Tawana Land Board

and

Department of Wildlife and National Parks

Natural Resource Utilisation:

A Compilation of

Documented Natural Resource Use

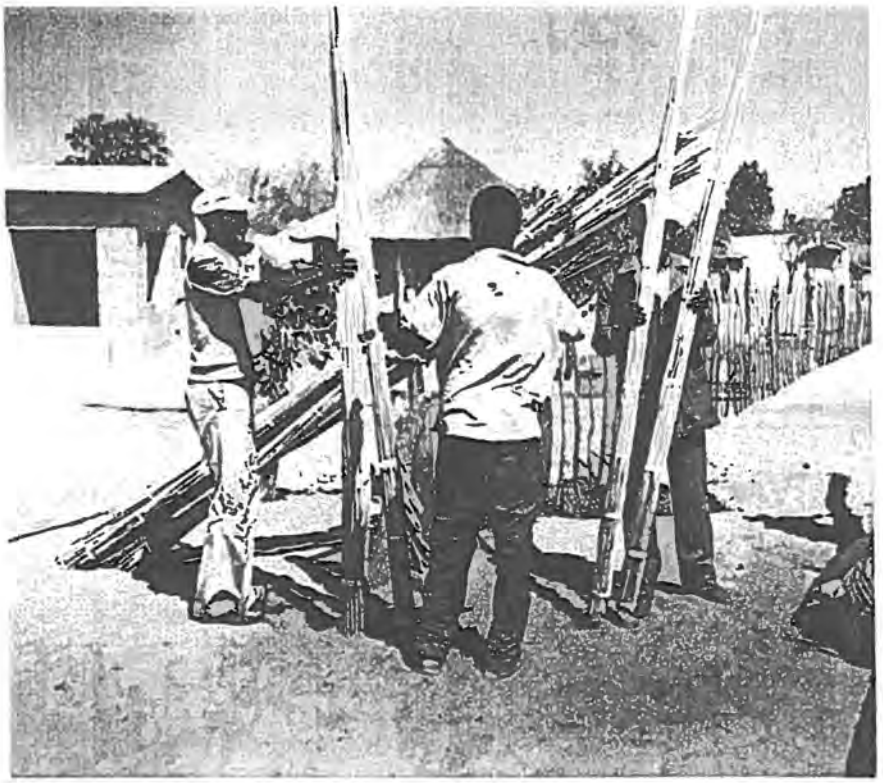
in the

Multiple Use Controlled Hunting Areas

of the

Okavango and Kwando

Wildlife Management Areas.



Prepared as part of the Natural Resources Management Project
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September 1994

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10th September, 1994

The Secretary,
Tawana Land Board,
P.O. Box 134,
Maun.

Dear Sir,

Re: Natural Resource Utilisation Data Compilation, Okavango and Kwando WMAs

We are pleased to submit twenty copies of the Final Report for the above study, in addition to disk copies of the report and its appendices (in WordPerfect 5.1 format), and the geographical data used for the maps (PC ArcInfo format). The DLUPU office has the appropriate computer hardware and software to produce any further copies of parts of the report that you might need, while the Dept. of Wildlife and National Parks, or the Dept. of Lands, will be able to help with the geographical data. We have also submitted five copies each to NRMP/USAID and DWNP.

Following our discussions on the 31st August, the Final Report has been restructured, to allow the compiled material to be used in the preparation of Annexure 2 of the Wildlife Management Lease, if TLB should wish to do so. The sections relevant to each area form appendices. If this material is used for Annexure 2, we suggest that chapters 1, 2, 3, 4 and 5 be attached to the documentation for each area.

It has become clear from the study that while there is legal provision for the protection of traditional rights to resource use in the commercial CHAs, very little is known about the scale of this resource use, its part in the economy of the users, or the capacity of the resource base to sustain offtake. These are aspects which need to be addressed through research, and these shortfalls in knowledge should be made clear to all parties involved in the new leaseholds. Of particular relevance here is the introductory paragraph to Chapter 4:

> "The rights and resources listed below are by no means comprehensive, or definitive. It is clear, however, that the traditional use of resources in the areas now encompassed by the WMA and the commercial leasehold CHAs is a vital part of the economies of many of the people living in and around these areas. At present, too little is known about this aspect of use of the CHAs to allow rigorous definition of what these rights actually are in economic or ecological terms. It is intended that these aspects will be addressed through extensive socio-economic and ecological research over the course of the next year (NRMP). Pending the results of this research, the material included in this document is given as background to the issues concerning traditional rights in these areas, and is not intended to be prescriptive."

This will help to ensure that all parties to the lease have a similar understanding of the issues surrounding traditional rights to resource use in these areas.

We hope that you find the report useful. We would like to thank you and NRMP/USAID for the support and discussion during the development of this document.

