the National Land Policy are “legally constituted bodies and institutions to exercise joint ownership rights (and) duly constituted co-operatives” (GRN 1998:3). Read with the provisions regarding leases in the Communal Land Reform Act, the policy could be interpreted to support the possibility of conservancies or community forests as “legally constituted bodies” to obtain leases over their land. So far, this approach has not been tried.

At national level the Environmental Management Act provides for a coordinating body at national level called the Sustainable Development Advisory Council which is expected to advise government on land use planning. The National Land Policy makes provision for other coordinating bodies such as the Inter-ministerial Standing Committees on Land Use Planning and Land Use and Environmental Boards. These institutions need to be established with clearly defined responsibilities and links between them. At local level conservancy and community forest planning processes and the planning approaches underlying the Forum for Integrated Resource Management (FIRM) system provide platforms for integrated planning that includes other institutions and agencies.

3.5 Recommendations

In order to facilitate improved land use planning and management both nationally in Kavango Region the following recommendations are made:

3.5.1 Policy and legal framework

- 1) Develop a national Land Use Planning Policy that incorporates guidelines for land use planning, promotes integrated and coordinated planning based on generic principles rather than sectoral agendas and priorities; and provides for the implementation of land use plans;
- 2) Further develop and clarify proposals for provision of secure group tenure over communal land that are sufficiently flexible to cater for the different conditions in different parts of the country and which take into account existing land management institutions such as community forests and conservancies. Such tenure arrangements should clearly enable local management and control of common grazing lands;
- 3) Develop a national CBNRM policy that provides an overall vision, set of objectives, set of common principles and common strategies across the different sectors. This policy should emphasise the need for coordination and integration of approaches and set out ways of achieving this.

3.5.2 Policy Implementation

National Level

- 1) As soon as possible establish the Sustainable Development Advisory Council to act as a high level inter-ministerial forum for coordination and integration on land use planning and land management.
- 2) As soon as possible establish Inter-ministerial Standing Committees on Land Use Planning (urban and rural) at Director level in order to provide coordination and integration and forums for sharing information about plans projects and programmes. These committees should report to the sustainable Development Advisory Council.
- 3) As soon as possible establish Land Use and Environmental Boards (LUEBs) at regional level. These bodies should bring together all regional agencies and institutions involved in land use and management. They should report to the relevant IMSCLUPs.
- 4) Develop and promote macro-economic policies that lead to job creation and reduced dependency of people on land and natural resources.

Local Level

- 1) Identify a pilot site in Kavango Region where a conservancy/community forest can apply to MLR for a lease over its land.
- 2) Promote the use of conservancy and community forest planning processes and the FIRM⁴ approach as mechanisms to identify other local level agencies

⁴ Forum for Integrated Resource Management approach which seeks to enable communities to establish their own development vision and strategies through which support by government agencies and NGOs can be coordinated by the communities themselves.

and institutions that must be involved and to involve them in the planning process, also assigning them implementation roles and responsibilities.

Training programme

- 1) Develop a training programme for institutions and agencies at all levels that a) focuses on the key aspects of land management policy and legislation; b) focuses on the roles and responsibilities of agencies and institutions; c) emphasises the environmental constraints to land management in Namibia, d) emphasises the need for land capability to be assessed, e) emphasises the need for economic, social and environmental sustainability to be assessed; and f) assists in the development of data bases and data storage and retrieval systems appropriate for each level. The impacts of the training programme on environmental and sustainability issues for CLBs should be evaluated and if appropriate repeated and also adapted and extended to other institutions.

- 2) Develop a programme for institutions and agencies at all levels to debate land use planning and land use management constraints and opportunities.

3.6 Stakeholders, institutions and mandates

There are a wide variety of stakeholders and institutions involved in land use planning and land management in Kavango. These include line ministries, the Regional Council, the Constituency Development Committees (CDCs), Village Development Committees (VDCs), Traditional Authorities, Land and Farming Committees, conservancies and Community Forests. Combined with the lack of a national land use planning policy and guidelines, the result is that land use planning and management is uncoordinated and sectorally driven. However, attempts are being made within some conservancies and community forests to adopt a more integrated approach to both land planning and management and in Kavango these bodies are starting to join together. The institutional mandates of regional and local organisations are summarised in Table 7 and the mandates of National level organisations and Line Ministries are summarised in Table 8.

Table 7: Institutional Mandates of Regional and Local Institutions for land use planning and land management

Institution & parent ministry	Level of responsibility	Membership	Powers/Management activities	Status
Communal Land boards (MLR)	Regional	Appointees, including CBO reps.	Ratify land allocations by traditional authorities. Final approval of leases over land for commercial activities	Established in all regions
Regional Councils (MRLGHRD)	Regional	Elected politicians	Existing: Development	Established. No revenue raising

			planning, land use planning. Planned: Take over of many central govt. functions	powers as yet
Regional Development Coordinating Committee (MRLGHRD)	Regional	Regional Officer, Govt. officials, reps. of traditional leaders, NGOs, & CBOs	Co-ordinate regional development planning, advisory functions	Established, some functioning regularly
Constituency Development Committee (MRLGHRD)	Constituency (smaller than region, larger than community)	Regional Councillor, traditional leaders, Govt. officials, reps. of NGOs, & CBOs	Co-ordinate constituency development planning, no revenue raising powers, advisory functions	Established, some functioning regularly
Village Development Committee (MRLGHRD)	Village	Chair of Village Council, constituency councillor, TA representative, line ministry representatives, community representatives	Coordinate local village development planning, no revenue raising powers, advisory functions	Established, some functioning regularly
Village Council (MRLGHRD)	Demarcated Village Areas	Elected councillors	Management of village area and provision of basic services. May charge fees for services.	Established
Basin Management Committee (MAWF)	River basin catchment areas	Appointed representatives of stakeholders	Planning and management of use of water resources	Some pilot committees established
Community Forest Body (MAWF)	Community	Community reps.	Development of Forest Management and Land Use Plans; Management of natural resources in local forest	13 registered
Communal Area Conservancies (MET)	Community	Local residents with elected committee	Wildlife & tourism planning and management, zonation of use areas	53 gazetted, several more being established
Rural Water Use Associations/ Committees (MAWF)	Community	Local residents/water users with elected committee	Water point mgt. and maintenance, community must raise funds itself; control of communal land around the water point.	Many committees established, but lack capacity
Traditional Authorities	Varies from overall Chief to local	Elected/appointed through customary	Undefined responsibility for	Powers &

(including land and farming committees) (MRLGHRD)	headmen and councillors	law & ratified by Govt.	NRM. Land allocation by Customary Grant and endorse lease allocations.	legitimacy stronger in some regions than others
Farmers' associations/ unions	Community	Elected officers representing local livestock farmers	Represent interests of local livestock farmers	Many established and affiliated to Namibia National Farmers' Union

(Adapted from Blackie and Tarr 1999)

Table 8: Institutional Mandates of Line Ministries and National Level Institutions for land use planning and land management

Institution	Land use planning	Land management
OKACOM	Development of an Integrated Management Plan for the Okavango Basin	Coordinate regional water resources development
Sustainable Development Advisory Council (planned under Environmental Management Act)	Advise the Minister of Lands or any other organ of government on land use, land planning, land administration, land development and environmental protection in order to promote and coordinate and ensure environmental, social and economic sustainability; Promote co-operation and co-ordination between organs of state, non-governmental organisations, community based organisations, the private sector and funding agencies, on environmental issues relating to sustainable development;	
Land Use and Environmental Boards (provided for by National Land Policy but not implemented)	Ensure that land use planning, land administration, land development and environmental protection are promoted and coordinated on a national and regional basis to guarantee environmental, social and economic stability	

Ministry of Lands & Resettlement	<p>Assess the suitability of the land, incorporating farmers' needs and aspirations and putting conservation measures into place through development of Regional Integrated Land Use Plans.</p> <p>Approval of commercial leases for areas of more than 50ha</p>	<p>Create conditions for optimal land use in agriculture, shelter, conservancies and reserves; ensure land is efficiently managed and responsibly used.</p> <p>Promotion and development of small-scale commercial farms on communal land.</p>
Ministry of Agriculture, Water and Forestry	<p>Promotion, development, approval of agricultural (including irrigation) schemes</p> <p>Proclamation and planning of State Forest Areas. Support to community forests and development of Forest Management Plans</p>	<p>Support and extension to farmers and agricultural schemes.</p> <p>Management of State Forest Areas and regulation of use of forest produce outside of protected areas. Support to management of community forests including fire management</p>
Ministry of Regional & Local Government & Housing & Rural Development	Support to Regional Councils, and Local Authorities in development planning	
Ministry of Environment & Tourism	Proclamation and planning of protected areas	Management of protected areas and promotion of links with neighbouring communities. Regulation of wildlife and tourism outside protected areas. Support to wildlife and tourism management in conservancies.

4. Main outcomes of community consultations in the Kavango

The team held an initial meeting at the Regional level, organised by the Governor of the Kavango Region, in order to inform regional councillors, government officials and other interested parties about the land use planning framework and the community consultations. Following this meeting four areas in the Kavango Region were visited, Kapako, Kwangali, Ndiyona and Shambyu. In each area different groups were represented, including Traditional Authorities, small scale and subsistence farmers, conservancy and community forest committee members, representatives of the tourism, subsistence fisheries and craft sectors, business men and representatives of the constituency development committees (CDCs) and village development committees (VDCs). They described the current problems they were experiencing with land use and what they would like to see in the future. In two areas a stated Vision was produced for land use in their area. Below is a summary of the key points made by the community members with regard to *Small-Scale Farming, Leasehold Farming, Tourism, Businesses, Fisheries and Conservancies and Community Forests, and Other land uses*. Finally there is a sub-section documenting what the community members wanted to have considered in the implementation of a Land Use Plan.

4.1 Vision statements

Two Vision Statements were completed:

Vision For Kapako

'Land use that is sustainable, efficient, diversified, well resourced, properly controlled at Grass Roots level, economically productive for the benefit of people at the Grass Roots level, and where natural resources are protected from overuse, local people are trained and educated in wise land use and different types of land use and settlements are well planned in order to allow space for other developments.'

Vision for Kwangali

'Land use that is sustainable, diversified, well resourced, that brings economic development, improves household livelihoods and where local people have control over access to resources, and where local people are trained and have knowledge of land use practices, where there is improved access to water, and there is improved access to markets, and land use is based on plans that are implemented.'

4.2 Small scale farming

Community stakeholders said most households engage in some form of small scale farming, either of crops or cattle. They said there were many difficulties in trying to farm in the Kavango region. The first and most important difficulty was the lack of inland water. Water is needed both for crops and grazing. According to the Department of Rural Water Supply, communities and livestock should not be further than 5-10km from a water point and by 2030 there should be only 2.5km from one bore hole to another. Lack of funds has meant that only one bore hole out of the 38

requested has been planned and this is supposed to provide water for 30 000 people. Without inland water, grazing and crop growing will continue to be concentrated along the river leading to greater conflict and land degradation.

The second issue was that crops are necessary for household food security and for income in years of surplus. However crop productivity varies greatly according to the level of rain and does not always provide a high enough yield. As population density increases it is more difficult to provide enough food from the restricted farming area. Recent Demarcation projects have sometimes had a negative impact on the poor, reducing their land still further.

The third was that there are often unsustainable farming practices. Having to constantly replant on the same area of land and use the same crop (mahangu, the only crop resilient enough to survive) leads to degradation. Farmers would welcome training in how to use the land sustainably (e.g. conservation farming) and better access to fertilizers to maintain the land's productivity.

Fourthly as there was only a limited amount of land there were often conflicts between crop and grazing land. There was a need to have designated separate areas for both but attempts made so far at keeping crops separate sometimes fail either because there are no fences to keep cattle away or because the fences are damaged, either by accident or deliberately. Although conflict might be reduced if less cattle were kept, when drawing up a Land Use Plan (LUP) it must be recognised that livestock serves three purposes: Traditionally cattle ownership adds to prestige; Cattle is a store of wealth, it can be traded for money and act as insurance when other sources of income fails and; it provides the household with meat, milk, fat, and draught power. All these values must be included when providing a realistic Land Use Plan or suggestions for reducing the number of cattle. Another problem farmers face is that of Veld fire. Fires are sometimes started deliberately and making cut lines is ineffective without GPS to ensure they are cut straight.

Finally farmers faced human-wildlife conflict. Elephants trample the crops, wildlife kills their cattle, buffalo pass on foot and mouth disease and crocodile and hippo kill humans at the river. The wildlife is protected against being killed and it is difficult to deter them when they are no longer scared of humans. No direct compensation is given for these losses, even if it's a loss of human life. It is suggested that chilli bombs and digging holes would deter elephants and more trophy hunting to deal with problem animals might be useful.

It was suggested to community stakeholders that either several households or several villages could group together and fence off an area of land for crops, sharing costs for fencing, water tanks, fertilizer etc. They responded by saying that in practice this would be difficult to implement, particularly inter-village. It is not a common custom for people to work together in this way and there would be conflicts about both the sharing of costs and the sharing of benefits, particularly when the ownership and management was passed from one generation to another. It might be possible on a small scale within a village. There have been examples of communal grazing areas i.e. cattle posts, though there are still conflicts over the ownership of new calves. It was suggested to the community stakeholders that a cattle post based

around a borehole could be managed communally by a village, allowing outside villages to use it in exchange for a fee.

4.3 Leasehold farming

Small-scale commercial farmers said the efforts to provide farmers with small scale leased farms have so far proved ineffective. The leasehold certificates have been issued but the land remains unutilized because: There is sometimes no access to the land due to lack of roads and transport; there is no water available for land so far from the river; leaseholds do not act as collateral to get loans from the agri-bank; without capital and loans there is no way to access farming inputs such as tractors, ploughs, seeds, fertilizer, pesticides, electricity, cold storage, veterinary medicines etc.; and foot and mouth disease means the meat can not be sold commercially south of the Red Line.

There is also a fear that leaseholders will be asked to pay three sets of fees: Payment to the TAs, Taxes to the TAs, and rent on the leasehold to the Ministry of Lands and Resettlement. While no money is being made from the land they will not be able to pay any of these. There is no longer help available from the Namibia Development Corporation.

It was suggested that a possible solution would be to issue title deeds instead of leaseholds, thus making it easier to access loans and get the necessary start up capital. This would however make the farmers vulnerable to having their land being repossessed by the bank if they were not able to pay back the loans.

4.4 Tourism

Community stakeholders recognised that tourism brought employment but had several criticisms about the way tourism was carried out in Kavango. The most important was that the many tourist lodges along the river have prevented local people from accessing the river, not only on their land but the surrounding land. This means they can no longer use the river for fishing, washing, collecting reeds or grazing their cattle. The lodge owners were often aggressive and provided little or no benefit to the communities. Any tourist venture must fully take into account the cost to households of occupying valuable river front space and only be allowed if the affected people can be suitably compensated.

A second complaint was that the campsites are not attracting enough tourists, either local or foreign, and though some jobs are created it is not enough to deal with the high unemployment, often even skilled grade 10 graduates can not find work.

Thirdly lodge owners often feel they can ignore procedures to obtain their land or having obtained it use it as a private residence without developing it and providing jobs and income. It is often unclear who is the authority giving away the land, what compensation is paid to the TA and the local community, and if the land is given away permanently or temporarily. In some areas the communities are not getting any benefits at all from the lodge operating within a conservancy. Even if the good

intention is there setting up a tourist venture is expensive and it can be a few years before it makes a profit and is able to give back any kind of benefits to a community. A fourth complaint is that campsites can result in pollution of streams.

It was suggested that communities should try and start up their own campsite and provide competition to outside tourist ventures. Although many people have ideas and schemes it is not realistic that locally owned tourist ventures would be able to compete with existing commercial ones as they lack training, office resources, and information on how to obtain assistance if there is any available as well as funding and collateral. A land use plan that includes communally owned tourist projects must include the cost of training and loans.

Agreements with Tourist Ventures should be clear on a) how much rent or profit should be shared / paid to the Traditional Authority, b) how much should be shared / paid to the community (or conservancy) and how this will be distributed, c) whether the “ownership” of land is temporary or permanent, and d) how these agreements can be realistically implemented and enforced to prevent either side reneging on this agreement.

4.5 Urban retail and trade enterprise

Business entrepreneurs said they found it hard to set up or expand their businesses in Kavango for a number of reasons. Firstly there is a lack of clear land ownership, which is a deterrent for investors. Secondly there is a high level of bureaucracy, taxes and conditions attached to acquiring land, both in urban and communal land. These again deter investors, and often the authorities will refuse land to a business because they can not understand the development benefits it can bring. Thirdly there is a high level of suspicion about new projects and businesses so sometimes obstacles are deliberately put in the way. Fourthly people lack knowledge and skills needed to start a business. Fifthly people lack access to computers and internet needed to produce project schemes and funding applications and sixthly there is a strong preference by town councils in favour of large structures at the expense of smaller ones.

Suggested solutions include: The conditions to acquire funds must be reviewed, especially the issue of obtaining collateral; the recognition of assets (properties) in communal areas as collateral (at the moment these don't have value if outside urban areas); develop new infrastructures in communal areas; develop new strategies to attract investors in communal areas; gain a clearer understanding on who has the power to allocate land, e.g. TAs, VDCs or Town Councils.

4.6 Fish farming

There are some natural fish ponds already in the area and fish farming projects were frequently suggested as a way of diversifying income. However like most suggested and existing industries the ones currently running are hampered by the lack transport, reliable water supply and access to markets. They also lose fish due to flooding, crocodiles and theft. In the Salem fish project the water pipes are old,

rotten and need replacing. Cattle and goats graze and can not be kept separate because of the lack of fencing. Future projects should be properly surveyed to make sure the land is suitable and protected against flooding. Fishing in the river is also an important contribution to household income and it was suggested that fish cages were considered for the future.

4.7 Conservancies and community forests

Although several conservancies and community forests have been successfully gazetted there is a feeling among community stakeholders that support from central government, particularly the Directorate of Forestry (DOF) is insufficient or has been withdrawn too soon. For example people said DOF had refused to give continued aid to the Katope Community Forest, instead claiming they should support themselves through selling forest products. There are many uses of the forests, including: timber, fuel wood, wood for crafts, wild fruits, poles, medicines, honey and Devils claw. However lack of access to markets makes it difficult to sell forest products profitably. Other challenges include: Theft of natural resources, due to lack of funds for fencing; unsustainable harvesting practices and deliberate and accidental fires. It is felt that the DOF does not fully understand the conflicts and challenges that people face.

With conservancies the problems include: A long waiting time to become gazetted; conflicts within the communities over land use; conflicts with town councils over demarcation; and despite suffering from human-wildlife conflict sometimes no benefit from the tourist enterprises based within the conservancies. Suggested solutions include: Training and exchange programs with successful forest projects to improve management; improved support and funding from ministries and NGOs; improved infrastructure including boreholes and electricity for conservancy offices.

4.8 Other land uses existing or suggested

Community stakeholders noted the following as additional existing or potential land uses:

- Gravel Extraction
- Sand Extraction
- Fruit and Vegetable Gardens
- Pig and Poultry farming
- Bee Keeping

4.9 Implementation

Community stakeholders made a number of points regarding the implementation of land use plans. A key feature of all the discussions was that a land use plan will be of no use unless it can be realistically implemented and this comes with certain requirements. Firstly any land use plan must have the Traditional Authority's

approval. An example is the recent disagreements with the MLR about the Communal Land Reform Act. When it came to the implementation the TA's argued that what had been agreed by them did not match what had been agreed on the National level so the plans were never implemented. An LUP must also be accepted at other levels though it will only be implemented if accepted first at local level. There are a lot of different people engaged at planning and land use at lots of different levels and these different levels and different agencies need to be involved in implementation. The LUP can be used as a guide to explain to people what has already been agreed upon. Examples of groups who needed to be included are: Land Board, The Regional Council and the Regional Development Coordination Committee, Department of Veterinary Services, Ministry of Agriculture, Ministry of Environment and Tourism, Departments of Forests and Fisheries.

Secondly there is a great deal of suspicion about project developers who may try to take land away from Traditional Authorities and local communities. The Green Scheme was cited as an example where land was given up and the promised jobs and benefits never materialised. New projects should come with written agreements explaining clearly who owns, who manages and who benefits.

Thirdly there are frequently conflicts between the allocation of land to different groups of people and for different purposes. Projects championed by one group e.g. the CDC will find the land promised to them is then given to another group by someone else e.g. the chief's council. It is sometimes unclear who in fact has authority over different areas of land. There is a need to improve communication and agreement between the various authority groups. More effort should also be made to distribute information at grass roots level about new schemes e.g. the customary land rights. It was suggested that radio broadcasts might be useful for this.

Fourthly projects must be well resourced. There is a lack of decentralization meaning that effective service delivery is not coming to people at the local level from the most important ministries e.g. Education, Health, and Agriculture. Plans made at a central government level are not given sufficient funds to implement them e.g. there has not been the promised delivery of schools, roads or boreholes. However the grass roots level can only successfully implement it if they get proper support and guidance from other authorities and stakeholders and if there is realistic funding attached to them. It is recommended that planning should come from a grass roots level and the funding/budgeting should be given to decentralized organisations so they are able to support them.

The community stakeholders made it clear that though they were interested in hearing about possible solutions to make the land more productive they were not committed to any suggested solution and would have the final say on how the land is used. The fact that they have described problems does not give central government or NGOs the right to dictate to them how land use should be changed. Most importantly local communities do not want to see their land given away.

5. Drivers for land use in Kavango

Although several development plans have been compiled in recent decades, the plans have had little impact on how land and resources are used in Kavango. Instead, land uses in Kavango are very largely a product of local environmental resources and economic conditions. In addition past and present government policies towards food production also have an important impact. Some of these conditions or drivers have had significant effects over many years, and they are likely to continue to do so in the future.

5.1 The Okavango River

Resources provided by the Okavango River have had the most marked effect on the use of land in Kavango. It is along the River that pastoral and agricultural communities first settled perhaps 1,500 to 2,000 years ago. The river provided water for people and their livestock, food in the form of fish, wildlife and wild fruits, relatively fertile soils for crops, and reeds and thatching grass to construct homes. Populations were small and life was comparatively easy along the River, thus shaping the way in which people use time, land and other resources.

The early and continued settlement of people along the Okavango River resulted in an extremely uneven distribution of people, with the densest rural populations concentrated in a swathe about 10 kilometres wide along the Okavango River. That left the remaining, southern or inland areas unpopulated and undeveloped. It is only in the past few decades that significant numbers of people began living south of the river. About 68% of all rural residents still live in the 10-kilometre swathe along the river, while the other 32% live south in the inland areas.

5.2 A breadbasket and source of water for Namibia

The use of land along the river is often influenced by the *perspective* of Kavango being a breadbasket for Namibia. The perspective is based on the simple rationale of using the river water to turn open, dry land in this country into productive fields. The reasoning seldom pays attention to economic and financial constraints, market availability, and the need for very significant management of soils and pests. Proposals by the Ministry of Agriculture, Water & Forestry to develop many new irrigation farms (called Green Schemes) along the river are a consequence of this perspective.

Dozens of agricultural development projects have been attempted along the banks of the Okavango River over the past 40 years. Most aimed to produce cereals (mainly maize, sorghum and pearl millet), oil seeds (mainly peanuts and sunflowers), cotton, vegetables and fish. The majority of the projects were soon abandoned, or only continued to work because of subsidies provided by public funds. Failure has usually been due to weak incentives for communities to operate the projects, the marketing of products was difficult, or farmers found it hard to manage soil fertility, pests and harvesting.

The large, irrigated farms – such as those at Vungu Vungu, Shitemo, Musese and Shadikongoro which mainly produce maize and wheat – have been heavily subsidised by public funds to pay capital costs and the very high running costs of irrigation, especially for electricity to operate pumps, transport to markets and for fertilizers. Cereals produced on the irrigation schemes therefore usually cost more than imports from elsewhere. The poorest members of society who depend heavily on staple cereals for their nutritional needs are thus forced to pay inflated prices.

There have also been plans to use the river to supply water to the central regions of the country and for hydropower, but these plans have not been implemented. In contrast to Botswana's use of the Okavango for its lucrative tourism economy, Namibia's government has viewed the river water more as a passing resource to be harvested before it is 'lost' at Moembo.

5.3 Kalahari Sands

These sands, which cover most of Kavango, constrain several aspects of land use and natural resource productivity. This is because the sands are extremely porous and deficient in nutrients, especially phosphorous. As a result, crop yields are very low and only a few, select crops can be grown if the sands are not irrigated and heavily fertilized. As a result, most small-scale farmers live and plant their crops elsewhere: in small patches of somewhat better soils along the river and along fossil drainage lines (*omurambas*) and inter-dune valleys (fluvisols and calcisols). Shifting agriculture (slash and burn) is also practiced to cope with the poor soils.

Villages south of the River depend entirely on ground water because little surface water is available for any length of time anywhere in that area of Kalahari sand. The lack of surface water and nutrient-poor nature of pastures also limits carrying capacities for livestock and wildlife.

5.4 Immigration and population growth

Immigration from Angola during its civil wars from 1961 to 2002 has had a major influence on land uses in Kavango. Most immigrants settled in rural areas, and their escalating numbers led to high rates of land being cleared for crops. For example, areas of woodland cleared expanded by 3.9% per year between 1943 and 1996. More than half of all people in Kavango are immigrants or children of recent immigrants. The population of Kavango amounted to 201,093 in 2001 and, at an annual growth rate of 3%, probably totals about 254,000 people in 2009.

The increasing population and the slash-and-burn use of land for crops soon led to shortages of arable land and grazing along the river, causing people to seek areas to the south where they could farm during the 1970s 1980s and 1990s. More recently as a result of peace in Angola, opportunities for people resident along the river have opened up for the clearing of new fields on the Angolan north bank. Many people have built new homes on the Angolan side, while others commute daily to tend their fields. Much of the Angolan side was virgin woodland which is now steadily being cleared to provide land for crop growing.

5.5 South African Administration development policies

While social and economic development in Kavango was largely neglected by the South African Administration because it was a black homeland, some of the transport infrastructure was developed for strategic reasons by the South Africans during the Namibian liberation war. That administration also started several agricultural development projects along the river, and allocated about 60 large farms to foster commercial livestock farming by Kavango residents. Those first farms probably provided the foundation for the current massive effort to allocate individual large farms (see below).

5.6 New economic and lifestyle values

The Region and its people are increasingly moving from a traditional, rural economy (based on farming and the harvesting of natural resources for domestic use) to a cash- and urban-based economy. However, this obvious reality is seldom acknowledged, especially by policies that seek to promote rural development and food self-sufficiency. It is also obvious that cash incomes are vital to the livelihoods of rural people in Kavango, indeed to all Namibians. Without cash it is simply impossible for people to function in a society where most commodities and transactions are based on cash. Some of the consequences of these changing economic and lifestyle values include:

- The very rapid expansion of Rundu and other town areas, with the result that an escalating proportion of the Kavango's residents are dependant on urban livelihoods.
- Few households have no source of cash income, and most households have at least two or more sources of income.
- Subsistence agriculture is not the mainstay of Kavango's economy.
- Numbers and proportions of educated, working-age people in rural areas are declining, with the result that rural production is increasingly left in the hands of older people and those less inclined to seek other incomes.
- Surplus incomes obtained by the wealthiest people from off-farm jobs and businesses are used to expand agricultural holdings. This leads to higher stocking rates of cattle and goats, more land being cleared for crops, and less pasture and other commonage resources being available for rural residents who depend wholly on those resources. In addition, wealthy individuals with large cattle herds establish cattle posts which later expand into small villages in the inland, and they also seek to obtain their own private farms.

5.7 Services

The provision of water from boreholes and the construction of gravel or tar roads has had a considerable influence on settlement in the inland. While households and tiny villages were first established there without boreholes, the provision of permanent water attracted more people and caused villages to grow. Roads have had an even greater impact in attracting large numbers of people to build homes and clear land within narrow swathes adjoining major roads. As a result, there are now ribbons of relatively dense populations along many roads in the region.

Schools and clinics are of obvious importance as services, but the supply of these facilities has normally followed the establishment of settlements. These services therefore have had relatively little impact in determining the distribution of people and use of land.

Living conditions in small, remote villages away from the river and main roads are difficult, mainly because people have little chance of participating in Kavango's retail and cash economy. Land suited to crop cultivation is often limited as well, and many of the villages have shrunk, often causing local public services such as schools to become redundant or uneconomical.

5.8 Urbanization

Urbanization has led to the rapid growth and development of Rundu. As indicated in sub-section 2.3, there were fewer than 2,000 people in Rundu in 1971, whereas its population in 2009 probably numbers about 60,000. Close to 30% of all people in Kavango live in Rundu and other emerging urban areas, such as Divundu, Nkurenkuru, Ncamagoro, Omega, Kahenge, Mpungu Vlei, Katjinakatji and Ndiyona. The population is thus rapidly changing from a completely rural character to one in with significant urban populations. Moreover, almost all rural households have close links to urban livelihoods through family members who have moved to town.

5.9 Traditional authorities and communal land

As a homeland during the South African administration, jurisdiction over allocation and land tenure was largely the responsibility of traditional authorities. The tribal, traditional or customary system of land tenure was retained and renamed as *communal* after independence. Despite the recent programme to provide individuals with leases over land (see below), most land in Kavango is still officially regarded as communal, a tenure system that leads to a variety of uses and abuses of land.

While communal land areas "vest in the State in trust for the benefit of the traditional communities residing in those areas" (GRN 2002:10), traditional authorities are expected to provide considerable control over land. Provisions for this control are stipulated in the Traditional Authorities Act of 2000 and the Communal Land Reform Act of 2002. However, traditional authorities are primarily gate-keepers, only controlling who may settle, build a home and farm (see Appendix 1). Once a newcomer is given permission to settle, little or no control is exercised by the authorities over how land is used. A major consequence of this is that in most areas no one has any effective control over commonage pastures and other resources. It is therefore in everyone's interests to exploit commonage resources to the maximum. Wealthy residents who have lucrative off-farm incomes graze as many animals as they like, which is often at the expense of poorer residents who subsist entirely on farming.

A lack of control over commonages also leads to run-away bush fires, illegal logging and especially the excessive clearing of new land (some of which is then never used for cropping). The freedom to clear land at will - combined with low soil fertility, and poor incentives to manage soil nutrients with compost, manure or fertilizers - has led

to the massive clearing of land for crops in Kavango, which cumulatively has negative effects on the environment.

Communal tenure means that residents have customary rights to use land allocated to them for life. They may therefore not own their land in a legal sense, and neither do they have any legal long-term leasehold on their land. As a result, residents may not use and invest in their land as a capital asset for purposes of saving, long-term security or collateral. That constraint in combination with low incomes means that most rural Kavango's are not credit-worthy in the eyes of financial institutions.

5.10 Small-scale farming

Farming on a few hectares of mahangu (pearl millet) with small numbers of goats and cattle is the dominant land use, particularly along the Okavango River. Almost all rural households practice this kind of agriculture, mainly to produce food for domestic consumption. Mahangu is much the dominant crop because it is the only cereal that grows relatively well on sandy, nutrient-poor soils where the climate is characterised by low, erratic rainfall and long spells of dry weather. Crop failures occur commonly because:

- Low falls of rain which are interspersed with hot, dry spells during which evapo-transpiration rates are excessive.
- The sandy soils contain little water and few nutrients.
- Farmers make very little use of compost or fertilizers to boost soil fertility.
- Weeding is not regular or thorough.
- Pests and diseases may damage crops.

Livestock is an important asset for many rural households, as well as for urban dwellers who keep their stock with relatives living in rural areas. Most animals are kept for domestic consumption, to obtain cash for household use, or for draught power.

There are several misconceptions about farming and rural households in Kavango which often drive thinking about land use planning, development prospects, options for agriculture and the livelihoods of rural people:

- **All rural Kavango households are similar.** As in any society, Kavango households vary greatly. For example, livestock ownership is extremely skewed; thus, 49% of all households own no cattle, and 59% own no goats. Just over half of all cattle in the region are owned by 10% of the farmers,⁵ and field sizes vary greatly between households. Much of this variation is due to disparities in wealth and access to cash incomes.
- **Crops provide rural households with most of their food requirements and food security.** Many development projects are founded upon this very pervasive idea, which is also rooted in the assumption that rural households should be food self-sufficient. However, production on most farms and in most years is far too low to provide for household needs. Average yields usually amount to between 100 and 300 kg/hectare, and most fields cover less than

⁵ Based on analysis of four years of annual agricultural surveys conducted by the Central Bureau of Statistics. Additional information on farming in the region is summarized in Mendelsohn, J.M. 2006. *Farming systems in Namibia*. RAISON, Windhoek. 80 pp.

two hectares. Results from the 1994 Income & Expenditure survey showed that only 17% of all Kavango farmers rely entirely on food that they produced themselves, and the only proper study of income found that 82% of rural household income was not related to farming. This was in 1992⁶ since when incomes from domestic food production have doubtless declined further.

- **The potential for food production is high.** Huge efforts by the government, donors and NGOs have been put into improving mahangu production, for example by providing improved seed, fertilizers, ploughing services and marketing of products. As a broad and general conclusion, all these efforts have had little or no impact. Indeed, many people conclude that mahangu yields are now lower than say 20 or 30 years ago.

In summary, traditional farming is a low input–low output activity that generates little income because fields are small, soils have limited fertility, yields are low, labour is often limited, surplus harvests are rare, and markets are small. Since production is too low to provide for household food requirements people depend largely on cash incomes to feed themselves. Any opportunities of significantly improving household wealth will have to rely on new or greater cash incomes, combined with improving crop yields.

5.11 Individualisation of land

Several large farms were allocated to individuals in each tribal area during the 1980s as part of an effort to develop and encourage commercial farming activities. The same effort led to the bigger development of 46 farms in the Mangetti Block in 1989. The Mangetti farms are just north of the quarantine fence, and it was then intended to move the fence to a line along the northern border of these farms. Over the past few years, however, there has been a great increase in the allocation of large-scale farms (euphemistically and officially called ‘small-scale farms’). The aim is for these farms to be used for commercial livestock farming.

The Mangetti farms are in the Uukwangali tribal area and this precedent led other traditional authorities to plan farms for themselves. In the late 1980s and early 1990s, Land & Farming Committees were formed by each traditional authority with the purpose of demarcating areas that could be fenced into large farms. There are now over 534 of these private farms which range in size from 1,000 to over 6,000 hectares. Adjoining farms are often allocated to the same person, giving individuals an even bigger farming unit. Cumulatively, the farms now cover over 30% of the region, and close to 40% of all communal land. Most of the farms have been surveyed by the Ministry of Lands & Resettlement, and 25-year or 99-year leasehold certificates have so far been issued to the owners of about half the farms. An account of large-scale farms in each tribal area is given in Annex 2 and their distribution is shown in Figure 13. In some cases there are already people living on the farms that have been allocated to individuals. It is not clear what will happen to these people once individual farmers take occupation of their land. Figure 14 shows the distribution of existing households and settlements on the Shambyu and Gciriku farms.

⁶ Keyler, S. 1995. Economics of the pearl millet subsector in northern Namibia: a summary of baseline data. *International Crops Research Institute for the Semi-Arid Tropics*. Working Paper 95/03.

5.12 Natural resources

Many people in Kavango depend on natural resources for a number of purposes. These resources include trees for fruit and construction poles, reeds, thatching grass, grass for grazing, fish, small animals for meat etc. It is noteworthy that even where land has been cleared for crops, the most useful trees, such as mangetti and false mopane are often retained. Community surveys conducted in Kavango indicate that people are aware of the over exploitation of some of these resources and of the threats to some of them caused by fire (e.g. Jones 2001). However, community members say they have little power to prevent outsiders utilising what they see as their resources. Along the river only a few patches of uncleared woodland between villages remain that provide reservoirs of timber and non timber forest products that villagers can use. Although there is a need to maintain such areas, there is increased pressure on them from people needing new land to open up for crop growing. Conservancies and community forests offer opportunities to provide the necessary localised planning and management systems to maintain these areas. As indicated in sub-section 2.6 above some of these natural products have potential commercial value and can be processed into health products, foods and drinks.

As indicated in sub-section 2.6, wildlife is confined mostly to the protected areas in the Kavango Region although game moves seasonally out of the Kaudum National Park into surrounding areas. Game has also been introduced into the George Mukoya and Muduva Nyangana conservancies. These conservancies have zoned part of their land for wildlife use. Wildlife and wildlife-based tourism have potential as viable land uses particularly in areas close to the national parks and in the area along the river from Mukwe to the Mahango section of the Bewabwata national Park.

Typical settlements in Kavango inland of the river



A typical home and farm belonging to a local Kavango resident. The cleared fields and kraal are clearly visible, while one large building has a corrugated iron roof, suggesting that its owner has access to cash and vehicle transport to obtain such roofing material.



Another typical Kavango home, field and kraal, which probably belongs to a poor farmer since no signs of cash-built structures are visible.



A small clearing in which there are between eight and ten small circular huts indicates that this village belongs to a group of San people. There are no kraals or cleared field nearby.

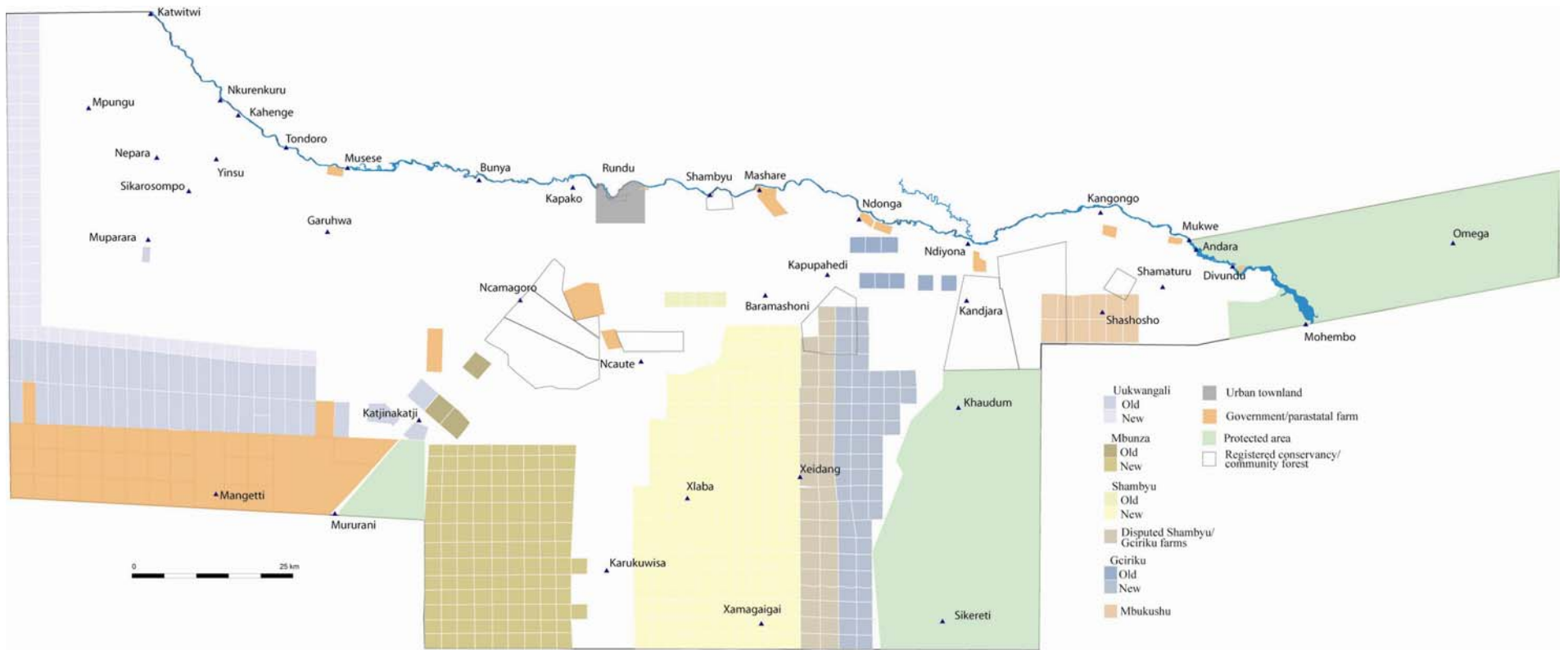


FIGURE 13. THE DISTRIBUTION OF COMMERCIAL FARMS IN KAVANGO.