Yours faithfully,

M. Murray-Hudson.

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September 1994

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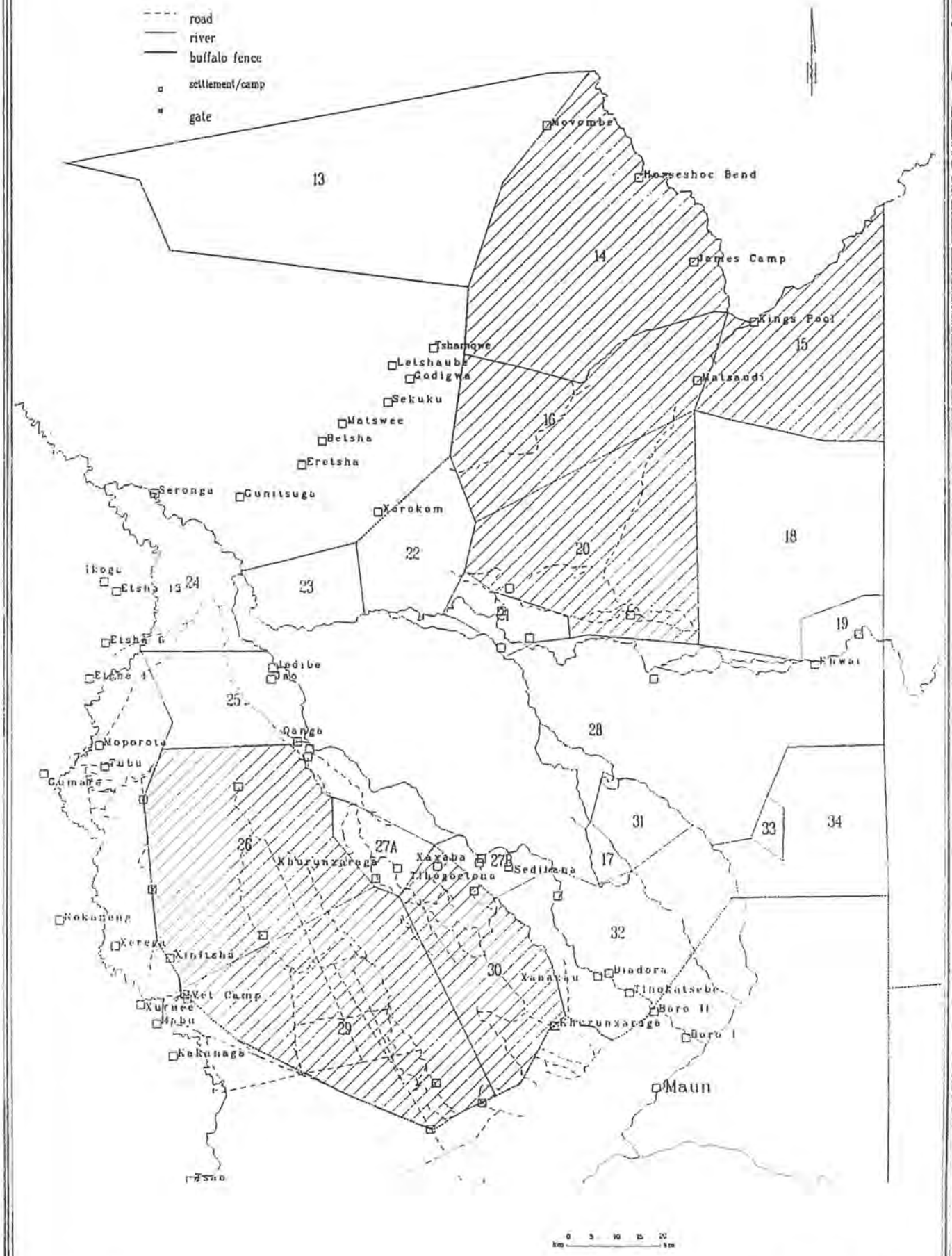
MULTIPLE USE CHAs – OKAVANGO AND KWANDO WMAs



MAP 1

SOURCE Ecological Zoning Okavango Delta, SMEC 1989
This Study

1 INTRODUCTION

1.1 Scope of this Study

This study was carried out in August, 1994. It is intended to provide an outline of previously documented traditional use of natural resources in the 7 multiple-use Controlled Hunting Areas (CHAs)in the Okavango and Kwando Wildlife Management Areas (WMAs) of Ngamiland District (Map 1). These CHAs are zoned for commercial safari/tourism use through leasehold from the Tawana Land Board. They represent approximately 50% of the area of the WMAs. The study also provides a discussion of the issues surrounding the continuation of resource use under the proposed leasehold system for these new areas.

The research was carried out for the Tawana Land Board and Department of Wildlife and National Parks, and funded by USAID. The Inception Report, which formed the Terms of Reference, is attached to this document as Appendix 8. The map production is derived from a computerised geographic information system established for this work. Copies of the digital information are lodged with the Ngamiland District Land Use Planning Unit.

1.2 Terms used in the Discussion

In the course of this discussion it is necessary to refer to some terms which may have different interpretations in other contexts. Legal or economic definitions are not intended unless specifically stated in the text. For the purpose of this report, the following terms will carry the meanings attributed to them below.

- Land use — The primary purpose a given area is put to.
- Wildlife Management Area — An area the primary use of which is the utilisation of wildlife, where this includes both animals and plant products.
- Controlled Hunting Area — An area designated by DWNP for the management and allocation of wildlife quotas.
- Statutory law — Any law that has been written down or gazetted. Once a law is written, it leaves the customary domain.

• Customary law	Law relating to the use of an area and its resources - particularly land - in a tribal context. Such laws cover traditional use of land and resources only, and do not encompass commercial activities.
• Traditional/customary right	The right that inhabitants of tribal areas have, by custom, to use natural resources for their subsistence, whether this is through immediate consumption or the sale of surplus to others. 'Customary' has fewer historical connotations. The terminology of the legislature uses the word 'customary' to distinguish between tribal (traditional) and common law.
• Subsistence use	Use of a resource by people as part of their livelihood, and at a level that is not intended as a commercial enterprise. This does not preclude the generation of cash.
• Commercial use	Use of a resource in pursuit of a profit-making business or enterprise.
• Sustainable utilisation	Use of a resource at a level which allows it to renew itself.
• Natural resource	Uncultivated, undomesticated, non-agricultural plant and animal products.

1.3 Background

This document discusses the traditional use of resources in the following CHAs: NG/14, NG/15, NG/16, NG/20, NG/26, NG/29 and NG/30. These areas, which are designated in the Wildlife Conservation and National Parks Act 28 of 1992, are on tribal land and are to be leased for commercial use. National planning objectives include the zoning of areas for certain activities in an attempt to increase their utilisation and improve returns. Since the above CHAs are among the first to be put to use under detailed management plans, it is necessary to ensure that the leases are implemented with a clear understanding of the impacts on all parties involved.

Many of the people in the district live at subsistence level, and an important part of their economy is the use of natural resources, both wildlife and plants. It must be stressed that the resource base is not delimited by the present land zoning boundaries, and has historically extended throughout the Okavango delta and Kwando/Linyanti. The following section gives a brief outline of the history of the area, and changes in settlement and land use over the past two centuries.

1.3.1 History

A brief outline of past conditions and events which have influenced land use and settlement in the CHAs is given below. Much of the history of the area and the peoples that have lived in Ngamiland is included in Tlou (1976, 1985), though details are sparse. The inhabitants of the Okavango and Kwando WMAs during the period prior to the turn of the century were mainly arable farmers. The BaNoka (River Bushmen) have probably lived in the delta and environs for around 10 000 years. Representatives of the BaQanikhwe group of the BaNoka still live to the north of the delta while the BaGumahii were and still live in scattered settlements throughout the delta. The BuGakhwe live in the Khwai area.

The expansion of the BaLozi

In the early 18th century and again around 1750 both the BaYei and the HaMbukushu were affected by the spread of the BaLozi state, and emigrated to avoid conflict with the BaLozi. The BaYei filtered down into the delta from 1750 onwards. These people came from the Diyei area between Zibadianja and the Chobe enclave, along the Linyanti. Most BaYei migrations were along the Selinda spillway to the Okavango panhandle. A group of BaYei settled at Tubu. A separate route taken by BaYei (Matsharatshara's people) passed through the present day Moremi Game Reserve on their way south, but this group was forced to return along the eastern side of the delta, where Matsharatshara died near Sankuyu, leaving his followers to settle. The BaLozi state also influenced the HaMbukushu to move their capital from Eastern Caprivi to Andara on the Okavango river. Their settlements are mainly to the north of Sepupa.

Formation of the Tawana State

In the early 1800's, during the reign of Kgosi Mathiba, the Ngwato state was torn apart by a succession dispute. Tawana, the eldest son, lost heirship because his mother was not the mohumagadi. A civil war ensued between Tawana and his followers and his brother Kgama. Tawana and Mathiba, who supported him, emigrated to Kwena territory. The split between the two factions became permanent. Kgama's people retained the name BaNgwato, and the seceding group became known as the BaTawana.

The BaTawana lived at Lephephe among the BaKwena before moving northwest in search of a homeland. They were guided to Kedia, south of Lake Xau, but Kgama claimed that area fell under his jurisdiction. This caused them to move to the land around the Kgwebe Hills, taking their cattle with them. BaSarwa and BaKgalakgadi people were living at Kgwebe when the BaTawana arrived. Traditionally they were Kwena subjects, which was used to justify domination by the BaTawana, since the BaKwena had ceded the area to the BaTawana.

Around 1820, Moremi, heir to Tawana, seceded from the BaTawana because his aged father refused to allow him to participate in national affairs. He set up his own state north-west of Lake Ngami. In the war that ensued Tawana was killed, and Moremi became kgosi of the reunited BaTawana. At this time the village was moved to Toteng where water and pasture were more abundant.

In the late 1820's the BaTawana fled into the delta under attack from the BaKololo who were after their large herds of cattle. Using BaYei mekoro, the BaTawana managed to escape from the BaKololo, and established a new village at Tshoroga, to the north of the delta. Here the BaTawana were again attacked by the BaKololo, who took many captives. Moremi's heir, Letsholathebe escaped with some BaTawana to the swamps where they intermingled with BaYei and BaSubiya. After some years, some of the captive BaTawana escaped with their families and met up with Letsholathebe. They returned to Toteng, where they began to rebuild their village and their herds.

A period of expansion then ensued, where the Tawana state grew to incorporate all the peoples of Ngamiland. During the early 1900's they slowly moved to Maun, which became the new centre. The most significant aspect of this immigration in terms of resource use was the change in land use from a predominantly arable/hunter-gatherer economy to one which included a strong livestock component.

Arrival of the OvaHerero

The unilateral proclamation of a German Protectorate over the coastal area of Namibia in 1884 arbitrarily placed various peoples, including the OvaHerero, under German rule. Herero land was expropriated for arriving European settlers, sparking a violent revolt in 1904.

This led to the immigration of the OvaHerero into Ngamiland. The BaTawana and the BaNgwato (who still controlled some areas of Ngamiland) welcomed these refugees. The BaTawana saw them as allies against the Germans, and the BaNgwato had already accepted earlier OvaHerero arrivals. They settled in the areas to the west of the delta, and in the villages of Sehitwa and Nokaneng. Although much of their culture was lost to the Tawana system, they did bring considerable skills in cattle-raising.

These skills, coupled with the expansion of Tawana cattle herds, led to the emergence of a livestock-oriented economy for many of the inhabitants of Ngamiland. The reliance on livestock is important because people's movements were determined by cattle-related issues.

1.3.2 Historical Distribution of People

Two biological factors have had significant effects on the distribution of people in northern Botswana. These are the distribution of the tsetse fly, and the outbreak of the disease rinderpest in the late 1800's. These are closely related, and their effects on man, stock and wildlife are discussed briefly below.

Tsetse fly

As reported in Davies (1980), prior to the rinderpest, tsetse fly infested all the areas making up the CHAs under discussion. Schultz and Hammar in 1884 and Selous in 1879 reported tsetse fly along the Savuti, the Selinda spillway, the Kwando and the Linyanti upstream of the Chobe Enclave. Andersson in 1853 found heavy concentrations of fly on the Thaoge, which were pushed back into the delta by 1884 due to eradication of wildlife along the Thaoge. Tsetse were also found in the eastern reaches of the Okavango along the Mogogelo and Khwai. It is likely that in areas such as the sandveld tongue tsetse densities fluctuated considerably in the last century, allowing livestock to be raised for some periods in the area of present-day NG/29.

Rinderpest

The great rinderpest pandemic of 1896 so depleted wildlife and livestock populations that the tsetse fly's range was drastically reduced due to the lack of suitable host species. This allowed the expansion of man and his surviving domestic animals into new areas, including much of the Okavango Delta, the Linyanti and Kwando.

The residual tsetse fly concentrations were at the northern end of Chief's Island, in the Kudumane area and near Zibadianja. All the rest of Ngamiland was free of tsetse. Livestock and wildlife populations rapidly recovered, but the fly spread far slower. By 1921 tsetse had spread through most of the central and eastern delta, and expanded from the Zibadianja area along the Linyanti river to near the Chobe Enclave. By 1942 fly had recolonised most of its previous range.

Movements of people in response to these factors
In the present-day Kwando WMA people began to move into the Kwando, Selinda and Linyanti areas shortly after the rinderpest. A number of settlements developed along the Linyanti river (Child, 1963). Six villages were established by HaMbukushu at Diyei (present-day NG/16, near Zibadianja). There were a number of BaYei cattle posts spread along the Selinda spillway. On the western bank of the Kwando river there were several other villages of mixed origin (BaTawana, BaYei and HaMbukushu). The resurgence of the tsetse fly started to affect people two or three decades later.

By 1921 tsetse fly had already forced people to abandon settlements along the Linyanti. By 1935 nagana and sleeping sickness were spreading and the Government Secretary instructed the Magistrate at Maun to evacuate all people between Sexwee and the Selinda. Davies indicates that the people from the Selinda and the HaMbukushu living at Diyei were resettled at Gabamukuni near Seronga; the people along the Kwando were first moved into the Caprivi strip and then later to cattleposts on the Eastern Caprivi side of the Kwando in 1941. People from the Linyanti probably retreated to the Chobe Enclave. A total of 470 people were evacuated from the area (Kwando, Selinda and Diyei). The numbers that had settled along the Linyanti (NG/15) are unknown.