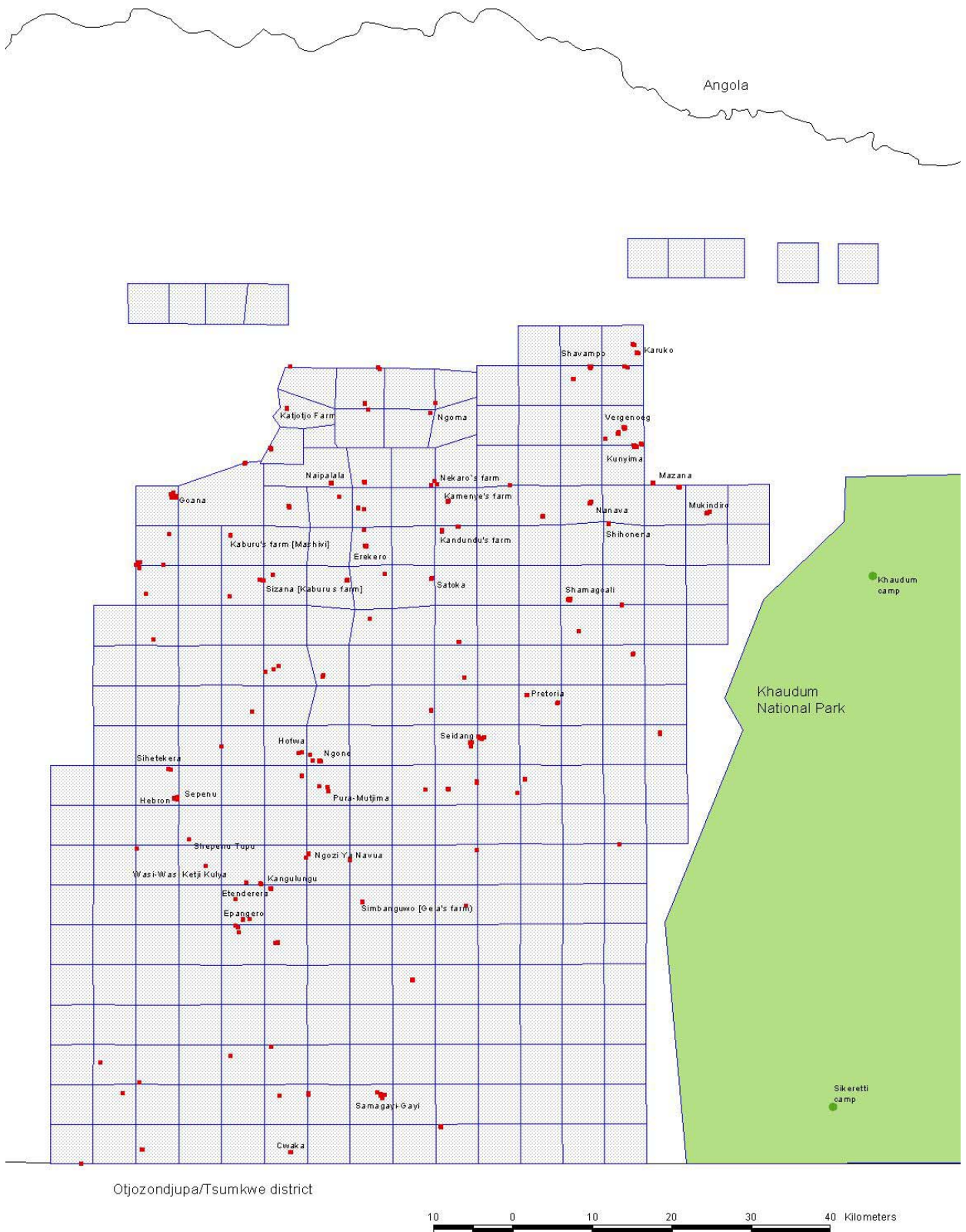


FIGURE 14. THE DISTRIBUTION OF HOUSEHOLDS AND VILLAGES IN THE SHAMBYU AND GCIRIKU FARMS

6. Land use and development options for the Kavango Region and recommendations for further land use planning

6.1 Introduction

As indicated earlier in this report there are few river basins in the world as undeveloped as the Okavango River Basin. This provides an almost unique opportunity to shape the future development of the basin and consider how to improve on existing land uses and how to develop new options that promote sustainable development. In the Kavango Region of Namibia in particular there are opportunities to identify and develop the region's comparative advantages.

This section draws together the data and analysis presented throughout this report and its annexes to provide an overall framework for land use planning in the Kavango Region. In developing this framework we have specifically considered land use and development in an integrated way. Development policies influence the way land is used, development projects and activities require land and even the increase of trade and business in urban areas can influence the way in which land is used or needs to be used in rural areas. The framework we have developed therefore considers land use *and development* options for the Kavango Region.

It is clear from the data and analysis provided in the main body of this report and Annexe 3 that there are both opportunities and constraints for land use and development in Kavango. If this report is perceived to emphasise constraints, this is perhaps because in the past many optimistic assumptions have been made about development in Kavango that have not been borne out in practice. We believe it important to clearly identify the constraints so that land use planning and development can be realistic. At the same time we have also aimed to be realistic about the viability of alternative or new options.

6.2 Constraints and opportunities

The following provides a summary of the development constraints and opportunities in each of the main sectors that need to be taken into account in any land use and development plan for the Kavango Region.

Communal livestock farming

Constraints: Location north of the Red Line limits market options; open access grazing leads to overgrazing; lack of water in the inland areas; overcrowding at river and competition with crop lands; inadequate quarantine, marketing, feedlot and abattoir facilities, and no tradition of managing for production. Limitations of access to banking and investment opportunities constrains shifting to money economy.

Opportunities: Growing market in towns of north central Namibia and Rundu; possibilities for new industries such as tannery. Climate change predictions suggest

that by 2080 70% of the freehold farming area be suitable for small stock only. Can increase productivity through better management and marketing.

Large-scale leasehold livestock farming

Constraints: Farms are far from major centres and lack basic infrastructure; high production and marketing costs; viability questionable.

Opportunities: Transformation of unvalued communal land into land with capital market value; can increase efficiency and viability through co-management and diversifying land uses such as forest products and wildlife-based enterprises.

Irrigated crop growing

Constraints: Despite presence of water from Okavango River, poor soils, high input costs and lack of nearby markets reduces viability unless subsidised.

Opportunities: Production of high value crops can increase viability. Vegetable production close to Rundu and other development nodes.

Dryland crop production

Constraints: Poor soils and variable climate limit production; inappropriate farming systems and limited markets. Competition with grazing land, particularly along the river.

Opportunities: Improved yields through better management techniques. Cooperative marketing.

Fisheries

Constraints: Open access, little or no active management; declining resources; unsustainable fishing methods.

Opportunities: Devolve rights over fisheries to local communities (with fisheries committees) and establish appropriate management and monitoring systems based on traditional practices. Potential to increase production through fish ranching using low input systems. Potential to enhance value through product development and processing. Potential to link sustainable fisheries to tourism through fish reserves managed by local fisheries committees.

Cross border trade and business

Constraints: Current levels low; Rundu is not on the main route into Angola; markets relatively far from Kavango.

Opportunities: Trade and business are increasing and demand for consumer goods is increasing in Angola.

Wildlife

Constraints: Low numbers due to past poaching/disturbance and poor soils with low levels of nutrients; current community benefits are low; some opposition to wildlife as a land use among large livestock farmers; increased wildlife will lead to increased human wildlife conflict

Opportunities: Protected areas provide reservoirs from which numbers can be built up; conservancies provide management units on communal land; community income can be increased through diversified forms of wildlife use including hunting and photographic tourism; game ranching could be viable in some areas, particularly with high value species which do not thrive further south.

Biodiversity conservation

Constraints: Until recently protected areas provided few direct benefits to local people. Parks not managed according to business principles.

Opportunities: New concession in Kaudom will benefit neighbouring communities. Benefit sharing agreement in place for Mangetti National Park. Opportunities for similar concessions in Bwawata National Park. Potential to expand wildlife use and tourism in some conservancies and increase benefits to communities.

Tourism

Constraints: Tourism opportunities limited by linear development of farming and settlements along the river; few attractions inland except close to protected areas such as Kaudom National Park.

Opportunities: Some undeveloped areas along river that could combine as tourism, wildlife and fish reserve areas. Opportunities for further tourism development from Mukwe to Mahango, particularly within Bwawata National Park on the east bank of the river. Opportunities to develop tourism in Kavango with tourism in Angola and Botswana as a linked product.

Forestry

Constraints: Open access to forestry products leads to over exploitation in many areas; weak capacity in community forests to enforce management rules; community forests do not generate high income, and optimal returns on timber quotas not yet being achieved ; uncontrolled fires cause damage to subsistence and commercial products.

Opportunities: Community forests capacity can be strengthened and management rules enforced; community forests can tender timber contracts to increase their income.

Urban and village development

Constraints: Lack of jobs and business opportunities; problems in acquiring land for businesses, inadequate town planning and infrastructure.

Opportunities: Growing urban and village populations; consolidation of settlement areas with focused service provision; development of small-scale service businesses in Rundu and larger villages. Possibility of new industries such as tannery and leather products, timber processing and wood products, etc.

6.3 Changes in approach to land use and development in Kavango

The findings and analysis in this report suggest the need for some changes in approach for some of the main drivers for land use in Kavango:

6.3.1 Diversification of livelihoods and land uses

An important driver of land use in Kavango has been the assumption that improved livelihoods for most rural residents will be achieved through improved and increased crop production and livestock farming. Government and donor inputs have focused on strengthening the agricultural sector with limited results. It is a misconception that most rural people earn most of their income from agriculture. Their income is derived from a variety of livelihood activities. In addition a growing number of people are leaving rural areas and settling in Rundu or large villages in Kavango, or moving out of the region altogether. This suggests that any land use plan for Kavango needs to recognise the limitations of farming for supporting livelihoods and needs to aim to keep options open for the development of other livelihood activities based on the comparative advantages of the region.

6.3.2 Using irrigation strategically

It is clear from the financial and economic analyses that have been carried out recently that irrigated farming of staple crops is not viable and is an inefficient use of water from the river. Instead of being used to develop Kavango as the bread basket of Namibia, irrigation should be strategically used to grow high value crops that are financially and/or economically viable. As Liebenberg (2009) suggests, development of any irrigation project should be undertaken with caution and only after a detailed feasibility study that includes an environmental impact assessment and an assessment of other land use options. Subsidies should only be provided where economic viability is indicated but where financial viability is marginal.

6.3.3 Promotion of Tourism as a land use

Tourism, like farming is not the development panacea for Kavango. However, there are some areas of the region where tourism has a comparative advantage over

other forms of land use and should be actively promoted. The area along the river, particularly from Mukwe to Mahango, should be identified as a tourism growth area. This should include the east bank of the river in the Mukwe constituency. In this tourism development zone, other forms of land use such as irrigated farming should be secondary. A tourism develop plan should be established for this zone through the Regional Council working with the Ministry of Environment and Tourism and the Ministry of Lands and Resettlement. This plan should aim to manage tourism growth and optimise returns to the region without causing negative environmental impacts and without diminishing the tourism product. In addition suitable areas for tourism development should be identified in other areas along the river.

6.3.4 Promotion of wildlife as a land use

Again, the use of wildlife and the development of wildlife based industries will not solve all the development problems of Kavango. But there are areas of the region where the use of wildlife can help diversify livelihoods and land uses and contribute to overall economic growth. Key zones for the development of wildlife as a land use should be on land adjacent to protected areas and particularly where conservancies or community forests have been formed close to protected areas. Areas suitable for game ranching should be identified. The Kavango supports many of the high value wildlife species such as roan and sable antelope, buffalo, lechwe, etc which gives the region a competitive advantage.

6.3.5 Flexibility for leasehold livestock farms

Just as with many freehold livestock farms, the viability of the leasehold farms in Kavango is likely to depend upon their potential for diversification. Land use and development planning should ensure flexibility to enable the farmers to respond to market changes. Avoiding the fencing of these farms would allow wildlife use and safari hunting to be integrated or for zones to be allocated to wildlife and hunting within a larger bloc of farms. In addition farmers would be able to develop the utilisation of various forest products such as timber and plants such as Devil's Claw. By working together, farmers could organise themselves into co-management groups to optimise production with minimal infrastructure development, and explore tourism concession options in adjacent national parks, and enter into joint venture partnerships with specialist tourism companies.

6.3.6 Incentives for business development and trade

Development policies and approaches for Kavango should identify Rundu as a business and trade hub and provide appropriate incentives to attract businesses. In more rural areas there is a need to streamline and clarify processes for acquiring land for business development and promote business development and job creation close to identified development nodes.

6.4 A land use and development scenario for Kavango

If the above changes in thinking regarding key drivers of land use were applied, opportunities for changing the development path of the Kavango Region could emerge. Below we present a scenario or vision of how land use and development could be in the future. The numbering in the text corresponds to the numbering in figure 15. Text in **bold** indicates spatial aspects of the scenario while underlined text indicates associated management or income generating activities.

With appropriate incentives, job creation and provision of improved services, more people move off the land to **development nodes** along the river around existing large villages, and to settlements along the main tarred road between Rundu and Divundu. At these development nodes there are schools, clinics, water and electricity, government extension offices and offices of the traditional authorities, constituency development committees, etc.

In **farming areas** between these development nodes there are large consolidated fields where individuals have cleared their own area of land. Each person has his or her own fields but there is a marketing cooperative. In these consolidated areas of fields conservation farming is practiced which is increasing yields and removing the need for shifting to new fields after a few years.

Grazing areas exist towards the inland away from the immediate vicinity of the river and where cattle posts are established with adequate water. Cooperative herding is practiced as part of a holistic range management approach. Cattle dung is collected for fertilization of the crop fields under conservation farming. Improvement of livestock is taking place, farmers are supported to market livestock, and sufficient quarantine and feed lot facilities exist.

Two types of **irrigated farming** are taking place. Close to development nodes and Rundu farmers are producing vegetables for sale. In designated areas along the river high value crops (2) are being produced.

Lease-hold farming areas (1) are being managed cooperatively through holistic range management although each individual farmer retains title to his or her land. Diversification has taken place through wildlife use in certain areas such as trophy hunting (5), and farmers are cooperating in the marketing of timber and non-timber forest products. Some farmers have gone into game ranching.

Pockets of **forest and undeveloped areas** along the river (3) are conserved as part of conservancies and community forests. They are developed for tourism and as corridors for wildlife between Namibia and Angola. At the river

these areas are developed as river/fish sanctuaries and fishing lodges attract additional tourists. New tourism products have been developed such as canoe trips down river from Rundu stopping at these wildlife corridors and using facilities in conservancies.

Selected backwaters and large ponds are developed for fish ranching with low input systems. Sufficient fish are produced for sale.

A large part of the Mukwe Constituency is designated as a **tourism growth zone** (4). On the east bank of the river farming takes place in designated areas in consolidated fields which are protected from elephants and hippos. Most of the river front on the east bank is available for tourism development. This area has become a launching point for tourism into Angola from Namibia and a stop over for tourists traveling from Botswana up river to Angola. Tourists are able to drive through a continuous wildlife area from Kaudum National park to the Mahango section of the Bwabwata National Park. Conservancies are benefiting from concessions in Kaudom.

Tourism facilities are developed in the **Mangetti National Park** (6) which are contributing to the local economy through jobs and implementation of a benefit sharing agreement.

Game ranches are developed in selected areas for the production and sale of high value game species.

Trade and export opportunities (7) have increased and are boosting **business development**, particularly in Rundu. Small industries such as a tannery making leather products and a timber processing factory have been established. These industries depend on a supply of hides from conservancies, farmers and a local abattoir, and on a supply of timber from community forests. Business development is promoted and bureaucratic processes for establishing a business are streamlined.

In addition to the above, new opportunities in Kavango could be unlocked if:

- d) Communities were able to obtain secure rights and tenure (e.g. leasehold) over the remaining “communal land” and charge rentals for the use of the land for irrigation schemes, tourism developments, etc., or sell sub-leases so that the land has a tradeable value.
- e) Villages/Communities could gain secure rights and tenure over the land so they could better control the use of grazing land and other natural resources and have the right to charge other people for the use of their resources.
- f) The veterinary fence could be moved to the Angolan border.



Figure 14: An overview of current major land uses in the Kavango Region.

6.5 Implementation

The analysis of institutional mandates over land management and land use in sub-section 3.6 demonstrates the importance of establishing a clear framework for the implementation of any land use plan for the Kavango Region. Clearly a number of institutions affect land use and land management at different levels. If the regional land use plan is to be effective, one institution needs to be assigned overall responsibility for the implementation of the plan. The most appropriate institution would be the Regional Council. However, mechanisms need to be found to ensure that decisions taken by other institutions do not undermine the plan. Such decisions could be taken by line ministries or by traditional authorities at the local level. For example there are instances in Kavango and elsewhere in Namibia where traditional authorities have allocated the same piece of land for several different conflicting purposes, or where different line ministries have identified the same piece of land for conflicting purposes.

A number of steps can be taken to ensure that a land use plan for Kavango is implemented effectively.

- 1) MLR should assign clear authority to the Regional Council for implementation and oversight of the plan (supported by regional MLR officials) within the context of the Regional Co-ordination and Development Committee, which brings the line ministries and other key stakeholders together at the appropriate level;
- 2) The plan should be available to all councillors, constituency development committees (CDCs) and village development committees (VDCs), as well as to line ministries, relevant NGOs and development partners, Land Board members; Land and Agricultural Committee members, Conservancies and Community Forests;
- 3) The plan should be used to guide discussion and decision making by the Regional Development Coordinating Committee (RDCC);
- 4) The plan should be made available to all Traditional Authorities who should use the plan to guide discussion and decision-making regarding land allocation and use
- 5) The launch of the plan should be followed by a region-wide publicity campaign that explains the plan to relevant stakeholders such as the RDCC members, the CDCs and VDCs, traditional authorities, conservancies community forests, farmers associations, etc., and key decision-makers in line ministries in Windhoek and the National Planning Commission.
- 6) Development and recurrent budget funding should be applied to support and promote the implementation of the plan, as well as donor funding, such as that provided by the Country Pilot Partnership for Integrated Sustainable Land Management.
- 7) The plan should be integrated within an Okavango Basin-wide land use and development plan, and supported by the Basin Commission – OKACOM.

- 8) The implementation of the plan should be monitored by the Regional Council through the Regional Co-ordination and Development Committee and documented by the Regional Executive Officer working in partnership with the senior officer in the Ministry of Lands and Resettlement.

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Annex 1

Land management by traditional authorities⁷

Features of traditional administration

From bottom to top, tribal leadership consists of community leaders, headmen, senior headmen and chiefs. Community leaders (sometimes called junior headmen) are often the patriarchal leaders of extended locally-resident families. They are also the people who first established homesteads around which villages developed in the inland area to the south of the Okavango River. Headmen have responsibility for several communities or villages, and they are elected by community members before the chief ratifies their appointment.

Tribal areas are divided into wards, each of which is headed by a senior headman who is appointed by the chief. In addition, there is a council consisting of 12 or more traditional councillors, some of whom are senior headmen while others are appointed in their individual capacities. One councillor is appointed as the chief traditional councillor, with a position akin to that of a prime minister. His role is to advise the chief and also deputise when needed.

Tribal chiefs (called *hompas* in Uukwangali, Mbunza, Shambyu and Gciriku, but the *fumu* in Mbukushu) are normally members of the 'royal family', having been appointed as leaders by their deceased predecessors. Nowadays, however, headmen may elect a chief from among several candidates within the royal family.