Within the Okavango WMA several cattle posts existed on Chief's Island and along the Khwai floodplain in the early part of this century (Tinley, 1966). There is no mention of settlements or pastoralism within the Okavango CHAs although it is possible that these occurred in NG/29 and NG/30 during the period 1900 - 1921 as the Nxaraga valley was an important livestock area.

Changes in hydrology

Changes in water distribution in the delta over the last 150 years have also had effects on the people and their settlement and movement. The Thaoge flowed strongly in the 1850's into Lake Ngami which was very much larger than its present extent. The Selinda (Magwegqana) was probably a perennial stream for much of this part of last century (Campbell, 1976). The Thaoge receded progressively from around 1865 to its present extent just east of Gomare, ceasing to flow to the lake altogether. The Thamalakane was mainly fed by the Gomoti and Santantadibe in the early part of this century, while the Boro was seasonal ("dry for the last 4 or 5 years except at the height of the flood season, when an inconsiderable amount of water comes down it." Stigand, 1922). At the present time the situation is the reverse: the Boro is the main feeder of the Thamalakane, while flows in the Gomoti and Santantadibe rarely reach it.

The most important of these changes to present patterns of use in the CHAs is the recession of the Thaoge. In the last decade, land use pressure and suitability for flood recession agriculture between Gumare and Nokaneng has resulted in a movement of people onto the Karongana system, which flows along the Okavango WMA boundary (the western Buffalo fence).

Buffalo fence

The erection of the Buffalo fence (veterinary cordon fence) in 1983 formed a physical barrier which limited wildlife to the inner delta area and livestock and most settlement to the periphery of the delta. Land use and settlement patterns could have been significantly different as the erection of the fence occurred at the same time as tsetse fly levels were being reduced to almost post-rinderpest levels. Stiles across the fence provided by the DAHP mean that access or settlement into the delta have not been limited; the fence only prevents the use of the delta for the rearing of livestock. This fence has become important in land use planning and land tenure.

1.3.3 Changes in Land Tenure

The post-Protectorate government caused some fundamental changes to the customary system of land tenure in Botswana. The Tribal Land Act enacted in 1968 vested control of the land in Land Boards elected for the purpose (see Chapter 2). In 1963 the BaTawana Tribal Regent forbade hunting within the Moremi Wildlife Reserve area. By 1965 Moremi was legally gazetted. In 1976 the reserve was extended to include Chief's island. In 1992 a further extension to its present borders occurred.

Under recent (1993) changes to the TLA, Land Board has a duty to zone the land under their care for different forms of land use. As a result of this, part of Ngamiland District has been zoned as Wildlife Management Area (WMA). There are two gazetted WMAs in the district: the Okavango WMA and the Kwando WMA. The District Land Use Planning Unit (DLUPU) has drawn up a land use plan for these two WMAs, and it is within the framework of this land use plan that some of the Controlled Hunting Areas in the WMAs are to be let for commercial use.

1.3.4 Conclusions

In conclusion, it can be seen that the present day Okavango and Kwando WMAs have a long history of habitation and resource use, both inside the gazetted areas and on their peripheries. This habitation and use has been affected by variations in environmental factors and socio-economic factors. In general, the non-pastoralist people tended to settle in the Okavango and Kwando WMA areas more than the stock-keeping people, who settled around the fringes. The changes in tsetse distribution and river courses have markedly affected people's lives and distribution. However, despite various large and small scale movements of people, there has been a consistent dependence of a large part of the district's population on the resources of the WMAs. This use is an important part of the subsistence economy of the district at present, and, given the relatively low agricultural potential of the area, should be fostered.

2 LEGAL AND ADMINISTRATIVE FRAMEWORK

2.1 Legal Synopsis

In this section the potential impact of the Wildlife Management Lease (WML) system on traditional rights of access to and use of natural resources is examined. Existing legislation controlling rights to land and resources is outlined and then discussed in terms of the WMLs.

Firstly, a brief historical account of traditional use and access rights is given. This is followed by a review of the following legislation:

- the Tribal Land Act
- the Wildlife Conservation and National Parks Act
- the Agricultural Resources Conservation Act
- the Herbage Preservation Act
- the Water Act
- the Tourism Act
- the Forest Act
- the State Land Act.

The WML regime is then examined with particular emphasis on the provisions which seek to protect the traditional rights within the Controlled Hunting Areas. Conclusions relating to the status of rights of access to and use of natural resources in terms of the lease agreement are drawn. General recommendations regarding the implementation of the lease are made, followed by more specific suggestions for changes to the lease which should be held for consideration under the 5-year review.

2.1.1 Historical Background

During the Bechuanaland Protectorate era three categories of land existed. These were the native or tribal reserves, crown land and freehold land. Rights to land and its resources in the tribal or native reserves were governed under the customary law of the tribe(s) occupying the land or tribal reserve. Under the customary law system the Chief of the tribe - acting personally or through his headmen - was the main authority and custodian of the land in trust for the benefit of his people. The Protectorate Administration was in charge of crown land, while land in freehold areas was held in a private and personal capacity.

Schapera (1938) writes that the BaTswana utilised their land in many ways, including (but not limited to):

- residential purposes
- arable farming
- stock grazing
- hunting
- gathering
- collecting firewood
- cutting trees and grass for building
- water use
- fishing
- collecting soil for building and making pots
- using plant material for medicine and basket-making.

Among the BaTswana tribes the main forms of land use concerned residential, arable or grazing activities (Schapera, 1938). It was only for residential and arable purposes that allocation of land by the Chief was required. Grazing land was held communally and was not considered as individual property, except for the actual cattle-post or borehole watering site. To a large extent other uses of the land's resources were not controlled, although restrictions in certain cases such as hunting and tree felling were imposed by the Chief, either directly or through taboos. *Most of these resources therefore were common property.*

Sale or letting of land was generally not permissable. However, it has been documented that certain chiefs concluded agreements granting hunting or grazing rights to non-tribesmen, providing that the rights of residents were protected, and that the leases did not exceed a period of 10 years. In certain instances a tribesman could let his improved land to another or to a foreigner for reward. Schapera (1943) noted that in the BaTawana Reserve fees were sometimes charged for hunting, the proceeds of which went to the Tribal Treasuries.

Thus the concept of the hunting leasehold in a tribal area is not new. It is interesting to note that the BaTawana historically recognised this system, since it is here that the new WMLs are to be initiated. Other ethnic groups such as the BaYei, HaMbukushu and OvaHerero fell under BaTawana rule, and their rights to land and resources came under the latter's jurisdiction. It should be noted, however, that Schapera's account does not cover these non-Tswana groups, who comprise a large proportion of the rural population in Ngamiland.

This then was the situation during the Protectorate period, and prior to the enactment of the Tribal Land Act. This and other post-independence legislation is examined below.

2.1.2 Relevant Legislation

The Tribal Land Act (Cap. 32:02)

The actual land use types of tribesmen in tribal areas did not change when the Tribal Land Act (TLA) was set into operation in 1970. The TLA shifted the responsibility of controlling, allocating and administering tribal land from the Chiefs to the tribal Land Boards which it established.

The main object of the TLA was thus to establish Land Boards and vest title to tribal land in them, "*for the benefit and advantage of the tribesmen of that area and for the purpose of promoting the economic and social development of all the peoples of Botswana*" (Section 10, our emphasis).

Two systems governing the granting of land rights in tribal areas have been established.

1) Customary land tenure reaffirms those rights of citizens which were previously controlled by the chief, with exemptions to non-citizens grantable by the Minister. Customary law grants can only be made for residential, arable and, to a small extent, grazing purposes. There is no specific provision for granting land for gathering or hunting purposes. Historically, as it has been noted above, any member of the tribe was entitled to have access to hunting and gathering areas and could generally use wood, fruits, fish, grass and other natural resources without permission. *It should be noted that once a right or obligation is officially recorded, it falls in the domain of statutory law, and is no longer customary.*

2) Common law land tenure covers those sections not covered under customary law, namely: trading, manufacturing or other business or commercial purposes (Section 20). Under Section 24 the Land Board has power to grant rights to land for these purposes to any person whether citizen or non-citizen. It is primarily under this part of the TLA that the Land Board has power to conclude the WMLs.

Section 17 of the amended TLA (1993) imposes a further duty on the Land Board - to define land use zones within the tribal areas. The Okavango and Kwando WMAs are part of this land use zoning (section 1.2.3).

Conflict Resolution Mechanisms

The TLA has made provision for the resolution of disputes. Prior to the 1993 amendment to the Act, disputes or appeals from subordinate land boards went to the main land board and thereafter appeals were heard by the Minister. Now, in terms of section 40 of the amended Act, the Minister has been empowered to establish land tribunals for the resolution of land disputes. Pending the establishment of these tribunals, any appeal to the Minister or any dispute should now be lodged with the District Commissioner.

The Wildlife Conservation and National Parks Act 28 of 1992

This Act is of fundamental importance to the WMLs. It delineates national parks, game reserves, Wildlife Management Areas (WMAs) and Controlled Hunting Areas. The Wildlife Management Lease areas are CHAs designated for commercial use. Legislation concerning the WMAs is relevant since in Ngamiland the commercial CHAs fall within the boundaries of the Okavango and Kwando WMAs. This is dealt with in Section 15 of the Act. *The Minister is empowered to make regulations controlling, among other things, the erection of any building, or the residence therein of any person, the size of settlements, the grazing of stock, cultivation of land, or the entry or presence of persons in the area.* The director of DWNP is bound to consult Land Board and Council under Section 15(4) where his duties relate to the development of the Wildlife Management Areas, their management plans and their administration.

CHAs are established under Section 16 of the Act. Hunting in a CHA is regulated by Section 16(3). According to this provision, all hunting licenses are issued specific to a particular CHA.

It is important to note that whereas the land board has the power to grant rights to use land in WMAs or CHAs, it does not have the power to grant rights to utilise the wildlife resources in the areas. This authority lies with the Department of Wildlife and National Parks. Written permission to enter land for the purpose of hunting must be obtained from the owner or occupier of that land (Section 49(1), unless the owner/occupier or his representative accompanies the person wishing to hunt. This places the control of hunting on any land with the owner/occupier. However, in the case of tribal land, Section 53 of the Act states: "Where under this Act the authority or permission of the owner or occupier of land is required for the doing of an act, such authority or permission shall, in the case of any tribal area, unless otherwise specifically provided in this Act, be valid for the purposes of this Act only if given by the land board established in

respect of that tribal area, or by any person authorised by that land board to give such authority or permission." Under section 53, the Land Board can overrule stipulations made by the lessee, provided that the lessee is not substantially prejudiced by the giving of such permission.

Another provision of this Act which merits attention is Section 30. This deals with the issuing of special licenses to persons who are principally dependent on hunting and gathering veld produce for their food. In terms of this provision the Minister is empowered to make regulations specifying, among other things, the number of animals and the area where the license holder is to hunt. A holder of a license in terms of this provision is therefore exempt from the conditions of Section 16(3). This has implications for resource management, as no legal mechanisms exist requiring returns of details regarding offtake (see Chapter 3 below).

The Agricultural Resources Conservation Act (Cap. 35:06)

This Act is significant to the control of natural resources. Section 2 of the Act defines agricultural resources as animals, birds, plants, waters, soils, vegetation and vegetation products, fish, insects, etc. The Act has established an Agricultural Resources Board whose duties include:

- the supervision of the agricultural resources of Botswana,
- advising the Minister of Agriculture on supervision of resources and on the nature of legislation necessary to secure or promote the proper conservation, use and improvement of agricultural resources,
- issuing conservation orders and making conservation regulations, and, more importantly,
- under Section 9(h) of the Act, the Agricultural Resources Board may, after consultation with the land board and the district council, give directions to such land board concerning the proper use of any land within such tribal area. In terms of Section 21(d), any conservation committee established by the Minister may recommend restrictions to be attached to the granting of both customary and common law land rights.

It can be seen that although the land board is the owner - in trust - of tribal land, it can be directed by the Agricultural Resources Board on how such land should be used to promote the conservation of resources in or on the land. Thus the Agricultural Resources Board carries considerable power, and is the primary body concerned with control over natural resources.

The Herbage Preservation Act (Prevention of Fires) Act (Cap 38:02)

This Act was established to prevent and control bush and other fires. It is important because the issue of veld burning is a potential source of conflict between the lessee and traditional users of the area. In terms of section 4 of this Act, no person may set to any vegetation on land of which he is not the owner or in lawful occupation. since the Act makes no specific reference to tribal land, it may be assumed that the lessee is the lawful occupier, and no vegetation burning can be undertaken without his permission.