Prior to independence the chiefs of the five traditional authorities (TAs) would regularly confer at meetings called by the Commissioner for Kavango. Since then nothing was done to encourage the continuation of the meetings, but the dispute over Owambo cattle in Uukwangali (see below) apparently led the chiefs to meet again.

Land management and allocation by traditional authorities

Residential and crop land

Parcels of land are administered in very similar ways by the five traditional authorities. Allocations are for life, and nothing is paid when land is allocated. Land is normally allocated to men, since men usually live close to their parental homes when they marry. Properties in any local area therefore tend to be owned by closely related men. Land is also seen as traditionally being a 'male preserve'. Properties may not be sold and land that is permanently abandoned reverts to the traditional authority.

The level and kind of permission required for any change to land ownership is governed by two principles. The first is the degree to which an applicant is known by, or related to the local community. The more familiar a person is, the lower the level of authorization needed for any change in ownership or allocation. A father can subdivide his land to provide a parcel to his son without telling anyone, but will have to inform his neighbours and the local community leader if he is to allocate an adjoining piece of virgin land to his son. Likewise, an existing resident can enlarge his property or clear a new piece of land

⁷ Adapted from Mendelsohn, J.M. *Customary and legislative aspects of land registration and management on communal land in Namibia*. Report for Ministry of Lands & Resettlement. 98 pp.

nearby as long as the neighbouring community knows that this is happening. Land may be transferred from one resident to another local resident by informing the local headman.

By contrast, an immigrant from elsewhere who wishes to occupy a piece of land would require the agreement of members of the community, the community leader and headman. The applicant would also need a letter of introduction from the headman of the area of his origin. If the immigrant was from a distant area or another tribe, he would also require agreement from the senior headman and chief, and his letter of introduction would need to come from his tribal chief.⁸

The second principle is that the more unusual the land allocation or change, the more permission is needed. For example, someone wishing to use a piece of land for business purposes requires authorization from all levels of the traditional authority. He would also be called to discuss the intended business with the chief so that the need for tax payments to the TA is unambiguous. Similarly, the creation of large farms (see below) has been planned at the highest TA levels.

The intended value of the two principles in governing land lies in avoiding disputes or misunderstandings in the future. Thus, the more familiar a person is, and the more his credentials, character and origins have been assessed by both community members and various levels of leadership, the lower the chance of disputes occurring.

While no payments are made for land, tribal authorities collect taxes from each person aged over 18 years and over. These amount to N\$24 per year for everyone (Uukwangali, Mbukushu, Gciriku), or to N\$15 for people who do not work and N\$30 for people who are employed (Shambyu and Mbunza). No other payments or tributes are paid to chiefs. Up until the 1970s, each household was expected to provide a portion of their harvest to the chief with the intention that the food be kept as a reserve for the community in the event of a famine. Prior to that, community members were required to first cultivate the fields of the chief and local headmen before tending to their own fields.

A great number, perhaps the majority, of residents have more than one parcel of land, and given the relative abundance of open land in some areas, farmers often clear new fields when the soil fertility of current fields is exhausted (very few farmers take measures to add nutrients to soils). Cleared fields that are not planted have either been abandoned or left to lie fallow. Residents would presumably attempt to register all cultivated, fallow and abandoned fields when offered the chance to demarcate their properties in terms of the Communal Land Reform Act.

Commonages and grazing areas

While headmen have theoretical authority over open pastures and woodlands, levels of control are lax since these resources are perceived to be abundant. Livestock owners require no special permission to graze their cattle and goats in local commonages as long as the animals cover areas within daily walking distance from the homes of their owners. Livestock resident along the Okavango River are expected to move within a

⁸ This system also held for properties allocated to immigrant Angolans, although it must have been applied somewhat loosely when large waves of people arrived during particularly turbulent times of warfare in Angola.

zone that is perpendicular to the river, thus going down to the river to drink and then grazing in directions directly away from the river.

Livestock owners from other villages or communities need authority from a headman if they require temporary access to local grazing or water.

Inheritance

A woman typically moves to live in her husband's village or community when she marries. Upon his death, her adopted community evaluates her position and social acceptability. In most cases she is allowed to continue using her husband's property because her character is agreeable and this would be in the interests of her children. The community will also offer her the option of marrying again, often presenting her with several potential partners from whom she can select a new husband. The new husband assumes the role of custodian or manager of the property and its assets, which would belong to the children of the late husband in terms of traditional law.

However, if the bereaved woman is judged to be unacceptable, she would return to her parental community and her husband's property would be inherited by her children. In the event of a mother dying, the father and her children will continue living on their property.

Annex 2

Large private farms in Kavango

Several large farms were allocated to individuals during the 1980s as part of an effort to develop and encourage commercial farming activities in Kavango and other second-tier administrative areas in Namibia. The farms were scattered across the region, but the same programme led in 1989 to the bigger development of 46 farms in the Mangetti Block. The Mangetti farms are just north of the quarantine fence, and it was then intended to move the fence to a line along the northern border of these farms. A similar block of so-called Owambo Mangetti farms was established in 1989 to the west in what is now Oshikoto⁹ However, the fence was never moved, and two of the original 46 Kavango Mangetti farms have subsequently been used as rehabilitation/resettlement farms.

The block of Mangetti farms is in the Uukwangali tribal area, and this precedent led other traditional authorities to plan farms for themselves. Land & Farming Committees were formed by each traditional authority in the early 1990s to demarcate areas that could be fenced into large farms. It is important to note that the many new farms were established as a result of these committees, and it is only in more recent years that the Ministry of Lands & Resettlement has become involved in the planning and development of the farms. Likewise, the farms had been planned long before the preparation of the report on under-utilised land in Kavango¹⁰

The following table summarizes information on the farms in Kavango, which are euphemistically and officially called 'small-scale' farms.

Traditional authority area	Old farms from the 1980s	Newly allocated farms
Uukwangali	50	60
Mbunza	3	119
Shambyu	4	173
Shambyu/Gciriku (disputed)	0	41
Gciriku	8	57
Mbukushu	0	18
Total	65	468

There are now 533 large, commercial farms in Kavango. The great majority are about 2,500 hectares in extent, although some are as small as 1,100 hectares and others as large as 6,900 hectares. The size of 2,500 hectares was adopted by the Land & Farming committees as a 'fair' size, although they had originally planned for much larger farms. For example, the 5,000-hectare farms were planned in Shambyu and Gciriku, while

⁹ Owners of Kavango Mangetti farms do not pay grazing fees, unlike their counterparts on the "Owambo Mangetti farms".

¹⁰ International Development Consultants 2002. *Assessment and development of communal areas in the Kavango Region*. Windhoek: Ministry of Lands, Resettlement and Rehabilitation /IDC.

those in Mbunza were 8,100 hectares. Many adjoining 2,500 hectare farms have been registered in the names of different family members to retain possession over the original, larger farm units

Cumulatively, the farms now cover over 30% of the region, and almost 40% of all open communal land in Kavango. Most of the farms have been surveyed by the Ministry of Lands & Resettlement, and 25-year or 99-year leasehold certificates have been issued to the owners of about half the farms.

The areas allocated to new farms in the Uukwangali, Mbunza and Mbukushu were gazetted in 2007 as being 'leasehold areas for agricultural purposes (Government Notices No. 124, No. 126 and No. 128). It would appear that the Shambyu and Gciriku farms areas have yet to be so designated and gazetted, perhaps because of the dispute between the traditional authorities over some of the area covered by the farms.

Figure 13 in the main report shows the general distribution of all the farms in Kavango, and also shows that some of them are in areas that have been gazetted as conservancies and community forests.

Uukwangali farms

There are now 110 farms in Uukwangali, of which 50 comprise the Mangetti and other farms established in the 1980s. The remaining new farms are along the northern border of the Mangetti Block and along the regional border between Kavango and Oshikoto/Ohangwena. It is the planning and fencing of the farms along the regional border that stimulated the grazing dispute between Uukwangali and Ondonga.

The problem began with the fencing – so-called illegal fencing – of 144 farms north of Mangetti West in Oshikoto in the early 1990s. This stopped access to seasonal grazing which has been used for decades, perhaps even hundreds of years, by Ondonga cattle. Once access to these traditional pastures became restricted, Ondonga cattle owners moved east into Kavango. But this was done with the agreement of local Uukwangali residents. The agreements were mutually beneficial, Uukwangali farmers being paid a heifer in return for grazing rights each season, for example. The Uukwangali farmers were all residents in local villages living as traditional, mostly subsistence farmers.

The recent dispute began when the Uukwangali Land & Farming Committee resolved to permit the fencing of commercial farms along the border between Kavango and Oshikoto/Ohangwena. The presence of Owambo cattle was one limit to the creation of these farms, but much greater aggravation arose when Owambo herders cut the newly-erected fences to gain access to pastures to which they had secured prior agreed access. In essence, the dispute is therefore between and about wealthy, influential people fencing off large farms in Ondonga and Uukwangali, farm acquisition by the former group having limited the opportunities of the latter group to do the same.

Mbunza farms

Three farms were allocated in the 1980s in the Mbunza tribal area, and all remain occupied. The Land & Farming Committee then allocated 62 new farms to the south-east of the Mangetti Game Reserve. Twenty of these had boreholes, pumps and storage tanks installed in 1992 to provide water for livestock in event of a drought and in case of need for emergency grazing. Each of the 20 farms was about 8,100 hectares in size. The remaining new farms are to the east and south of this 'drought-relief' zone. Since

then, 119 farms have been demarcated in the same general area between Mangetti Game Reserve and the Omatako omuramba. Most of the 119 farms are about 2,300 hectares in size.

It remains to be seen what explanation is offered when Kavango next experiences a severe drought. Cattle owners are certain to remember the planning and provision of drought-relief grazing, boreholes and water tanks in this area, which have now been given to individual farmers.

Shambyu/Gciriku farms

Four large farms were established during the 1980s in the Shambyu area, and another eight farms in Gciriku area. The Land & Farming Committees of the two tribal authorities have since demarcated 271 farms, 41 of which lie in an area claimed by both authorities.¹¹ All the new farms were originally planned to cover 5,000 hectares each. In planning the farms, both Land & Farming committees took the southern, east-west border between Kavango and Otjozondjupa as a baseline, and then simply measured off 5 x 10 kilometre blocks of land progressively north from the baseline border.

It is clear that many poor, subsistence farmers already live on many of the newly-established farms in Kavango. What is not clear is how the new farm owners will treat them, although there are reports of some long-established residents being evicted. Government policy on the matter is also not clear: will previous residents be compensated for eviction, be evicted or accommodated in some other way. In the case of the Shambyu/Gciriku farms, a detailed examination of high-resolution aerial photographs, supported by an aerial survey, suggests that there are at least 310 existing households within the area now allocated for the 271 new farms. Examples of these households, and the settlements in which they are grouped, are shown in the attached photographs.

Some of the households, particularly in the northern areas, probably belong to family members of people who have been allocated the farms. However, it is likely that the count of 310 households is an underestimate because some very small homes belonging to San people were probably not visible on the aerial photographs. As a result, there could be around 400 families living on those farms.

From the presence of cultivated fields and the structure of the houses, it is obvious that many of the homes belong to people of Kavango tribes. However, there are also many San people resident in the area, and there are certain to be Public protests if these San residents are forcibly moved away from these areas.

Mbukushu farms

Although these were not planned by the South African administration in the 1980s, three large farms were occupied and operational near Shashasho. Another 18 newer farms, each of 2,500 hectares, have been planned but not implemented because they overlap some of the existing farms, and the traditional leadership has acknowledged that this would cause the displacement of some local villagers.

¹¹ The 41 farms are considered to be in dispute. However, the farms and leaseholds are allocated to individuals who may be of any tribal origin.

Perhaps because of the difficulty in establishing the 18 new farms, and perhaps because of the limited area available for new farms in the Mbukushu area, the tribal leadership has advocated the demarcation of commercial farms in Bwabwata National Park.

Other farms

A number of farms that were part of the Kavango Cattle Ranch run by the Namibia Development Corporation (NDC) have been allocated to war veterans and/or the Namibia Defence Force. The nature of occupation on these farms is not known.

Annex 3

Strategic Assessment and economic analysis of land use options for the Kavango

This assessment and analysis adopted a SWOT approach to 12 different land uses, applying three different scenarios to each, namely (i) the current situation, (ii) the pipeline situation which includes any known plans or intentions, and (iii) the optimistic, or perceived ideal situation – the situation that from a technical perspective is deemed to give the best results. An economic analysis was done concurrent with this assessment, and this work was done in a workshop setting, drawing on the best expert input available.

6.1 Biodiversity conservation

Current situation

- Drivers
 - Government conservation policies and legislation, meeting international obligations and treaties.
 - Recent studies in Namibia provide an economic motivation for biodiversity conservation, in that parks underpin a large portion of the national tourism sector.

- Spatial extent

15% of the land surface, 7 508 sq km. Khaudum National Park (3 841 km²), Bwabwata National Park (3 002 km²), Mangetti National Park (420 km²), Mahango Game Reserve (245 km²). Conservancies also provide a degree of biodiversity conservation (1 190 km²).

- Inputs
 - Government's capital and recurrent budgets for Khaudum are in the region of N\$14 million and N\$7 million respectively. Those for Bwabwata are in the region of N\$10 million and N\$5 million respectively. Those for Mangetti are in the region of N\$2.6 million and N\$1.3million respectively. Those for Mahango are in the region of N\$12 million and N\$5 million respectively.
- Outputs
 - Conservation of ecosystems (partially), conservation of important biomes and habitats; Conservation of wildlife. The current direct economic contribution to the national income of the Khaudum, Bwabwata, Mangetti national parks and the Mahango Game Reserve, combined has been estimated at 19.7 million.

- Institutions

- MET

SWOT:

Strengths

- Economic
 - Although room for significant increase, biodiversity making direct economic contributions through various forms of wildlife use and tourism in protected areas and conservancies.
- Social
 - Biodiversity management contributing significantly to job creation in both formally protected areas and conservancies and community forests.
- Ecological
 - 15% of the land surface, 7 508 km² with formal conservation status while conservancies and community forests contribute to the network.
 - Existing management capacity of MET.

Weaknesses

- Economic
 - Economic returns from indigenous biodiversity still some way off due to limited support capacity to rural communities to valorize existing opportunities and to explore new products.
- Social
 - The incentives and management structures for sustainable management below the desired level.
- Ecological
 - Areas not large enough to provide protection/habitat for species such as wild dog that roam over large areas, plus elephants and predators that also leave parks and come into contact with people, often leading to conflict.
 - MET budgets insufficient.
 - Parks not managed according to business principles.

Opportunities

- Economic
 - Development of Bwabwata and Mangetti shall attract further tourism investment which could strengthen management.
- Social

- Further tourism investments shall create more employment opportunities.
- Ecological
 - Integrity of PAs can be supported through neighbouring conservancies (if well managed), which can also provide corridors for wildlife movement, assisting maintenance of genetic diversity and population viability of certain species.
 - Increased investment could also improve management of protected areas including conservancies.

Pipeline

No new PAs expected to be established, but some new conservancies and community forests.

Optimistic

Existing network of protected areas well managed with appropriate staffing, capacity and budgets. PA network supported by well managed and efficient conservancies/community forests. (See wildlife production for data for conservancies)

- Outputs
 - The full development of the national vision for the parks, including implementation of the national concessions policy would significantly enhance the value of the Kavango parks. It has been estimated that the direct economic contribution to the national income of the Khaudum, Bwabwata, Mangetti national parks and the Mahango section of Bwabwata, combined, would increase from some N\$19.7 million to some N\$45.2 million.
 - Improved management of parks and neighbouring conservancies

Institutions

MET

6.2 Irrigated Crop Growing

Current situation

- **Drivers**

- Chapter 6 of the ruling party's latest manifesto (produced in 2004) states that Namibia's agronomic sub-sector has the brightest prospect to make the most immediate and significant contribution to the country's economic growth and job creation. It strongly promotes the Green Scheme as a way to increase Namibia's food production with the main beneficiaries being rural farmers.
- Two GRN policies address irrigated agricultural production in Namibia directly, namely the National Agricultural Policy (1995) – revision started in 2005, still ongoing; and the Green Scheme Policy (2004, revised in 2008)
- The Green Scheme policy sets out guidelines for implementation of State-subsidised irrigation projects. Through the Scheme, government will facilitate (through subsidies) the establishment of commercially viable irrigation farms in communal areas, and link these with the establishment of small-scale irrigation farmers who benefit from the services that the large-scale operation provides, and mentorship and training. The intention is to enable the small-scale farmers to achieve self-sustainability, and in combination with the large-scale production and marketing, achieve socio-economic development through food production and job opportunities.
- While it is acknowledged that the development of the irrigated agriculture sector will be subsidized, no rigorous economic analysis of the efficiency of the subsidization as well as the long term requirements for subsidy have been made. The development responds to the very strong need for jobs and income, but there is as yet no clear economic argument for the efficiency of the approach.

- **Spatial extent**

Initiated in 2004, the Green Scheme was planned to take place over a 15-year period, during which 27 000 ha were to be developed along the five perennial rivers. The following table summarises the current and projected future extent of irrigation projects in Kavango (Liebenberg, 2009).

Project name	Current hectares	Planned expansion
Kwangali Tribal Area		
Musese & Maguni	300	200
Simanya	0	200
Sihete	0	200
Other	0	200

Mbunza Tribal Area

Sikondo	0	800
other	0	300

Sambyu tribal area

Rundu	60	0
Kaisosi	36	0
Vungu-Vungu	285	0
Mashare	140	604

Gciriku tribal area

Ndonga Linena	400	400
Shankara	20	0
Shitemo	400	0
Other	0	3500

Mbukushu Tribal Area

Shadikongoro	400	0
Bagani	40	0
Divundu	116	40
Katondo	0	4000
New Projects	0	3018

TOTAL	2197	13462
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- **Inputs**

- Labour, water, fuel, electricity, fertilizers and pesticides are the main inputs, but quantities are unobtainable as MAWF do not have a register readily available. Pesticides commonly used are cypermethrin, endosulphan, deltamethrin, carbofuran, carbendazim, difenoconazole propiconazole, propargite, beta-cyfluthrin, imidachloprit, thiametoxam, and dichlorofen.
- Herbicides used are acetochlor, metalochlor, mesotrione, bronoxanill atrazine, alachlor, and terbuthylazine. Unfortunately, there is no record of the quantities used, how they are applied or what the environmental effects are.
- The capital investments involved in the current developments have been estimated at some N\$100 million (N\$45,600 per hectare) for the off-farm infrastructure and N\$49 million (N\$22,100 per hectare) for the on-farm capital.

- **Outputs**

	Irrigation	Ha	current	future	total
			2,197	13,464	15,661
	200 ha	per ha			
Off cap	9,125,000	45,625	100,238,125	614,295,000	714,533,125
On cap	4,420,000	22,100	48,553,700	297,554,400	346,108,100
profit A	-143,647	-718	-1,577,962	-9,670,316	-11,248,278
profit B	2,674,338	13,372	29,377,603	180,036,434	209,414,037

- According to Libenberg (*pers. com.*) average yields of 10 tons maize and 6 tons wheat per hectare per annum are achieved from the irrigation projects listed above. Maize is a summer crop and wheat a winter crop, meaning that both are planted on the same land each year. Currently, the cost of producing maize (all inputs) is approximately N\$20,000 per hectare and the yield realizes N\$24,000 per hectare in sales, thus recording a profit of N\$ 4,000 per hectare per year under current circumstances. For wheat, a break-even situation is currently achieved as costs and income from sales are roughly the same. Apart from the installation of bulk infrastructure (pumps, pipelines, roads, electricity, etc.), there are no subsidies (Libenberg *pers. com.*).
- According to the recent Country Pilot Partnership policy analysis (Pallett *pers. com.*), implementation of the Green Scheme Policy is happening at a much slower pace than planned. One main drawback is lack of money from government. Government originally (2004) promised N\$1 billion over ten years (ie average N\$100 million per year). So far only about N\$100 million has been granted in the five years since the programme began. The second main drawback is that Ministry of Lands is not granting ownership of the identified lands, and commercial farmers who wish to join the Green Scheme cannot get bank loans for startup capital on this basis, or are not prepared to commit investment without tenure security. To address this shortcoming, the revised Green Scheme Policy (2008) says that the state will develop all the infrastructure, and farmers are invited to join the Scheme on a profit-sharing basis. This has been newly introduced, but not yet fully started.
- There is no in-depth analysis of the overall financial and economic characteristics of the current irrigation activities or of the Green Scheme expansion initiatives. The analyses that have been done so far are partial and or exclude some key costs or benefit elements. Profits have been calculated for a 200 hectare unit for grain production and with varying degrees of substitution with higher value horticultural crops. Financial profitability estimates, without consideration of costs for water provision, and apparently without consideration of off-scheme transport costs indicate that at least 20 % of the products need to be those of high value horticultural crops. The Green Scheme will likely have to rely on these for

any viability, reducing the food security value of the scheme to some extent. Major initiatives in crop research in the Kavango region are clearly needed to establish the potential for high value crop production. Economic analyses are likely to improve this outlook, but overall economic efficiency is not yet known.