The Water Act (Cap 34:05)

This Act states that there shall be no right of property in public water. Section 5 entitles any person while at any place where he has lawful access (see TLA above) to a public stream or to a natural lake, pan or swamp, to take and use public water therein for the immediate purpose of watering stock, drinking, washing, cooking, or for use in a vehicle.

The Tourism Act 22 of 1992

This Act was enacted to regulate and develop the tourism industry. The Act has set up the Tourism Industry Licensing Board to grant licenses for the conduct of tourist enterprises or activities. This Act is relevant to the wildlife management leases because it is one of the pieces of legislation that will enable the lessee of the CHA to put the purpose of the lease into effect.

The Forest Act (Cap 38:04)

This legislation deals with the establishment of Forest Reserves. On tribal land, this can only be done with the approval of the relevant land board. The declaration of any tree as a protected species on any tribal land can only be made with the approval of the land board (Section 11(1)(a). The Act only controls the use of forest produce in all Forest Reserves, whether on state, private or tribal land. Although Section 13(b) clearly provides for subsistence use of such produce, it is of little relevance here.

The State Land Act (Cap 32:01)

This Act applies to land that was characterised as Crown land prior to independence. The power to grant rights to use land in these areas is vested in the President. Certain settlements are allowed on state land, and the State has the power to decide what communities should or should not settle on this land. The Act is of concern only in terms of the possible acquisition of tribal land by the state under Section 32(1) of the Tribal Land Act.

2.1.3 Discussion of Rights and Use

In this section, a discussion of the issues involved with the legally prescribed and actual levels of traditional resource use is given. In the context of the multiple use CHAs, it is important that a clear understanding is reached of how traditional use and the lessee's use are related. This can only be done when an acceptable definition of the parameters of traditional resource use is found. This discussion only presents the issues in an attempt to initiate some thought and direction for research.

Traditional Rights

Traditional rights are usually linked to historical practices, and form part of a complex social system of duties, responsibilities and benefits. It is considered that *customary* may be a more appropriate description of the rights being exercised, since this is the term used to describe the law system. In this discussion the terms are interchangeable.

One view is that customary rights to the resources of an area accrue as a result of habitation. People who have *lived* in an area for any length of time have rights to the resources in a given area extending out from the centre of their settlement. In the case of semi-nomadic people, rights would refer to the resources within their range. This has particular relevance to the historical patterns of habitation and movement of people in Ngamiland, and the waves of immigration. The influences of biotic factors such as the rinderpest pandemic and tsetse fly are also important (see Chapter 1 above).

Traditional use rights, then, are the rights that inhabitants of tribal areas have, by custom, to use natural resources as part of their livelihoods. Historically, rural people in and around the WMAs have used the resources not only for their own consumption or use, but also for exchange. In more recent times, these exchange activities have come to include a cash component.

Under the 1993 amendment to the TLA, customary land rights no longer have any tribal connotations, nor are they geographically determined. These rights now belong equally to all BaTswana. Specific protection for local residents within or peripheral to the CHAs does not exist. This affects all parties concerned. In the Wildlife Management Lease the Tawana Land Board undertakes to limit further extension of agricultural use of these areas, and to create optimum conditions for the lessee's business. Citizens who are locally resident have no more right than the rest of the nation, and may have to compete with them for resources that are a critical part of their economy. This also raises the crucial issue of the potential for over-exploitation of resources, due to the "tragedy of the commons" phenomenon ("communal area means that nobody has to ask anybody" - Habu farmer, *in* Bendsen and Gelmroth, 1983). The lessee's business depends on the ability to market an aesthetic quality - the "wilderness" appeal, which is sensitive to over-exploitation. The only legal recourse the lessee has over this issue is to the Agricultural Resource Conservation Act.

In terms of the TLA, customary rights appear to be dependent on the level of usage. Such rights relevant to the Wildlife Management Lease include, but are not limited to:

- the right of residence
- the right of access
- the right of transit
- the right to harvest natural plant and insect resources
- the right to hunt
- the right to fish
- the right of casual use of public water.

The Tribal Land Act controls issues of residence. Hunting rights are regulated by the WC&NP Act. Customary rights to harvest veld products have no specific legislative provision on tribal land. Customary land rights are provided for under the Tribal Land Act. The right to use tribal land (including its resources) for commercial purposes is *not* a customary right, and must be granted under the common law provision of the TLA. This is a significant distinction and requires further clarification. As outlined above, traditional use of resources does involve trade. The point at which the traditional use of the natural resources becomes a commercial activity is clearly an important one both legally and for management purposes. However, because the range between pure subsistence (*sensu stricto*) and commercial use is broad and complex, without hard economic information, definition of this point is purely arbitrary. In strict economic terms, the two extremes of use types are as follows:

Subsistence Use
This is an idealised term in which the use of resources is seen as purely for subsistence purposes purely for the purpose of subsistence only. In this model, therefore, subsistence use refers to use for the harvester's own consumption.

In reality, however, traditional resource use is not limited to immediate use. Closer definition thus requires an economic or financial definition of the point at which a household or individual economy makes the transition from subsistence to commercial.

Where this applies to the use of *natural* resources, this definition is further confined by the existence of certain legislation. Subsistence hunting can only be undertaken with a Special Game License, in terms of the Wildlife Conservation and National Parks Act. Offtakes of veld products at subsistence levels are currently not regulated (although a bye-law was proposed - GoB, 1992), with the exception of certain trees protected under the Forest Act. However, as noted above, the Agricultural Resource Conservation Act could be applied to limit the extraction of any natural resource.

Commercial Use
Use of a resource can be considered to be commercial when it is carried out at a level that allows for a profit to be generated. This means the realising of a return greater than the value of the investment (whether this be in terms of cash or time and effort). Commercial use falls outside the definition of customary law, and as such cannot be said to be a traditional right. Commercial utilisation of natural resources is bound by common or statutory law. Again, the most important legislation is the Wildlife Conservation and National Parks Act, and the Agricultural Resources Conservation Act.

From the above, it can be seen that a strictly economic definition of the terms subsistence and commercial is a false dichotomy which is not sensitive to the actual conditions of traditional resource use in northern Botswana.

Despite the *legal* importance of this distinction, in practical terms it does not require immediate definition. Use of a rigid financial or economic definition is both premature and undesirable in the framework of current policy and development initiatives such as the Wildlife Conservation Policy (1986) and National Conservation Strategy (1990, 1992). In addition to this, the resource base does not appear to be in any immediate danger of depletion (although very little is known about productivity and sustainable offtake levels). What is

required is the institution of a process of research to determine a framework of use and offtake that will allow the integration of traditional and leasehold resource use in these areas. In the present circumstances, the distinction is better left flexible. Where uncertainty arises, this should be arbitrated by TLB according to the provisions of the TLA and judgement of the members of the board.

2.2 The Wildlife Management Lease Agreement

It has been pointed out in this discussion that prior to independence some chiefs entered into lease arrangements with non-tribesmen for the granting of grazing or hunting rights. The Protectorate administration allowed the leases only if they did not erode any of the rights of the tribesmen and if their duration did not extend beyond a period of 10 years. The leases over the 7 multiple use (commercial) CHAs in the Okavango and Kwando WMAs make provisions to ensure that the rights of the inhabitants of the tribal areas are not prejudiced, and the parties to the lease are as far as possible able to enjoy their rights and discharge their obligations. This section examines the lease and these provisions in terms of the legal framework outlined above.

2.2.1 Land Use Types

These are not legal definitions; they are an attempt to define the areas in question in terms of their intended use.

Wildlife Management Area
In terms of land use, a Wildlife Management Area can be defined as an area of which the primary utilisation is its wildlife, and this latter includes both animal and plant resources.

Controlled Hunting Area
This is an area designated by the Department of Wildlife and National Parks to manage the allocation of hunting quotas.

2.2.2 The Lease and the Rights of Communities

Clause 2 of the lease specimen refers to the rights of communities in the area. This provision states that the lessee shall respect the rights of the existing communities within the Management Area. For the purpose of this report it will be assumed that this latter refers to the lease area. This is particularly important for those people living peripheral to the CHAs, who have exercised traditional rights of natural resource utilisation within the CHAs. While it may be argued that such rights are assured by Clause 2.3 under the phrase "lawful entry", this is not clear, and would in any case then over-ride the provisions of Clause 2.1.

Clause 2.1 further allows for a list (Annexure 2) of traditional rights to be attached. The provision of a definitive list could seriously jeopardise such rights. It might be used to exclude any rights that are unintentionally omitted from the list, and if used in conjunction with Clause 2 of the lease, could be construed to apply only to the communities *within* the CHAs.

In Clause 2.2, the lessor undertakes to try to prevent further community settlement and further ploughing of fields. While it could be argued that this undermines some customary rights, in fact it is not the lease but the legislation relating to WMAs (Section 15 of the WC&NP Act) which can compromise these rights. This is only the case for the commercial CHAs in Ngamiland, since these fall within the boundaries of the WMAs. Elsewhere, this clause may impinge on traditional rights.

2.2.3 Impact of the Lease on Traditional Rights

As mentioned above, it is possible that the rights to traditional use of natural resources by people living outside the CHAs may be infringed on. The lease does not, however, appear to exceed the law in imposing any restrictions on natural resource utilisation.

Furthermore, since traditional rights of those living within the area would normally include clearing of fields for farming and the grazing of livestock, the provisions of Clause 2.2 would appear to undermine those rights. Section 13 of the TLA, however, provides for the lessor to impose such restrictions. In this case, too, it is the law and not the lease responsible for the potential infringement of such traditional rights.

2.3 Conclusions

The Wildlife Management Lease must, and does, conform to the provisions of existing legislation. However, this aspect is not always clear, and could be better emphasised.

2.3.1 Protection of Traditional Rights under the Lease

It appears that traditional rights are largely safeguarded under customary law and by the provisions of Clause 2 of the WML. However, there is some potential for confusion, due to the wording, over *which* communities are entitled to exercise their traditional rights within the CHAs. The 1993 amendment to the TLA (see Section 2.1.3) is not accounted for; this could have significant ramifications for communities who live peripheral to the lease area.

2.3.2 Protection of the Rights of the Lessee

The lessee has the rights to commercial use of the resources in the lease area for the purposes of tourism-related activities, hunting and game capture. These rights are subject to a series of conditions (Clause 2), some of which have the potential to compromise the commercial viability of the resources themselves. In addition, under the conditions of the lease, the lessee must take over some of the administrative duties (citizen hunting quotas and supervision) which were previously done by various government departments.

The most important protective legislation (aside from the lease itself) for the lessee in regulating the resource use by parties other than himself are the Agricultural Resources Conservation Act and the WC & NP Act.

2.3.3 Protection of the Rights of Land Board

The Land Board has the power under the TLA to enter into the Wildlife Management Leases. It is adequately protected by the provisions of the Tribal Land Act, and by the terms of the lease. In particular, Clause 5 "Obligations of the Lessee" and Clause 6 "Rights of the Lessor" safeguard the rights of the Land Board.

2.3.4 The Conservation of Natural Resources

In terms of the legislation examined above, and in particular the Wildlife Conservation and National Parks Act and the Agricultural Resources Conservation Act, provision is made for the protection of natural resources. As noted above, a conservation committee elected in terms of the Agricultural Resources Conservation Act can make recommendations to Land Board concerning the restriction of resource use on any land grants. Furthermore, the Department of Wildlife and National Parks and the Agricultural Resources Board may regulate activities and the utilisation of natural resources in the lease area.

2.4 Administration

2.4.1 Parties Involved

Since the land set aside for NG/14, NG/15, NG/16, NG/20, NG/26, NG/29 and NG/30 falls within the Tawana tribal area and not on state land, the lessor in these instances is the Tawana Land Board.

The lessee for each CHA is the individual or group who has successfully tendered a management plan for that CHA, and who has entered into a Wildlife Management Lease for that CHA with the Land Board.

The administration of the area and its resources is the responsibility of the Land Board who must liaise with the government department pertinent to each resource. It is however, possible that the administrative structures may change for future lease revisions and agreements. The lines of communication for the current situation are represented diagrammatically below (Figure 1).