- **Institutions**

- The Green Scheme drives implementation of all government – related irrigation projects. The Green Scheme Agency is the mandated parastatal to do this. According to the recent CPP policy review, the Agricultural Engineering Division in MAWF (which is supposed to provide support to the Green Scheme) is very understaffed. There are 8 posts of which only 3 are filled, but one of those was on training at the time of writing so in practice there were only 2 people. In effect they can only do crisis management.

Current situation SWOT:

Current Strengths

- Economic
 - A long history of commercial irrigation schemes on the Okavango river provides a sound basis for planning future developments
- Social
 - Theoretically, the irrigation schemes will provide substantial employment and service opportunities, which, if properly managed, will be of considerable socio-economic benefit. Given the current un- and under-employment situation in Namibia (and Kavango), the potential of irrigated agriculture should not be under-estimated.
- Ecological
 - Any initiatives that improve employment, income and service provision opportunities to people from rural communities are theoretically good for the environment, providing that the initiative does not in itself result in environmental degradation. In the case of irrigated agriculture, the gains are likely outweighed by ecological losses – see below.

Current Weaknesses

- Economic

- The current knowledge about the financial and economic efficiency of different options for irrigated agriculture development appears to be inadequate.
- Social
 - As noted in the just-completed CPP policy review (Pallett *pers. com.*), Namibia does not have a long history of irrigation farming and local expertise is therefore very limited, at both the level of large-scale commercial operators as well as small-scale farmers. Small-scale farmers are given training on the job, as the Green Scheme sets out, but this does not include managerial skills, which are the most critical.
 - The design of the Scheme places great responsibility on the large-scale farmer to assist the small-scale farmers, without clearly specified responsibilities for the small-scale trainees. This inconsistency breeds dissatisfaction from both sides, and the perception is that this is now a deterrent to many farmers who might otherwise be interested in joining the Scheme.”
- Ecological
 - The greatest environmental threat posed by irrigation projects in Kavango is immediate and direct biodiversity loss during land clearing, and later losses as a result of managing large areas of monoculture. The latter is the result of pest control, often through applying poisons or even through physical control measures.
 - The establishment of these projects will likely result in human/wildlife conflicts in some areas, though electrification of fences should keep elephant, buffalo and hippo out of harms way.
 - However, the areas in question are not significant on their own, so the loss of biodiversity through land clearing is more as a result of cumulative impacts than from irrigation *per se*. Similarly, the use of water for irrigation is a concern, especially if the profits are marginal (e.g. wheat).

Current Opportunities

- Economic
 - A research programme to rapidly and rigorously test a number of high value horticultural crops could provide valuable information on the possibilities for economically viable irrigation development in Kavango.

- The diversification to and/or switch to irrigated biofuel crops (e.g. Jatropha) may be a promising avenue of investigation.
- **Social**
 - The original concept of the Green Scheme had considerable social merit, as it envisaged an experienced, established commercial farmer mentoring locals so that they would gradually acquire the skills and resources to become successful commercial farmers. It is strongly recommended that the social objectives are not abandoned just because of current inadequate leadership and management.
- **Ecological**
 - Need to audit the current projects and suggest “Clean Production” improvements. These will likely include:
 - Erosion control
 - Water, fuel and electricity efficiency
 - Pest control
 - Waste management

Current Threats

- **Economic**
 - Ongoing development of the Green Scheme without investment in an in-depth research programme and more rigorous financial and economic analysis to feed the planning could result in large losses of public money being wasted.
- **Social**
 - The recently concluded CPP Policy analysis (Pallett *pers. com.*) concluded that accountability in Green Scheme projects is theoretically good, as there is a round of auditing of all the projects at least once per year. However, repayment of loans from small-scale farmers is far below standard. It has happened that some farmers have been expelled but they complained to the President and were then re-instated through high-level political intervention. Cost recovery is not achieved, and this sends a message to others that they need not repay their loans.
- **Ecological**
 - In this case, there are likely to be threats posed by nature to the sector, as well as threats by the sector on the environment. In

the first case, droughts, pestilence and pests (including large herbivores) could either undermine the projects or force costs upward because of the need to avoid or mitigate the expected problems.

- In the second case, irrigation schemes, if poorly managed, will undermine water quality of the Okavango river (through pesticides, fertilizer and soil run-off) and water quantity (through over-abstraction) – either way affecting aquatic biodiversity and consequently fisheries.
- Depending on their location they could exacerbate human-wildlife conflicts and if large herbivores are controlled by scaring and shooting rather than being kept out by electrified fences, then potentially dangerous animals such as elephant, buffalo and hippo will become skittish and unpredictable. This will have negative social and economic impacts as people's lives will be endangered and the tourism industry will be undermined.
- If new schemes are located close to (or inside) national parks, biodiversity losses and increased human-wildlife impacts are likely and then this sector will conflict with wildlife management and tourism.
- One of the major problems associated with the Kavango irrigation projects is that they have not been subjected to EIAs.

Pipeline

Planned expansion of Green Scheme developments to up to nearly 13 500 ha.

Drivers

Likely to be the same as currently experienced and described earlier

Spatial extent

See table provided earlier

Outputs

May see some diversification in terms of crops, though this has not been clearly articulated by MAWF

Institutions

Probably no change from status quo

Pipeline SWOT:

Expected future Strengths

- **Economic**

- Future developments in the pipeline can be of tremendous economic value for the Kavango region and for Namibia if accompanied by appropriate research, analysis and planning.
- **Social**
 - Improvement of management and commitment to the original capacity building and equity principles will see the Green Scheme achieve its desired social objectives. According to the recently completed CPP Policy review (Pallett *pers. com.*) interest from small-scale farmers in the Green Scheme is very high, and the Agency normally has about 100 times more applicants than it can accommodate. The selection committee aims for people who show a genuine interest in learning irrigation farm management. No platform has yet been created to enhance networking for this sector.
- **Ecological**
 - Clean Production technology is becoming increasingly accessible, so it should be possible for the projects to achieve greater efficiency and thus reduce environmental impacts.
 - The recent passing of the Environmental Management Act (2007) means that all new schemes will now have to be subjected to an EIA. Ideally, there needs to be a Strategic Environmental Assessment (SEA) conducted for the Kavango Green Scheme Programme before any new projects proceed with their planning. The SEA should include an audit of the existing schemes as they represent *in situ* learning that needs to be carried forward to future projects.

Expected future Weaknesses

- **Economic**
 - Markets may be limiting and/or costly for some of the products that can make the schemes profitable.
- **Social**
 - Based on current institutional performance, relatively low political will, inadequate budgets and the likelihood of elite capture, it seems probable that the original social objectives will fade into the background in time.
- **Ecological**

- The inability of MET to insist on EIA or SEA, and the tendency for parastatals or GRN agencies to subvert the EA process, is cause for concern. If past trends continue, it is likely that future projects will proceed without adequate environmental safeguards being put in place.
- As pointed out by the recent CPP Policy Review (Pallett *pers. com.*) and noted earlier, runoff of fertilizers and pesticides into the perennial rivers is a possible negative impact but Green Schemes projects are mostly more than 500m from the rivers, so contamination into the rivers is likely to be small. Additionally, the farmers have to pay for the chemicals so there is less likelihood of chemicals being used in excess, and the irrigation areas in north-eastern Namibia are mostly in sandy soils, where infiltration is good.

Expected Future Opportunities

- **Economic**

- Opportunities will depend on increased demand for high value crops and the opening of markets for these.

- **Social**

- The recent CPP Policy Review (Pallett *pers. com.*) reports that there is adequate proof from some Green Scheme participants that the model can and does work for small-scale social upliftment. E.g. some individual Etunda small-scale farmers have made good profits, repaid their loans and now manage viable farming units. The economic development that was anticipated, even though small in national terms, is possible.
- Additionally, Green Schemes in Kavango have prompted the establishment of a new mill at Rundu, and other possibilities exist such as expansion of the cold chain for fruit and vegetables to include other indigenous products such as marula.
- If the government wishes to build human and infrastructural capacity for irrigation farming, then this is a satisfactory way to do so.

- **Ecological**

- None

Expected future Threats

- **Economic**

- The Green Scheme may be able to have a potentially very significant impact on the development of Kavango region and Namibia, but it may be threatened by ill-conceived and poor planning, conducted without sufficient research and analysis.
- The major constraint to any commercial development in Kavango, which is reliant on distant input and output markets, is likely to be its remoteness compared with better situated sites. This makes it important to rigorously search for comparative advantages in the planning process.

- **Social**

- The recent CPP Policy Review reports (Pallett *pers. com.*) that political interference in Green Scheme operations has jeopardized their viability. Poor management and irresponsible behaviour by small-scale farmers (e.g. not repaying loans granted at the start) has been condoned, so that participants might now expect to be bailed out again in future. This promotes government wastage and unsustainable economic practices.
- The revised Green Scheme Policy has removed the leverage of private capital that was in the original version, and places the full responsibility for capital infrastructure on government. It also removes the requirement for training to be given to small-scale farmers. These revisions weaken the potential for the Scheme to attract skilled irrigation farmers, and weakens the Scheme's original purpose to build local capacity in irrigated agriculture. For these reasons, subsidisation through the Green Scheme is economically wasteful.

- **Ecological**

- Same as current, though human-induced climate change is likely to exacerbate current problems.

Optimistic scenario

- **Drivers**

- Both the Swapo Manifesto and GRN vision needs to be clear that the goal is for security and NOT food self sufficiency.
- Namibia's agricultural policies need to be updated to reflect diversification in agricultural products (such as *Jatropha*, indigenous fruits and vegetables) and a greater role for partnerships with the private sector.

- Although the revised 2008 draft of the Agriculture Policy has not been released, it apparently highlights that output growth needs to increase substantially to meet Vision 2030 targets, and the key to unlocking the growth potential is partnerships with clearly defined and jointly planned development programmes.
- **Spatial extent**
 - No increases above pipeline scenario should be allowed – any expansions within this sector should be economic, social and environmental improvements to the existing hectares, rather than new hectares.
- **Inputs**
 - No increases above pipeline scenario. However, diversified crops implies different inputs (e.g. seeds, seedlings, etc.)
- **Outputs**
 - Higher value crops recommended, as well as improved supply to local markets, e.g. lodges, Rundu, etc.
- **Institutions**
 - The Sustainable Development Advisory Council (SDAC), under the Chairmanship of the Environmental Commissioner, needs to be fully functional as an efficient and effective mechanism in implementation of the Environmental Management Act (2007). The SDAC can play a role in integrating activities of various departments.
 - The SDAC can also act as a platform where plans and programmes can be strategically assessed for how they will genuinely improve land management practices.
 - Urgently need a Strategic Environmental Assessment to guide this sector, enhance synergies between this and other sectors, avoid opportunity costs and lay a platform for managing cumulative impacts. Very important in this regard is to establish a Strategic Environmental Management Plan (SEMP) that provides an overall framework for managing irrigation projects within an overall programme framework

6.3 Dryland crop production (including biofuel)

CURRENT SITUATION

- **Drivers**

- Domestic needs for staple foods (95% of cropland) and vegetables (5%), which are traditional forms of revenue income (as opposed to capital and security, which traditionally came from livestock). However, most families get most of their food from off-farm sources. For example, two surveys (in 1992 and 2004) found that only 18% of household income came from farming for rural households; i.e. 82% of all rural household income was from sources unrelated to cropping and livestock.
- Dryland cropping is substantially supported by GRN policies to promote “food security” which actually amounts to ‘food self-sufficiency’. Donor and development programmes also promote self-sufficiency, often with the implication that food production is the only worthwhile developmental activity for rural Kavangos.
- Labour availability is very important for cropping. Large families have most labour, and rich households with wealth from off-farm sources employ labour to cultivate large fields.
- Household wealth determines field size. However, almost all food for wealthy households is bought with cash from off-farm income, so the wealthy families use land that they do not appear to need. This is obviously to the detriment of poor neighbours who have limited access to arable soils and off-farm income. It also leads to excessive, unnecessary clearing of land.
- Dryland crop production is considered important among households in the region, but its importance appears to stem to some extent from the subsidies involved. Private net returns are low, but the economic contribution of crops tends to be even lower.

- **Spatial extent**

- Widespread and scattered, 750 km². Areas of woodland cleared expanded by 3.9% per year between 1943 and 1996. This rapid expansion was driven both by high rates of immigration from Angola and the freedom that residents have to slash-and-burn land at will. For example, large tracts of land cleared as fields along the tar road between Rundu and Divundu have never actually been planted.

- **Inputs**

- Significant domestic labour for clearing, weeding and harvesting (The total employment in dryland crop production in the region is estimated at some 6,900 full-time jobs).

- Labour¹² for weeding is much the most time-consuming and important input in achieving reasonable yields. Its value becomes clear by summarising the typical labour requirements for one hectare: 13 days for manual hoeing, or 4 days using draught animal power, or 2–3 hours using a tractor; 8 days for planting; 27 days for weeding; 7 days for the harvest, and another 7 days for threshing.ⁱ This adds up to about 62 days for one person per hectare if ploughing and weeding is done manually, and a minimum of 49 days if a tractor is used for ploughing. An average field of three hectares would require 147–186 days of work. Small homes, with perhaps just one or two productive family members, are unable to provide that kind of labour and therefore only cultivate smaller fields. Of course, labour requirements are not spread evenly over the growing period, which means that large and wealthy households are better placed because more family members are available and casual labour can be hired at critical times.

• Outputs

- No food security and limited food self-sufficiency Production fluctuates, but the total average annual production in the region is estimated to be worth some N\$27.1 million. After deduction of the costs of production, producer households earn an estimated average aggregate net income amounting to N\$19.0 million, although nearly all of this involves home consumption. The average crop producing household earns the equivalent of some N\$430 *per annum* in net income from the activity. The aggregate direct contribution made by dryland crop production to the national income in the region is N\$6.3 million.
- A typical farming household of six people plants three hectares of mahangu¹³. They would harvest an average of 500-900 kilograms of mahangu in a year, which has a market-related value of N\$1,500-2,700. A minimum of 147 days of labour would have been spent in realising the harvest, giving daily rates of return on labour of about N\$11-18. Annual sales or in-kind values from slaughtering five goats and one cow would amount to no more than N\$3,000. While a few hundred dollars could be added from vegetables and legumes, it is clear that the total production of such farms is extremely low, and that returns from inputs are small.

• Institutions

- Families, both local and wealthier members with off-farm incomes living elsewhere. Local headmen allocate rights of residence and

¹² This text from Mendelsohn 2006

¹³ This text from Mendelsohn 2006

sometimes determine where a newcomer can build a home. Thereafter, residents are free to clear whatever virgin land they wish.

Current situation SWOT:

Strengths

- Economic,
 - Some food self-sufficiency
 - Some self-employment – temporary/casual. The average crop growing household out sources about 33% of the labour costs of production.
 - Limited safety net
- Social
 - Cultural value
- Ecological
 - none

Weaknesses

- Economic,
 - Wealth creation not possible (climate, soils, limited markets, etc.). Perpetuates vulnerability and poverty, especially for the poor who don't seek better ways of livelihoods and if GRN and donor programmes promote domestic cropping as a means to achieving 'food security' under current production methods.
- Social
 - Limits ambition for diversification (opportunity cost)
- Ecological
 - Slash and burn – land clearing, leading to erosion and lowered land productivity – likely bad for biodiversity in short-medium term. After deforestation and cropping, pioneers proliferate. Succession slow.
 - Requires pest control and in some areas, results in Human-Wildlife Conflicts (HWC)

Opportunities

- Economic,
 - Other crops may yield better returns – e.g. Jatropha, nuts, indigenous fruit, etc.
 - Better management will improve yields, but not substantially, and could be used for commercial dryland mahangu production, as shown by about 70 farmers in Kavango who currently grow large-scale (e.g. > 50 ha)
 - Indigenous mahangu may provide buffer against climate change (other crops maybe more vulnerable to diseases)
- Social

- Improved management and yields provides livelihood improvements, better security, more labour options.
- Ecological
 - Improved efficiency and better yields may reduce need for more clearing and resultant biodiversity losses.

Threats

- Economic,
 - Poor soils, adverse climate and limited markets
 -
 - Declining health (e.g. HIV and AIDS) and interest by young and educated reduces labour options
- Social
 - None
- Ecological
 - Wildlife and livestock
 - Possible climate changes

PIPELINE

Describe expected changes

- Drivers
 - Demand likely to diminish as people increasingly consume packaged staples, which are cheaper and more available.
 - But markets for crops may improve slightly with increased demand in Angola and competitive pricing
 - Rates of land clearing are probably diminishing as people now go across to the northern, Angolan bank to slash-and-burn
- Spatial extent
 - See last bullet above
- Inputs
 - No real change
- Outputs
 - Some possible gains and losses
- Institutions
 - none

Pipeline SWOT

- Economic
 - See current situation SWOT
- Social
 - As above
- Ecological
 - As above

OPTIMISTIC

Describe ideal scenario, highlighting changes needed in the following categories:

- Drivers (policy, and incentives/disincentives)
 - Need for policy reform that clearly emphasizes food security rather than self sufficiency.
 - Need to continuously trial new crops and management methods that lead to improved yield such as conservation farming
 - Consider *Jatropha* – this crop could significantly improve incomes
 - Better control of land clearing, and the use of cleared land – need a permit system to allow land clearing. One could have a CBNRM approach towards land management and introduction of conservation farming
 - Local Authorities and GRN agencies need training in SL management
- Spatial extent
 - The Kavango LU Plan could introduce the concept of limiting areas that may be cleared – with emphasis on better management of already cleared land
 - The best cultivation areas should be protected for the poor who have no off-farm incomes. Incentives/disincentives should be introduced to ‘move’ the rich away from arable land.
 - Needs to be provision through zonation for biodiversity corridors/‘Resource Rich’ areas. Target should be 25% of the dry woodland within 3km of river and 75% of riparian fringe intact. A mapping exercise is needed to identify the most important Biodiversity areas, so that the most NB areas are protected and to provide alternative economic opportunities. This zonation process needs to be guided by an EIA that assesses the likely socio-economic implications of cultivation and no-cultivation zones. The Biodiversity intact zones must not be alienated in terms of socio-economic opportunities – on the contrary, they could assist in income diversification.
- Inputs
 - Policy changes. Introduction of conservation farming which has demonstrated the ability to provide higher yields on the same piece of land
- Outputs
 - Higher value crops that match markets and are cost-effective to transport.
 - Reduced land degradation, diversification of incomes and greater opportunities for the rural poor
- Institutions

- More use could be made of CBNRM approach to limit land clearing, land allocation, and land management. The bottom line is that land must be used efficiently and equitably – we cannot simply shift to new land.
- Need a better way of ensuring social equity (maybe also through a CBNRM approach)– elite capture needs to be avoided

6.4 Fisheries (domestic consumption and commercial)

Current situation

- Drivers
 - About 60% of rural households within five km of the river fish as one of their household income earning activities.
 - The main drivers are income earning and poverty avoidance, and use tends to grow in line with population.
 - Fishing is largely responsive to availability of fish, providing a weak density dependent regulation mechanism.
 - Commercial fishing, mostly not developed or repressed, is driven by profit making motives.

- Spatial extent
 - The fishing takes place in the river channel and the floodplain when the latter have water on them.
 - In floodplain areas fishing peaks markedly in the flood season, particularly as the floods subside.
 - In areas with no floodplain, fishing is more constant but decreases during floods.
 - Spatial use is highly variable and interwoven but approximately 100 ha may be used by a household. Outside the BMM protected area complex, the whole river is fished.

- Inputs
 - Fishers make use of gill nets in the main channels and floodplain pools, and traps in the floodplain channels.
 - Canoes and bicycles are used for transportation. Average capital investment amounts to some N\$3,300.
 - Some new entries to the fishery are using drag nets

- Outputs
 - Average household catches amount to some 720 kg on the floodplain and 330 kg in the areas with no floodplain.
 - Fish are nearly all eaten fresh by the household, or sold fresh to other households.
 - The channel fish include several species of cichlids, barbel and tiger fish. The floodplain catch commonly consists of large volumes of small cichlids.

- Per annum, the typical fishing household generates some N\$12,600 in gross output, N\$8,700 in net profit, and N\$10,000 in total community benefits. Each household enterprise generates some N\$9,850 in terms of gross value added, and N\$9,460 in terms of net value added, to the national income.
- Institutions
 - The fishery is generally open access, except in the case of some floodplain pools where specific households have traditionally handed down rights of access.
 - The Ministry of Fisheries and Marine Resources administers the regulations governing the fishery. It has recently established a large research station, which is currently focused mainly on intensification through fish farming.
 - Communities have some informal power to exclude entry to the fishery from commercial operators.

Current situation SWOT:

Strengths

- Economic
 - Inherently efficient enterprise with good profitability, contributing to household incomes as third or fourth most important resource use enterprise.
 - There is a tendency for fishing to have a livelihood safety net role in household strategy. There is lack of government subsidies.
- Social
 - Cultural value
 - There is a tendency for fishing effort to respond to fish availability, providing some self regulation of the fishery.
- Ecological
 - There is some community control over fishing by non-community commercial enterprises.

Weaknesses

- Economic
 - Open access within community.
- Social
 - There is a lack of decentralization of fish property rights to the community level.
- Ecological

- Fishery is limited to natural production potential, and is currently more or less fully utilized. It is dependent on natural production potential, which can vary significantly with flow.

Opportunities

- Economic
 - There is considerable potential for increase of production through integration with fish farming, using low input systems such as stocking natural pools with fingerlings and some feeding (fish ranching).
 - There is some potential for enhancement of value through product development and processing.
- Social
 - Opportunity for community mobilization for fishing and tourism.
- Ecological
 - There is considerable potential for increase of production through integration with fish farming, using low input systems such as stocking natural pools with fingerlings and some feeding (fish ranching).

Threats

- Economic
 - The entry of commercial fishing enterprises, run by entrepreneurs, using drag netting which can rapidly deplete stocks is a threat.
- Social
 - Conflict between angling tourism and community fishers is severe.
- Ecological
 - The overall increase in resident populations will increase pressure on the fishery.

PIPELINE

Describe expected changes

- Drivers
 - Generally there will be enhanced pressure on the fishery. There will also likely be some intensification and enhancement of production through integration with fish farming.
 - Continued demand from commercial enterprises will threaten the viability of the fishery.

- Conflict between angling tourism and community fishers will increase.
- Population growth in the area will gradually increase pressure on the fishery.
- Policy relating to fish farming will allow development of fish ranching, which will enhance production.
- Spatial extent
 - No major change to the area, except as driven by population growth
- Inputs
 - Some intensification with fish ranching
- Outputs
 - Enhancement of income due to ranching, but also ultimately possible loss, as a result of commercialization and resulting over-exploitation.
- Institutions
 - Community fishing groups strengthen.

Pipeline SWOT

- Economic
 - See current situation SWOT
- Social
 - As above
- Ecological
 - As above

OPTIMISTIC

Describe ideal scenario, highlighting changes needed in the following categories:

- Drivers (policy, and incentives/disincentives)
 - The ideal scenario will involve community mobilization to enhance common property management of entry to the fishery.
 - This will involve devolution of rights to local communities, including the right to draw rentals/royalties from angling tourism operations.
 - There will be co-managed intensification though increased fish ranching, and co-managed control of commercial drag netting.
 - There will be development of CBNRM within the fishing communities. This will involve some policy and regulation modification, giving communities rights to use and fish riparian assets.

- Spatial extent
 - No specific change needed
- Inputs
 - No specific change needed, some initial training and support for development of fish ranching
- Outputs
 - Enhanced income and increase sustainability will result.
- Institutions
 - Communal fishing conservancies need to be developed with power to regulate use and derive rentals/royalties from tourism operations using their resource.
 - The increase in fish ranching will need support from MFMR in the provision of stock to communities.

6.5 Fish farming and ranching

Current situation

- **Drivers**
 - The Namibian Government has identified aquaculture as a top priority for development and foresees the role of aquaculture of freshwater species to enhance food security, generate income and improve rural livelihood. It is envisaged that by the year 2030, aquaculture will have grown to become a thriving industry.
 - Current policy for this developing sector is laid out in the policy paper: Towards the Responsible Development of Aquaculture (2001), Aquaculture Act (no, 18 of 2002), and Aquaculture Licensing regulation. Under this policy, Namibia is committed to observing the principle of optimum sustainable yield in the exploitation of living natural resources and ecosystems.
 - Main objective of the policy is the responsible and sustainable development of aquaculture to achieve socio-economic benefits for all Namibians and to achieve environmental sustainability. Meeting these policy objectives rests on four strategies:
 - Establishing an appropriate legal and administrative framework for aquaculture, including establishing systems of tenure and rights for commercial aquaculture;
 - Establishing appropriate institutional arrangements for aquaculture;

- Maintaining genetic diversity and the integrity of the aquatic ecosystem; and
 - Ensuring responsible aquaculture production practices.
- The key legal instruments pertaining to this sector are:
 - The Inland Fisheries Resources act (No.1 of 2003), which governs inland fisheries.
 - The Aquaculture Act (No.1 of 2002), which evolved from the Aquaculture policy of 2001.
- The aquaculture Act (2002) came into force in 2003 and prescribes, *inter alia*, the procedure for obtaining aquaculture license, monitoring, regulation, processing, marketing, environmental safety measures and consumer health and safety issues.
- According to the FAO (www.fao.org, accessed 7 May 2009), Namibia's aquaculture sector is in its infancy, although aquaculture activities are believed to have started in the late 1800's with the introduction of carp, bass and tilapia in various dams (though not in Kavango).
- The FAO reports that studies show that good freshwater aquaculture development potential exists along rivers such as the Okavango, Kunene, Orange and Zambezi, as well as in dams. In addition to Hardap dam, the Ministry of Fisheries and Marine Resources and the Ministry of Trade and Industry have developed six community-based intensive freshwater aquaculture facilities in Omusati, Okavango and Caprivi regions producing tilapia and catfish for local distribution. Fingerlings are also being produced and distributed to small-scale farmers in the north for their own production.
- The development of aquaculture in the Kavango region needs to be accompanied by rigorous financial and economic analysis. Little is known of its financial viability and economic merits. The emphasis in this should be on the identification of financially profitable, economically efficient, and technologically appropriate systems. In particular capital intensity and skills intensity need to be minimized, inputs need to be cheaply accessible, and systems need to be compatible with existing fisheries.

Spatial extent of projects in Kavango

Name of project	Locality	Labour input	Feed input	Production	Comments
Mpungo	Nkurenkuru	26 – will expand by another 10	1,5 times output - fish food pellets - obtained from fish food factory in Omusati Region	5 tons p/a. 50% expansion possible	Co-operative, with government support. Fish grown are catfish and tilapia. Fruit and vegetables will also to be produced, making this an integrated production area (not just fish). It is hoped this will be a 'model farm'
Shipapo wambambangandu	Kaisosi	Was 25, now 0	None	none	Flooded and abandoned - inappropriate site
Divundu	Divundu prison	Inmates	1,5 times output - fish food pellets	12 tons p/a - will be under roof so more intensive and efficient	Not clear whether the fish produced will be sold, or used for consumption in the prison. Given the location of this site, it could supply surrounding lodges.
Karovo	Kangongo	Was 25, now 0	None	none	Flooded and abandoned - inappropriate site

- **Inputs**

See above table

- **Outputs**

See above table.

The primary crop is currently Tilapia (*Oreochromis andersonii*), with trials for the culture of Catfish currently underway. Tilapia was selected as the main production species as it is indigenous to the Kavango and Zambezi rivers, has low oxygen demand, high disease tolerance, and is known to grow larger in size than other similar species.

- **Institutions**

- The Ministry of Fisheries and Marine Resources (MFMR) is responsible for the development and management of capture fishery and aquaculture. There are four technical directorates namely: the Directorate of Resource Management, responsible for scientific research and advice; the Directorate of Operation and Surveillance, responsible for monitoring, control and

surveillance; the Directorate of Policy Planning and Economics, responsible for the coordination of MFMR planning activities, as well as formulating fisheries policies and legislation and undertake research and advise on socio-economic issues; and the Directorate of Aquaculture, responsible for the administration and development of aquaculture and mariculture. The Office of the Permanent Secretary of the MFMR provides executive management to the four directorates. Under the Act, the Minister must consult the regional council and any local authority council or traditional authority in an area earmarked for aquaculture. Therefore Local Authorities Act, 1992 (Act No. 23 of 1992), the Regional Councils Act, 1992 (Act No. 22 of 1992) and Traditional Authorities Act, 2000 (Act No. 25 of 2000) will regulate any aquaculture practice in their respective jurisdictions, in addition to the Territorial Sea and Exclusive Economic Zone of Namibia Act, 1990 (Act No. 3 of 1990) and section 1 of the Water Act, 1956 (Act No. 54 of 1956).

- The Minister of MFMR may declare any area of Namibia or Namibian water, including sub-aquatic lands, as an aquaculture development zone, determine the location and extent, and define the physical boundaries of an aquaculture development zone.

Current situation SWOT:

Current Strengths

- **Economic**

- Cheap labour costs, the increasing demand for fish in Africa, the real achievements to date and the results of studies of market and natural resource potential also indicate that aquaculture still has great potential to contribute to food security, rural development and economic growth in Africa.
- Appropriate systems, involving fish ranching rather than capital and skills intensive farming hold major promise.

- **Social**

- Labour and growing interest in fish farming

- **Ecological**

- Availability of water and feedstock in Okavango River

Current Weaknesses

- **Economic**

- African aquaculture is in its infancy due to the lack of a tradition of

fish and water husbandry, numerous social and political constraints that limit investment and retard expansion, plus the fact that only in recent years some countries have developed appropriate development models to foster its growth.

- Economic constraints like high input costs, feed costs, and credit costs play a major role in limiting aquaculture expansion, but the main constraints are probably linked to the countries' instability as a commercially-oriented aquaculture requires environments conducive to investment.

- **Social**

See above

- **Ecological**

- Droughts

Current Opportunities

- **Economic**

- There appears to be very significant potential for fish ranching – intensifying the natural fish production systems in floodplain pools and lagoons. In this way efficient, appropriate, capital extensive, skills extensive, and feed efficient systems can be developed, to enhance the existing fishery.

- **Social**

- Growing interest in fish farming and availability of labour.

- **Ecological**

- None

Current Threats

- **Economic,**

- Viability of aquaculture still has to be established, lack of investment in aquaculture

- **Social**

- None

- **Ecological**

- Droughts

Pipeline

- **Drivers**

- No likely change from status quo

- **Spatial extent**

- See table above
- **Inputs**
 - See table above
- **Outputs**
 - See table above
- **Institutions**
 - No likely change from status quo

Pipeline SWOT:
Expected future Strengths

- **Economic**
 - Enhancement of fish production in a complementary relationship with the current fishery.
 - The proximity of the fish farms to tourism establishments presents many opportunities – fresh indigenous fish farmed in an ecologically acceptable way should be on the menu and will likely be popular amongst tourists.
- **Social**
 - No likely change from status quo
- **Ecological**
 - No likely change from status quo

Expected future Weaknesses

- **Economic**
 - Possible institutional weaknesses could allow development of capital, skills and input intensive systems with little chance of success.
- **Social**
 - Not substantially different from current threats. HIV/AIDS may result in diminished workforce, but the labour numbers are low anyway, so the impacts unlikely to be substantial.
 - Elite capture may be a problem

- **Ecological**

- Climate change may pose a threat in future

Expected future Opportunities

- **Economic**

- Development of fish ranching holds most promise.

- **Social**

- No likely change from status quo

- **Ecological**

- No likely change from status quo

Expected future Threats

- **Economic**

- Possible institutional weaknesses could allow development of capital, skills and input intensive systems with little chance of success.

- **Social**

- Not substantially different from current threats. HIV/AIDS may result in diminished workforce, but the labour numbers are low anyway, so the impacts unlikely to be substantial.
- Elite capture may be a problem - though the idea of a cooperative does not exclude the concept of entrepreneurial spirit

- **Ecological**

- No likely change from status quo

C. Optimistic scenario

- **Drivers**

- Policy is adequate, though the possibility of actual ownership of the land needs to be considered – so that community-based (or cooperative) system can evolve into a fully-fledged private sector initiative. In that case, ‘elite capture’ is not so much an issue, as one needs to encourage investors and facilitate corporate success.

- GRN needs to stand back having provided an enabling environment, and allow the private sector to flourish.
- Systems need to be appropriate, driven by the demands of markets and economic efficiency.
- **Spatial extent**
 - It seems possible to expand the number of fish farms considerably, as the inputs are largely water, labour and fish food. This could be a major growth sector in the region.
 - Given recent experiences, care needs to be taken to ensure that new fish farms are located away from flood zones.
- **Inputs**
 - Inputs will reflect the size of the projects, but improvements could include placing the facilities under-cover. This will improve environmental controls and reduce evaporation and other problems.
- **Outputs**
 - As discussed earlier, growth in this sector is anticipated. Linkages with the tourism sector should be made, as this is a high value, nearby market.
- **Institutions**
 - As with all enterprises, GRN needs to provide policy and safeguards oversight, but the private sector needs to be encouraged to take the initial idea of cooperatives, to fully-fledged profit making enterprises.
 - MFMR should provide technical support as required by the industry, and continue to undertake research in both the farms and in the wild.

6.6 Communal livestock (domestic consumption and commercial)

Drivers

- The predominant need for capital and security, and some revenue benefits in the form of limited milk, meat, transport and draught power. It is important to note that most rural households have few or no livestock. For example, 49% of homes have no cattle and 59% have no goats. Just over half of all cattle in the region are owned by 10% of the farmers.¹⁴
- Investment by non-residents in livestock, so that most animals are owned by people not living in rural areas.
- Inadequate opportunities for other investment avenues (e.g. land, equity, bonds).
- Subsidies (e.g. vet services, water, quarantine farms).
- Free grazing and water, which are also subsidies.
- The private returns to communal livestock keeping are enhanced by the subsidies but the economic returns are low as a result of the open access grazing problem which drives down net economic benefits.

Spatial extent

Widespread, > 150,000 cattle and 65,000 goats; 22,500 km²

Inputs

Commonage pastures, water, some vet services and insignificant labour. The average livestock-keeping household enterprise provides full time employment for some 1.3 persons. Water use amounts to some 45 litres per LSU per day. Capital invested in communal livestock in Kavango is estimated to be some N\$216 million.

Outputs

- Capital security; some milk and meat (7 % off-take compared to 12% in Kunene and 20% in commercial farms).
- Herd is slowly increasing, enabled primarily by new water provision and the availability of off-farm incomes to invest in cattle
- Production fluctuates, but the total average annual production in the region is estimated to be worth some N\$73 million. After deduction of the costs of production, producer households earn an estimated average aggregate net income amounting to N\$ 10.3 million, although most this is home consumption. The average communal livestock owning household earns the equivalent of some N\$5,800 per annum in net income from the activity. The aggregate direct contribution made by communal livestock in Kavango to the

¹⁴ Based on analysis of four years of annual agricultural surveys conducted by the Central Bureau of Statistics. Additional information on farming in the region is summarized in Mendelsohn, J.M. 2006. *Farming systems in Namibia*. RAISON, Windhoek. 80 pp.

national income in the region is 11.2 million, amounting to some N\$14 per hectare under communal grazing.

Institutions

- Families, especially off-farm members.
- Water point committees established (though not always functional).

SWOT:

Strengths

- Economic
 - Limited income, but substantial capital and security benefits
- Social
 - Status, social security
- Ecological
 - none

Weaknesses

- Economic
 - Management methods strive for quantity, not quality, which leads to low production and low quality animals.
 - Low offtakes leads to low productivity, because old animals (which may be past breeding) remain on the land.
 - Open access system limits management options.
- Social
 - Elite capture limits possibility of the poor improving their herds, and thus their livelihoods.
 - Open access system limits management options.
- Ecological
 - Open access system encourages maximum stocking rates (as Seretse Khama said of Botswana in 1975: "Under our communal grazing system, it is no one individual's interests to limit the number of his animals. If one man takes his cattle off, someone else moves his cattle in.")
 - Competition with wildlife for grazing.
 - HWC
 - Biodiversity loss because of habitat change (e.g. loss of perennial grasses, bush thickening).

Opportunities

- Economic
 - Could increase productivity and animal health through better management – for instance as proposed through the refer to Millennium Challenge Account (MCA)-Namibia communal Rangeland programme.

- Could improve this sector by improving economic opportunities (e.g. markets), banking facilities, grazing tenure systems (which encourage better management).
- Non-residents (off-site investors) should be charged for grazing – this will enhance social equity.
- Social
 - Non-residents (off-site investors) should be charged for grazing – this will enhance social equity and local ownership and control.
 - tenure over commonage needs to be developed so that those who manage their grazing better are not ‘invaded’ by others.
- Ecological
 - Smaller herds of better quality will not reduce income, but will be better from an ecological perspective.

Threats

- Economic
 - Open access system allows elite to dominate.
- Social
 - Open access system allows elite to dominate.
- Ecological
 - Droughts, climate variability and/or change, disease, predators.

PIPELINE SCENARIO

Describe expected changes

- Drivers
 - MCA-N Communal Rangelands programme
 - GRN initiatives, which may include new vet fences
- Spatial extent
 - New boreholes will gradually result in cattle range expansion (see section on commercial livestock production for more discussion). There is a concern that the expansion ‘inland’ will benefit the elite, as farmers with resources (e.g. a 4x4 bakkie) will control and use these new areas.
- Inputs
 - More boreholes (no idea of numbers).
 - MCA-N Communal Rangelands programme (inputs likely to be vet services, extension and better range management).
- Outputs
 - Greater numbers of animals may be available to the meat market.
- Institutions

- Through the MCA-N Communal Rangelands programme it is expected that grazing tenure systems will be addressed. However, there is concern that the MCA-N programme will strengthen land tenure by the rich at the expense of the poor

Strengths

- Economic
 - Not significantly different from current situation
- Social
 - As above
- Ecological
 - As above

Weaknesses

- Economic
 - Not significantly different from current situation
- Social
 - As above
- Ecological
 - As above

Opportunities

- Economic
 - MCA-N Communal Rangelands programme may help this sector take on a more sustainable direction – providing it does not result in more elite capture
- Social
 - As above
- Ecological
 - As above

Threats

- Economic
 - None
- Social
 - Through the MCA-N programme, it is expected that grazing tenure systems will be addressed. However, there is concern that the MCA-N programme will lead to more elite capture.
- Ecological
 - Continued degradation of rangelands on commonages in densely populated areas where most people live. This is because the MCA-N programme focuses on wealthy farmers with more land, most of whom are far to the south of the river.

OPTIMISTIC SCENARIO

Drivers

- Political will to commercialize cattle and goats into a productive industry.
- Change in 'mind-set' of livestock so that the animals are managed for revenue, as opposed to capital.
- Development of markets for goat meat in Namibia and Angola.
- Political will to move the activities of wealthy absentee, 'weekend' livestock owners to create space and opportunities for local, poor residents to have and produce livestock, and to have group ownership and stakes in commonage resources.
- Political will to develop capital markets and opportunities to move savings in livestock into other commodities.
- Possible creation of a disease-free surveillance zone and livestock free belt along the Okavango River to leave this area for zoned and controlled crop production, residential land, biological conservation and tourism.

Spatial extent

- No change, except possible removal of livestock from zone adjacent to Okavango River

Inputs

- Political will, and more political will
- Legislative changes to provide for group ownership of commonages

Outputs

- Productive meat industry
- Development of wealth by poor residents
- Security of tenure and control over pastures and water

Institutions

- Local ownership institutions to manage pastures and water supplies

Strengths

- Economic
 - Development of tenure systems that enable discernible credit and creditworthiness, and secure incentives to invest in savings.
 - Increased revenue from meat sales.
 - Wealth development for the poor (note, this is not the same as poverty alleviation!!).
- Social
 - Improved equity, security of tenure and ownership of resources.
- Ecological
 - Improved pasture management as a result of incentives to control resources that are owned by local, legitimate users; more perennial grasses and species that depend on them.

Weaknesses

- Economic
 - None
- Social
 - None
- Ecological
 - Perhaps more bush encroachment if pasture users reduce the incidence of hot fires

Opportunities

- Economic
 - As above
- Social
 - As above
- Ecological
 - As above

Threats

- Economic
 - Entrenched, elite interests are certain to undermine attempts to change their free, subsidized use of commonages.
- Social
 - Donors and government are unlikely to promote tenure changes that would enable individuals or groups to raise capital using communal land as collateral.
- Ecological
 - As above

6.7 Commercial leasehold livestock farming

CURRENT SITUATION

Drivers

- Desire to be land owners and opportunity to obtain large, private farms at little cost, and to have fencing and boreholes provided for free; an equivalent asset in the freehold area would be valued at several million N\$.
- Opportunity to develop security and capital.
- Limited desire to be productive livestock farmers (note, many farms are not stocked and many of the owners have never actually visited their farms).

Spatial extent

- Widespread on 533 large farms held by about 400 farmers because a significant number of people have two, often adjacent farms.
- Total area of the farms covers about 14,500 km², which is about 30% of Kavango

Inputs

- Policy and subsequent allocation of free farms by traditional authorities and GRN.
- Donor-provided fencing and boreholes. Current capital investment in commercial livestock farms in Kavango is estimated to be some N\$67.9 million.
- Limited labour.

Outputs

- Potential capital security in the form of private land assets (depending on whether banks accept leases as collateral).
- Status associated with owning livestock.
- Limited livestock production (note: the biggest livestock owners have the lowest off-take rates)
- Current total average annual production in the region is estimated to be worth some N\$24 million. After deduction of the costs of production, producer households earn an estimated average aggregate net income amounting to N\$ 4 million. The average commercial livestock owning enterprise earns the equivalent of some N\$20,200 per annum (N\$13 per hectare) in net income from the activity. The aggregate direct contribution made by commercial livestock in Kavango to the national income is only estimated to be 0.55 million, amounting to some N\$2 per hectare. The activity is supported through subsidies, but is economically inefficient.

Institutions

- Private farmers with support from traditional authorities, government and donors, especially Kfw in Kavango; but MCA will provide significant support in the future.

CURRENT SITUATION & PIPELINE SWOT:

Strengths

- Economic
 - Transformation of unvalued communal land into land with capital and market value; creation of incentives to save, invest in land assets and to improve land value
 - Potential for livestock and revenue production. Envisaged that output will be enhanced some nine-fold with development of new commercial farms
 - Some reversion to low input cattle post type production is likely and desirable in terms of economic efficiency
- Social
 - None
- Ecological
 - Privatization leads to lower rates of slash-and-burn cropping. Private ownership may also result in better management of pastures and other plant resources.

Weaknesses

- Economic
 - The economic viability of fenced stock farms in the remoter parts of Kavango is poor as a result of high capital costs and high transport costs. Only subsidies make the activity attractive to investors.
 - Huge planned nine-fold increase in development of new commercial farms is very unlikely to be economically viable in the remoter parts of the region
 - Limits opportunities for using the land for other productive purposes
- Social
 - Existing occupants of the land are dispossessed
 - Creation of further inequities between wealthy landlords and poor occupants of communal land (note: the 99-year leaseholds will become equivalent to freehold tenure, while all that occupants of communal land get is a certificate confirming their customary rights to be there)
- Ecological
 - Movements and populations of wildlife will be limited by fencing

- Fire control and higher grazing pressures will lead to bush thickening on farms that are stocked and managed as ranches
- Some increase in Human-Wildlife Conflicts (HWC) in areas close to National Parks

Opportunities

- Economic
 - See above under Strengths
- Social
 - None
- Ecological
 - See above under Strengths

Threats

- Economic
 - None
- Social
 - None
- Ecological
 - Uncontrolled fires will have devastating impacts on pastures, especially on farms having absentee owners and/or managers.
 - Elephants and some other wildlife will cause damage to infrastructure and livestock

OPTIMISTIC SCENARIO

Drivers

- Possibility of co-management of farms and addition of other economic streams, such as trophy hunting, game production, tourism etc
- Move from fenced units to lower input cattle post type production (more economically viable) will be driven by economic necessity

Spatial extent

- As above

Inputs

- Development and acceptance of procedural changes for farms to be co-managed in large blocks of land
- Land use, management and financial plans

Outputs

- Improved farm production
- Diversification of incomes

Institutions

- Co-management groupings of farmers
- Donor support to develop concept of co-management and natural resource production from trophy hunting, game production, tourism etc

Strengths

- Economic
 - Increased production
 - Increased land and capital values
 - Some employment
- Social
 - Possibility of allowing existing land occupants to remain and be incorporated as members of co-managed farm blocks
- Ecological
 - Maintenance of healthy environment to manage and benefit from trophy hunting, game production, tourism etc
 - Co-management of pastures and livestock will lead to development and maintenance of perennial grass pastures through herding and rotational grazing

Weaknesses

- Economic
 - None
- Social
 - Suspicion and conservatism that will prevent owners from working together to co-manage their farms
- Ecological
 - None

Opportunities

- Economic
 - As above
- Social
 - As above
- Ecological
 - As above

Threats

- Economic
 - As above
- Social
 - As above
- Ecological
 - None

6.8 Cross border trade

CURRENT SITUATION & PIPELINE

Drivers

- Competitive and strategic opportunities due to location of the region and Rundu in particular. Major trade routes between Namibia and Angola, Botswana, Zambia and Botswana pass through Kavango. The most important route is the Trans-Caprivi Highway.
- Moreover, Rundu is the only major economic centre within a huge expanse that stretches 900 km west to east from Ondangwa to Katima Mulilo, and about 1,000 km north to south from Menongue to Grootfontein and Maun. Rundu is thus a major supplier of goods and services to people spread across a very large area.

Spatial extent

- Most economic benefits accumulate in Rundu, but centres of economic activity benefit as well (Katwitwi, Nkurenkuru and Divundu). There are plans to construct a road from Tsumeb/Tsintsabis to Nkurenkuru to provide a direct and shorter trade route for exports through Katwitwi to Angola. This would raise levels of economic activity at Nkurenkuru and Katwitwi, which would cause some of trade through Rundu to be diverted.

Inputs

- Mainly private sector; public sector roads, infrastructure and EPZ at Katwitwi

Outputs

- Wealth and employment. The actual private and economic values associated with cross order trade and ant enhancement of this are not known, but are likely to be significant in the context of the regional economy.

Institutions

- Private traders, regional trade and taxation agreements

Current situation and Pipeline SWOT:

Strengths

7 Economic

7.1 Considerable direct employment at retailers and wholesalers, and at service providers (transport, housing, food, telecommunications, banking etc).

7.2 (Note: it is assumed that Katwitwi will grow into the kind of export hub now seen at Oshikango/Santa Clara. However, transport and communication lines from Oshikango are much shorter to major markets in Angola than those from Katwitwi. Furthermore, it is unlikely that parts of Angola close to Katwitwi will see significant economic and therefore market growth in the foreseeable future)

8 Social

8.1 Provide opportunities for people to move into a modern economy

9 Ecological

9.1 Equivocal: on the one hand, trade and other modern economic activities help move people off the land, thus reducing low input-low output farming; on the other hand, these people consume more natural resources and also invest some of their surplus income into farming with relatives who remain in rural areas.

Weaknesses

10 Economic

10.1 A somewhat fickle sector because it depends on consumer demand (which can rise and fall). Absence of more competitive trade routes, especially to parts of Angola and Zambia

11 Social

11.1 Trade routes are reputed to major pathways for the spread of disease, especially STDs

12 Ecological

12.1 Economic growth and demand for consumer goods within the region can lead to various kinds of environmental degradation, for example local pollution

Opportunities

13 Economic

13.1 Continued growth

14 Social

14.1 None

15 Ecological

15.1 None

Threats

16 Economic

16.1 As above, if consumer demand drops and/or more competitive trade routes develop

17 Social

17.1 None

18 Ecological

18.1 None

18.2

OPTIMISTIC SCENARIO

Drivers

- The relaxation of trade barriers could enhance trade considerably.
- There are opportunities for much greater sub-regional tourism centered on the Okavango Basin and Kavango-Zambezi Transfrontier Conservation Area

Spatial extent

- Some expansion within Kavango, but major growth would be areas around the region. Kavango could develop into a central hub serving trade and tourism across a broad swathe of southwest-central Africa.

Inputs

- Political will to relax trade barriers and to promote tourism, especially in Angola.
- Private sector commitment and confidence to invest, especially in Angola.
- Promotion of investment opportunities and promotion of the value of the Okavango River system with linked tourism products in each country.

Outputs

- Diversification and growth of the economy.

Institutions

- Private traders, regional trade, tourism and taxation agreements.

SWOT

Strengths

19 Economic

19.1 As above

20 Social

20.1 Greater modernization of lifestyles with increased demand for and access to health, education and information

21 Ecological

21.1 Use of the Okavango River for non-consumptive tourism will add value to the river system and its associated natural resources. That value will create incentives to protect the ecological integrity of the whole Okavango Basin

Weaknesses

22 Economic

22.1 Trade and especially tourism are fickle industries; as above.

23 Social

23.1 Trade routes are reputed to major pathways for the spread of disease, especially STDs.

24 Ecological

24.1 As above: economic growth and demand for consumer goods within the region can lead to various kinds of environmental degradation, for example local pollution.

Opportunities

25 Economic

25.1 Considerable growth and expansion of trade and tourism

26 Social

26.1 Improved access to services

27 Ecological

27.1 As above, to give value and protection to the Okavango Basin

Threats

28 Economic

28.1 As above, if consumer demand drops and/or more competitive trade routes develop

29 Social

29.1 None

30 Ecological

30.1 None

6.9 Wildlife as a Land Use

Current situation

- Drivers
 - Policy and legislation provide for communal area conservancies.
 - Local communities expect income and other benefits from wildlife, other natural resources and tourism.
 - Some wish to keep wildlife on their land although conservancies sometimes seen as means to improve control over land.
 - Khaudum National Park provides a core wildlife area for movement into conservancies while also strengthening relationship between the two conservancies and MET. Bwabwata and Mangetti also provide stable core areas for wildlife production.
 - Some communities resist conservancies as they see wildlife too much of a threat to livelihoods (Human Wildlife Conflict).
 - Resettlement policy in the area west of Khaudom driving livestock land use at expense of wildlife.
 - Veterinary policy negatively impacts on wildlife generating certain types of income (live sales).
 - Linear settlement along Okavango river effectively removing critical dry season habitat and water resources for wildlife and thus devaluing the potential for wildlife in the hinterland as well.
 - Wildlife land uses receive very few subsidies, but the economic value of these activities is generally high, and they have comparative advantages over livestock in the more remote areas or in areas with good tourism potential.

- Spatial extent

- There are 4 registered conservancies: George Mukoya (486 km²); Joseph Mbambangandu (36 km²); Muduva Nyangana (615 km²); Shamungwa (53 km²). Total area: 1,190 sq km.
- Wildlife production for use is secondary objective in protected areas (7,508 km²).
- High value tourism areas (river front) not synchronized with those areas that contain reasonable wildlife numbers (with the exception of Mahango/Buffalo protected areas)

- Inputs

- Conservancies employ game guards and natural resource monitors, set land aside as wildlife areas.
- They also commit to the principles of good governance and sustainable utilization.
- Donors/NGOs provide water points and other infrastructure development; support development of management plans; support game re-introductions (with MET). Two waterpoints were developed in George Mukoya and Muduva Nyangana and monitoring of these with camera traps has revealed that they are frequently used by a range of wildlife species including rare and flagship species including wild dog, leopard and elephant.
- Donors/NGOs provided capital and capacity support for a campsite at Joseph Mbambangandu.
- Need for costly game re-introductions to kick start wildlife based economy.
- Need for intensive extension effort for wildlife as a land use to take hold.

- Outputs

- Region contains high value antelope (roan and sable) but these not currently generating significant revenues.
- Region contains four of the big five species which to a limited extent generate trophy hunting revenues but tourism revenues are low despite Mahango being on a main tourist route and probably one of the most visited parks in Namibia.
- Wildlife maintained on communal land, available for various uses in the conservancies. For 2009 George Mukoya and Muduva Nyangana conservancies have a combined quota:

Species	Total	Trophy	Other uses
Elephant	3	3	
Kudu	3	3	
Warthog	6	4	2
Oryx	4	4	

Duiker	8	4	4
Steenbok	12	4	8
Hyena	1	1	
Leopard	1	1	
HG/Fowl	100		100

The economic contribution of this combined quota in terms of the direct contribution to the annual national income has been estimated to be some N\$680,000.

- The MET has issued three year concessions (starting 2009) for the following areas outside protected areas:
Western Kavango which includes Mangetti:

Species	Number per year
Elephant	4
Leopard	2
Spotted hyaena	2
Eland	4
Duiker	2
Steenbok	2

Eastern Kavango (excluding Mahango):

Species	Number per year
Elephant	8
Leopard	2
Roan	2
Spotted hyaena	2
Blue wildebeest	2
Duiker	2
Steenbok	2
Oryx	2

- Conservancy zonation, in the case of Khaudum National Park, promotes compatible land-uses adjacent to the park and enhanced biodiversity management through co-management approaches.

- Institutions

- Conservancies - with rights over wildlife and tourism.
- MET - responsible for legislation and compliance monitoring.
- Traditional Authority - approves and supports conservancy and land use for wildlife and tourism.

- Veterinary services - policy greatly constrains live game sales of high value species out of the area.
- Lands/agriculture – pushing for non-wildlife land-uses
- NGO's supporting wildlife but equally others are supporting alternative land uses.

SWOT:

Strengths

7 Economic

- 7.9 Conservancies have legal rights, can contract with private sector, keep all income from wildlife use.
- 7.10 Income from wildlife production can support community social projects and if high enough can be used for household dividends.
- 7.11 Existing protected areas contain sufficient diversity and numbers of wildlife that could be used to kick start wildlife as a land use outside of the protected areas

8 Social

- 8.9 Conservancies are excellent local institutions which offer points of entry for a range of development activities and social services.
- 8.10 Merging with community forests can increase management of conservancies, provide greater organisational and administrative efficiency and improve benefits.

9 Ecological

- 9.9 Wildlife production is appropriate use of large areas of poor soils and low nutrients (Kalahari sand).
- 9.10 Wildlife production on land adjacent to protected areas provides support for maintaining the integrity of the PA.
- 9.11 Supports the management of flagship and rare species and provide corridors between protected areas.
- 9.12 Co-management has the potential to improve biodiversity management at a scale higher than that of the individual authority. For example, KNP and the two northern neighbouring conservancies are developing a joint fire management plan.
- 9.13 Conservancies plough back some income into management (e.g. game guards).

Weaknesses

10 Economic

- 10.9 Production largely dependent on movements from Khaudum National Park – need to establish resident herds in conservancies.
- 10.10 Numbers still low – need to build up before other uses than trophy hunting can become significant.
- 10.11 Tourism potential is low in the inland areas away from National Parks

11 Social

- 11.9 Some opposition exists to wildlife production from wealthier people more interested in livestock farming.
- 11.10 Income and non-cash benefits still low because only current use is trophy hunting. Need to increase income levels substantially to have positive impact on households.
- 11.11 Management capacity of conservancies is weak.

12 Ecological

- 12.9 Livestock compete with wildlife for grazing
- 12.10 Wildlife production associated with HWC especially from animals such as predators and elephants.
- 12.11 Biodiversity loss because of habitat change (e.g. loss of perennial grasses, bush thickening)

Opportunities

13 Economic

- 13.9 The more remote parts of the region are suited more to wildlife ranching and less to livestock because high value species can carry the transport costs.
- 13.10 On tourism route between Vic Falls/Okavango delta and Etosha/Skeleton coast tourism hot spots, and on the edge of the KAZA TFCA region.
- 13.11 Okavango River represents high wildlife-based tourism potential in certain areas, provided certain criteria in place (good game viewing, sense of peace & tranquility and good sport fishing)
- 13.12 New tourism concession in Khaudum for George Mukoya and Muduva Nyangana will increase income and benefits.
- 13.13 Conservancies next to/near Mahango/Buffalo can gain from existing tourism lodges/activities, can possibly add value with additional tourism products.
- 13.14 Better returns may be realized by managing areas to the west of Khaudum for wildlife in addition to livestock – e.g. strategically placed waters BUT potential HWC especially in light of emerging small scale farms.

14 Social

- 14.9 Wildlife production with tangible benefits can improve the lot of poor who do not own livestock (very important principle).
- 14.10 Wildlife as a land-use generates employment, importantly a range of employment options from unskilled through to highly skilled
- 14.11 Wildlife as a land-use is largely compatible with livestock farming provided strategic zonation is in place.

15 Ecological

- 15.9 Meeting national biodiversity objectives by providing corridors between protected areas and neighbouring countries.
- 15.10 An integrated approach to land-use could allow wildlife production to benefit from other natural resource initiatives. For instance, fish production “sanctuaries” and the adjacent lands could (if supported with wildlife introductions) be appropriate areas for wildlife based business enterprises.

- 15.11 Opportunity to re-establish species into former range (rhino) and boost numbers of certain species that have almost being eliminated (giraffe, zebra, waterbuck, etc)

Threats

16 Economic

- 16.9 New conservancies not close to Protected Areas will have little wildlife and will need reintroductions. Time will be needed to build up numbers so can be utilized – unlikely to have high earning trophy quotas and tourism potential very low.
- 16.10 Weak management capacity of conservancies fails to optimize wildlife production and increase benefits and conservancies lose support.

17 Social

- 17.9 Open access grazing system has potential to allow elite to dominate.
- 17.10 Loss of support from conservancy membership if tangible benefits not evident – see above.
- 17.11 Social inertia – reluctance of communities/Traditional Authorities to try new and less known land-use options.
- 17.12 Wildlife as a land use option becomes the casualty of socio-political agendas and misconceptions.
- 17.13 Lack of good support provision in the wildlife sector.
- 17.14 Dominant perception amongst many stakeholders that livestock/cropping is the way out of poverty.
- 17.15 Poaching (both for meat as well as commercial – ivory).
- 17.16 No clear spatial development plan in place that sensibly capitalizes on opportunities provided by wildlife as a land use.

18 Ecological

- 18.9 Small-scale commercial farms and other land uses allocated to areas within conservancies.
- 18.10 Small-scale farms west of Khaudum limit area available for wildlife production and threaten integrity of Khaudum if not managed in a way that will allow wildlife production and corridors.
- 18.11 Increased HWC is often a result of increasing wildlife and needs to be off-set by better returns from wildlife.
- 18.12 Fencing to meet veterinary objectives has the potential undermine much of the biodiversity gains being made through conservancies.
- 18.13 Unchecked linear settlement along Okavango river continues to effectively remove critical dry season habitat and water resources for wildlife and thus also lowers the potential for wildlife in the hinterland as well

Pipeline

Describe expected changes

- Drivers
 - Potential for new conservancy development around Mahango.

- Other conservancies being formed in Kwangali area.
 - Improved management of national parks through Strengthening the Protected Area Network project and similar initiatives.
 - Potential for a spatial development plan to make room for wildlife as a land-use option that can contribute to the local economy.
- Spatial extent
 - Still in process of being mapped.
 - If nothing done, will lose (devalue) the entire river front as potential for tourism and other wildlife related economic opportunities
 - The new main road being away from the river front provides an alternative development access and thus provides opportunity to remove settlement pressure on the river front.
- Inputs
 - Donor/NGO/MET support to emerging conservancies.
 - Reintroductions needed in some areas if wildlife production is to take place.
 - Regional planning required to establish corridors.
 - As the existing conservancies develop, it is anticipated that some N\$650,000 in capital will be invested, representing a capital cost per hectare of some N\$5.46.
- Outputs
 - Larger area of land available for wildlife production and to support PAs (around Mahango).
 - Ongoing loss of potential for wildlife as a land use option
 - As the existing conservancies develop it is expected that some N\$ 800,000 will flow to communities in the form of annual net returns.
 - The direct contribution made by the existing conservancies to the national income, once they are fully developed, will be an estimated N\$1.0 million per annum. This represents some N\$8.70 in gross value added per hectare.
- Institutions
 - Conservancies with rights over wildlife and tourism.
 - MET responsible for the registration process and compliance monitoring.
 - TA supports conservancy and land use for wildlife and tourism.

Optimistic

Describe ideal scenario, highlighting changes needed in the following categories:

- Drivers
 - Recognition of wildlife production as an appropriate and economic form of land use:
 - in dry woodlands on poor soils – need economic arguments to back this up and demonstration from existing conservancies.
 - along sections of the river front and in combination with tourism and sport fishing.
 - Government and TA support for wildlife production as one of the potential land uses in these areas, priority given to this as a land use.
 - Red Line no longer makes sale of live game difficult.
 - Zonation to:
 - establish wildlife as a land use, in conjunction with fish reserves, along sections of the river front and the immediate hinterland and capitalize on these through the development of tourism nodes along the river that generates revenues as well as creating employment job opportunities (both in number and range of occupations)
 - where practical, encourage wildlife based land-uses between the main road and river front and discourage settlement in these areas, whilst encouraging and supporting settlement and social service development along main access roads and concentrated settlement nodes so that social services can be more efficiently delivered to communities.

- Spatial extent
 - Cover those areas not already allocated to other uses.
 - Secure certain sections of the river front and adjacent hinterland areas.
 - Encourage, where practical, conversion of some areas of land between riverfront and main road to wildlife/tourism use (whilst still allowing resource harvesting) for management through conservancies.
 - Encourage development of formal settlements to attract people so that decent social services and infrastructure can be provided in a cost effective manner.

- Inputs

- Awareness effort required to show that wildlife is a viable additional land-use opportunity that can increase/diversify livelihoods and employment opportunities in the region.
 - Awareness effort required to develop and implement a regional zonation plan before the wildlife land use opportunity is lost forever.
 - Targeted support from government/donors/NGOs to develop wildlife including reintroductions and infrastructure.
 - Creative approaches which integrate livestock farming with wildlife production (e.g. to the west of Etosha) so that these can co-exist.
 - Increased/improved community management capacity combined with a strong business focus.
 - An integrated approach to support wildlife production from donors; NGOs and, importantly, different GRN line ministries.
 - Local Government, Land Boards and TAs implement the zonation plan.
 - Policy of Local Government, Land boards and TAs encourage investment by the private sector.
 - Private sector investor and management skills.
- Outputs
 - Alternative land use providing revenues and increased and diversified employment opportunities
 - Increased wildlife production for a variety of expanded uses including live sale (especially high value species) and meat.
 - Development of a vibrant tourism (wildlife, fishing and transit) industry along a key access route between Vic Falls/Okavango Delta and Etosha/Skeleton Coast.
 - Investment by private sector and donor community
- Institutions
 - High level government support including MAWF
 - Conservancies with rights over wildlife and tourism.
 - MET responsible for legislation and compliance monitoring.
 - TA approves conservancy and land use for wildlife and tourism.
 - Co-management institutions, where appropriate, which manage complexes (e.g. forum between conservancies, MET, and NGOs for managing protected areas and neighbouring conservancies).
 - Inter-ministerial/ Local government and TA planning service delivery co-ordination entity established
 - Local Government and TAs support and enforce the zonation plan
 - Private sector

- Donor community

6.10 Tourism

Current situation

- Drivers
 - Existing tourism consists of a) business visitors (mostly staying in Rundu); b) transit tourists passing through en route to other destinations; c) visitors to lodges on the river in the vicinity of Rundu staying more than one night; d) visitors to parks and reserves who stay in accommodation adjacent to the parks and whose average stay is two nights.
 - The Okavango River; wilderness and protected areas.
 - There are very few subsidies, and the economic viability of tourism in the region is high relative to the financial profitability. Growing awareness of this is giving rise to an increased importance for tourism in development policy.
- Spatial extent
 - There are 34 accommodation providers in the Kavango area, with 357 rooms providing 797 beds and 196 campsite berths. About 110,000 bednights and 41,000 camping nights were sold to a total number of 78,000 guests in 2008. Of these guests it is estimated that around 44,000 were visiting the region for leisure purposes.
 - Apart from some campsites in Khaudum, all the tourism establishments are associated with the river, and 70% of these are in the vicinity of Rundu, catering mainly for business and transit tourists. The other 30% cater for transit tourists and those wishing to enjoy the sites along the eastern part of the river and the parks.
- Inputs
 - Capital amounting to an estimated N\$250 million is invested in tourism establishments of the region.
 - Some 670 people are estimated to be employed in the Kavango region tourism establishments.
- Outputs
 - It has been estimated that the combined gross output or turnover of the tourism accommodation establishments in the region amounts to some N\$440 million per annum. Of this, communities

derive some N\$33 million in net benefits (wages, sale of goods, etc.).

- The direct annual contribution to national income made by these tourism establishments is estimated to be some N\$93.2 million.

- **Institutions**

- The MET, through the Directorate of Tourism (DOT) and the Namibia Tourism Board, is responsible for overseeing the tourism sector in the region.
- The various private sector and community tour operator tourism associations are also involved.

SWOT:

Strengths

7 Economic

- Existing tourism attractions (particularly the river, PAs and wilderness), flows and infrastructure.
- While tourism not well-developed there has been investment in tourism adjacent to Bwabwata National Park of nearly N\$60 million.
- Tourism provides 670 jobs and an annual wage bill of approximately N\$5,5 million per annum.
- Informal sector capitalizing on transit tourism through craft.

8 Social

8.10 Tourism-related jobs increasing while the industry also allows for opportunities for people to diversify and improve skills.

8.11 Regional job-creation reduces urban migration where unemployment is the fate of many.

9 Ecological

9.10 Wildlife-based tourism is appropriate use of large areas of poor soils and low nutrients (Kalahari sand).

Weaknesses

10 Economic

10.10 Few incentives for investment on communal land.

10.11 Much tourism is transit to other destinations – need to keep people in the area longer.

10.12 A number of tourism establishments are “lifestyle” for the owners, not serious businesses providing quality products and services, particularly for overseas tourists.

10.13 Interior travel is difficult because of lack of roads, and poor roads (deep sand) hence unlikely to attract high volume middle market.

11 Social

- Tourism establishments deny people access to land and resources, while providing no appropriate land rentals or other community payments.
- Relationships of operators with local people often poor.
- Result is negative attitude towards tourism by local people

12 Ecological

- Ecological impacts of existing facilities and infrastructure unknown but recent flooding of establishments suggests that waste management may require attention.

Opportunities

13 Economic

13.10 Concession in Khaudum National Park shall result in the first significant investment in the park and certainly result in greater tourist numbers.

13.11 The development of Mangetti and Bwabwata national parks shall also attract investment especially the possibility of a concession in the Buffalo area.

13.12 Development of additional activities/attractions in the core tourism development areas shall keep tourists in the area longer.

13.13 Increasing trade with Angola shall result in expansion of the sector.

13.14 Increased transit traffic possible with development of KAZA.

14 Social

14.10 The Khaudum Concession represents an important transformation milestone for the industry and region.

14.11 Direct employment opportunities through above as well as skills development which will also allow rural people to enter the tourism industry.

15 Ecological

15.10 Greater investment in tourism should lead to greater investment in the management of the resources.

Threats

16 Economic

16.10 Development of inappropriate forms of land use in prime tourism areas.

16.11 Over development of low-to mid-market establishments reduces potential for high value low impact tourism

17 Social

17.10 International political/economic instability.

17.11 Communities unreceptive due to current problems with tourism operations/operators and lack of current benefit

18 Ecological

18.10 Poor adherence to sound environmental management could have ecological impacts – e.g. waste management.

18.11 Proliferation of low and mid-market lodges in Mahangu Buffalo area leads to devaluation of “wilderness” quality of the area.

Pipeline

Describe expected changes:

- Drivers
 - Increased business development in Rundu due to expanding population and local economy and increased trade with Angola.
 - Development of tourism facilities in Mangetti NP and Buffalo area of Bwabwata NP.
- Spatial extent
 - It is expected that the tourism establishment will expand by some 37% as park and CBNRM plans are realized.
- Inputs
 - Inputs should increase accordingly.
- Outputs
 - Increased number of facilities and beds leading to increased overall economic contribution.
 - The direct economic contribution is expected to increase from N\$93.2 million to some N\$127 million.
- Institutions
 - As for current situation.

SWOT

19 Economic, Social and Ecological

Strengths: Increased contribution to local economy (jobs, cash, services etc.).

Weaknesses: Most expansion will be in the urban areas, particularly Rundu, providing few extra jobs etc. in rural areas.

Opportunities: Some new developments along the river

Threats: Potential for increased pollution, use of river

Optimistic

Tourism expanded in the Mukwe Constituency to take advantage of the attractions of the river, and existing wildlife areas, particularly on the east bank of the river. Conservancies formed to take advantage of the tourism income. Tourism developed in other designated areas along the river. Tourism promoted by Regional Council and Central Government.

- Drivers (policy, and incentives/disincentives)
 - The area from Mukwe to Mahango zoned on both sides of the river for tourism development. Included in this zone is the area from Mahango to Kaudom along the Botswana border. A tourism growth and management plan developed for this zone. Other undeveloped areas along the river zoned for tourism development, and combined with wildlife corridors and fish reserves. Central Government and regional council promote tourism in these areas.
- Spatial extent
 - The current Mukwe tourism developments extended north on the west bank of the river and along the east bank. New tourism development in new small tourism/wildlife/fish reserve zones along the river.
- Inputs
 - Spatial planning and tourism planning and management. Capital investment. Support to conservancy formation and operation to assist communities to capture the benefits from the tourism development. Conservancy development in the Mukwe tourism zone.
- Outputs
 - Increased number of jobs, increased income to local communities through tourism in conservancies, increased economic impact of tourism in the region.
- Institutions
 - The MET (DOT), Namibia Tourism Board, Regional Council (tourism promotion and implementation of land use plan), Traditional Authorities (through land allocation).
 - The various private sector and community tour operator tourism associations.
 - Conservancies.

6.11 Forestry (incl. NTFP, crafts, etc.)

Current situation

- Drivers

- Use of forest products (timber and non-timber) for livelihoods (domestic use and sale) provides reasons for maintaining forests. Community forestry provided for in legislation – provides rights over forest and enables communities to benefit from commercial use.
 - Commercial use for construction poles and some crafts is cause of wood cutting, possibly unsustainable in some localized areas.
 - Most use of forest products is by households, for fuel-wood, poles, grass, reeds, and other non timber forest products (NTFPs). This is mostly for own consumption and generates high profitability and economic rents.
- Spatial extent
 - Dry broadleaf woodlands cover most of interior of Kavango. Estimated standing utilizable forest biomass by volume was 87 269 400 m³ in 2004¹⁵. There are 5 registered community forests in Kavango covering a total of 123 183 ha and 9 emerging community forests covering more than 320 000 ha in total. The number of beneficiaries in the registered community forests totals 10 534.
 - Inputs
 - Development of community forests to improve management, provide incentives for sustainable use and enable communities to benefit from use. Government and donors have provided considerable financial support to community forests. The Directorate of Forestry assisted by the German development Service (DED) supports community forest formation and the development of forest management plans, and provides training to management committees on a variety of topics from financial management to forest management.
 - Household enterprises making use of forest products, require relatively little capital. Cutting tools and the occasional use of sleds, carts, and oxen for transport are needed. The combined investment in capital has been estimated to be some N\$59million.
 - Outputs

¹⁵ Barnes, J.I., Nhuleipo, O., Muteyauli, P.I. and MacGregor, J. 2005. Preliminary economic asset and flow accounts for forest resources in Namibia. DEA Discussion paper No. 70.

- The use of forest resources for fuel by households in the region has been estimated to have a gross annual output of some N\$206 million. The economic direct contribution to the national income of these activities is estimated to be N\$178 million. This is made up of N\$101 million for fuel-wood, N\$29.6 million for poles, and 46.9 million for non-timber forest products.
 - Forest products are used for crafts production in the region. This includes both wood for carving, and NTFP for other products, such as baskets. This represents vertical value added in addition to the value of harvesting of the forest products. It has been estimated that the direct economic contribution of crafts production in the Kavango region is some N\$21 million.
- Institutions
 - Directorate of Forestry(DoF)
 - Community Forests
 - TAs

SWOT:

Strengths

20 Economic

20.10 Forests provide a range of products which contribute to livelihoods: building material, food, grazing, natural material for crafts etc.

20.11 Potential for saw timber production is currently not utilized.

21 Social

21.10 Empowerment of resource users to manage the resource through community forests.

22 Ecological

22.10 Community forests provide a means of ensuring sustainable use of these and control over their use.

Weaknesses

23 Economic

23.10 Current use of forests is for fuel poles and NTFPs is only about 16% of the potential in the region.

23.11 Income low, perhaps not sufficient incentive for sustainable management.

24 Social

24.10 Poor management capacity in community forests and lack of enforcement.

25 Ecological

25.10 Permits for use often issued without regard to sustainability.

25.11 Capacity of DoF to support and monitor is low.

26 Opportunities

26.10 Merger of some community forests with conservancies provides access to capacity building and NGO support and improved administrative and managerial efficiency.

27 Threats

27.10 Other land uses receive priority and lead to deforestation. Community forests are not sustainably managed leading to localized depletion of resources

Pipeline

Describe expected changes

- Drivers
 - Population growth among the rural population (some 2% per annum) is likely to be the main driver of future trends in forest products use.
- Spatial extent
 - As above.
- Inputs

As above. Funding required for support.

- Outputs
 - New community forests registered. Forests sustainably managed.
 - The value of forest products use is likely to increase by some 25% over 25 years.
- Institutions
 - DoF
 - Private sector
 - NGO/Donors

Optimistic

Well managed and efficient community forests, merged where appropriate with conservancies, covering unallocated land. Forests managed sustainably to support local livelihoods and biodiversity conservation.

- Drivers
 - Community forests able to earn more income from sustainable use of the forest to provide incentive for management.
 - More monitoring and support from DoF.

- Spatial extent
 - Cover those areas not already allocated to other uses, merge with conservancies.

- Inputs
 - Increased donor/Government/NGO support for capacity building and monitoring of use and law enforcement.

- Outputs
 - Improved forest management over a larger area of community forests. There is considerable potential spatially for expansion in forest products use, with only some 16% of potential being used.
 - The wise controlled use of saw timber resources may ultimately be able to result in an annual contribution of some \$16 million to the national income.

- Institutions
 - DoF – needs increased capacity
 - Community Forests –need increased capacity
 - TAs – need to be consistent in land allocation

6.12 Urban and village development

CURRENT SITUATION & PIPELINE

- **Drivers**
 - Need for cash revenue, modern commodities and food security
 - Government need to centralize provision of infrastructure and major services in region
 - Need to centralize investments by private sector to ensure economies of location and ensure financial and economic viability of these investments

- **Spatial extent**
 - Small, scattered areas

- **Inputs**

- Mainly private sector; limited GRN support for urban development
- **Outputs**
 - Food and cash security, access to services
- **Institutions**
 - Local town council

**Current situation & Pipeline SWOT:
Strengths**

7 Economic

7.12 Opportunities to earn cash and engage in modern economy

7.13 Opportunities to buy and develop capital assets in land

8 Social

8.12 Improved access to services (health, education and communication)

8.13 Increased security of tenure

9 Ecological

9.12 Equivocal: on the one hand, urbanization helps move people off the land, thus reducing low input-low output farming; on the other hand, these people consume more natural resources and also invest some of their surplus income into farming with relatives who remain in rural areas.

Weaknesses

10 Economic

10.12 None

11 Social

11.12 Increased incidence of 'social evils' associated with unplanned housing

12 Ecological

12.12 As above: may lead to increased levels of pollution and consumption of natural resources, most of which would be harvested or lost away from the towns

Opportunities

13 Economic

13.12 Because rural production is so limiting, especially in terms of providing people with decent livelihoods and cash, economic activities to be found in towns offer the only real opportunities to improve the economic health of significant numbers of people; in short, encouraging and persuading people to remain in rural environments that are unproductive consigns most of these people to continued poverty and alienation from the modern world

14 Social

14.12 Improved access to services

15 Ecological

15.12 May reduce pressure on rural resources, especially those that have limited production potential. This is because most resources consumed by urban

dwellers come from areas where soils and climatic conditions allow for surplus production which can be marketed

Threats

16 Economic

16.12 None

17 Social

17.12 None, except for policies on rural development that indirectly aim to keep people out of urban areas, and the lack of support for urban development

18 Ecological

18.12 None

OPTIMISTIC

Drivers

- Policies and economic opportunities that purposefully recognize that most Namibians prefer to live in town where they have the best opportunities to live as members of a 21st century society

Spatial extent

- Increased size of existing urban areas and marginal growth in the number of new towns

Inputs

- GRN and private sector support for urban development and growth
- Education systems that prepare Namibians for employment in services, manufacturing, trade and the financial sector

Outputs

- Much improved food and cash security, access to services

Institutions

- Local town councils

OPTIMISTIC SCENARIO SWOT

Strengths

19 Economic

19.12 Enhanced opportunities to earn cash and engage in modern economy

19.13 Greater opportunities to buy and develop capital assets in land

20 Social

20.12 Improved access to services (health, education and communication)

20.13 Increased security of tenure

21 Ecological

21.12 Equivocal: on the one hand, urbanization helps move people off the land, thus reducing low input-low output farming; on the other hand, these people consume more natural resources and also invest some of their surplus income into farming with relatives who remain in rural areas.

Weaknesses

22 Economic

22.12 None

23 Social

23.12 Increased incidence of 'social evils' associated with unplanned housing

24 Ecological

24.12 As above: may lead to increased levels of pollution and consumption of natural resources, most of which would be harvested or lost away from the towns and in places where land is much more productive than Kavango.

Opportunities

25 Economic

25.12 Greater opportunities for decent livelihoods and cash, economic

26 Social

26.12 Improved access to services

27 Ecological

27.12 As above for the Okavango River Basin. Further possible reduced pressure on rural resources

Threats

28 Economic

28.12 None

29 Social

29.12 Policies on rural development and misunderstood food security that indirectly aim to keep people out of urban areas, and the lack of support for urban development, and policies that see water in the Okavango River as only being useful for food production

30 Ecological

30.12 None

Annexe 4 Agenda for community meetings

AGENDA

1. Welcome and Prayer
 2. Introductions
 3. Introduction to the land-use planning initiative in the Kavango
 - background and context
 - purpose of land-use planning and what we aim to achieve
 4. Building consensus on how land should be used in the area – developing a vision for land use
 - What should land use be trying to achieve for the area and how?
 5. What are existing land uses?
 - Which land uses are people happy with, and are working well for you?
 - Which land uses would you like to adapt or change,
 - Are there new land uses that could be introduced?
 6. How should a new land use plan be implemented?
Who should be involved, and what role should they have?
 7. Close
-