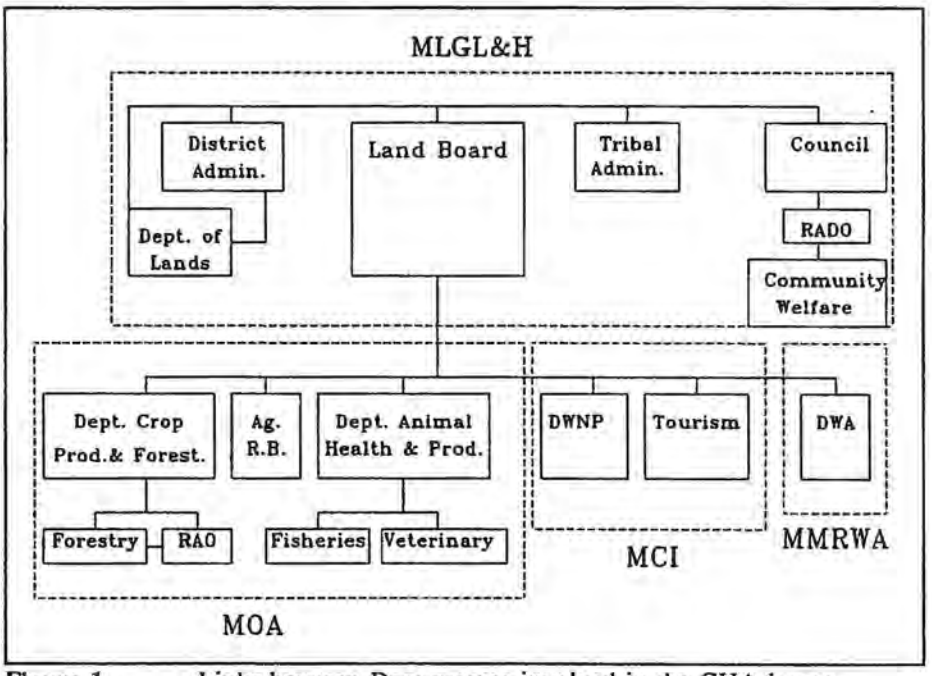


Figure 1 Links between Departments involved in the CHA leases

2.4.2 Responsibilities

Tawana Land Board and Tribal Administration

As the owners in trust of the Tawana tribal land the Land Board is responsible for the expedient use of the land. Within the terms of the lease it appears that the TLB is responsible for administering the lease and the following aspects of management:

- To attempt to limit settlement.
- To attempt to limit expansion of agriculture.

Once the leases are in effect the TLB's primary responsibility will be arbitration and dispute settlement.

Lessee

The lessee is given the responsibility of managing the lease area. The responsibilities outlined in the lease are:

- To use the area for the purpose of exploitation of renewable natural resources, in line with the aims and objectives of the Laws of Botswana and official policy.
- To fulfil "efficiently and expeditiously" the undertakings within his project proposal.
- To demarcate the area's boundaries and maintain the demarcations.
- To manage the area in such a way that resources are sustained while generating financial returns to the people of Botswana (manifested in the form of land rental and resource utilisation royalties payable to the TLB).
- To respect traditional rights as outlined in Annexure 2.
- To establish, in collaboration with the DWNP, hunting quotas.

District Administration and the Department of Lands

Responsibility for land use planning, and ensuring that the lease agreements supporting the defined land use of the area fall to these sectors. The Department of Lands is also the final arbitrator in terms of compensation claims.

Council

As beneficiaries of the natural resource rental, North West District Council is jointly responsible together with the TLB for administration of the lease agreement. Through the councillors, NWDC provides lines of communication for the public.

Department of Water Affairs

Controls use of water resources, and houses the Water Apportionment Board which administers the allocation of water rights.

Department of Tourism

Responsible for ensuring that the lessee carries out operations in accordance with the Tourism Act and Policy.

Department of Wildlife and National Parks

Responsible for administration of the wildlife resource.

Department of Animal Health and Production

Responsible for the maintenance and administration of the veterinary fences, and custodians of fish resources outside of the National Parks and Game Reserves.

Agricultural Resources Board

Responsible for the administration of the Agricultural Resources Act.

Ngamiland District Agricultural Resources Conservation Committee

This committee is appointed by the ARB. The secretary of the present committee is Mr Dube (Senior Conservation Officer). Mr Ledimo (Land Board) is the chairman. Other members include further representatives from the Land Board, District Administration, DWNP and the public.

Department of Crop Production and Forestry

This includes the Division of Forestry. Responsible for the administration of the Herbage Preservation Act, which prohibits the burning of vegetation. The Regional Agricultural Officer is responsible for crop production activities within the WMAs.

2.4.3 Administrative Capacity

Tawana Land Board

Although the Land Board is responsible for administering the wildlife management lease areas, its present structure lacks the capacity to carry the extra functions anticipated by the introduction of the CHA leases. Duties such as inspection of the implementation of the project proposals, monitoring of land use activities and conflict resolution will have to be taken on board. Recommendations for filling this gap are addressed in Chapter 6.

Department of Wildlife and National Parks

At current intensities of aerial survey, the population estimates of wildlife are not sufficiently accurate to allow appropriate management. In the guidelines to the lease, the lessee is required to assume some of the responsibility for monitoring the wildlife resource.

Although there are many institutions involved in the administration of the lease and control of certain resources, there is no body which is solely responsible for administering the WMAs. A possible solution to this issue would be the formation of a WMA steering committee (see Section 6.1).

3 USE OF THE WILDLIFE RESOURCE

3.1 Background

The replacement of tribal hunting regulations, which varied by district, with a "unified hunting system" under the centralised administration of DWNP was first proposed in 1974. This was done to provide a means of controlling hunting quota allocations and collecting information on rates of offtake through license returns. It was also meant to promote "use of the country's wildlife resources on a rational and fair basis for the benefit of all BaTswana, while ensuring that rural people dependent on wildlife were not deprived of subsistence and income from the resource" (Sherburne, *et al*, 1974).

3.1.1 Unified Hunting Regulations

The legislation promulgated to implement this system was the Unified Hunting Regulations (UHR/S.I.19 of 1979). Under these regulations Tribal Game Licenses, which included a number of different game animals available to tribesmen within each district or sub-district, were replaced by Single Game Licenses. These are issued for individual animals and available to citizens from all parts of the country. License fees were substantially increased under the UHR, though they are still low relative to the market value of products derived from the animals hunted. Single Game Licenses are intended to provide a means of keeping better records of hunter success and offtake. Limited enforcement capacity and poor license returns resulted in little improvement in data collection or the control of illegal hunting. Offtake rates for economic species such as buffalo and zebra (including illegal hunting), were not sustainable, and contributed to dramatic population declines. Changes in licensing laws under the UHR as well as increased poaching and general declines in wildlife populations have greatly reduced the amount of game meat available to rural households. There has been a progressive transfer of resources away from subsistence hunters toward citizen commercial and recreational hunters in the process.

3.1.2 Subsistence Hunting

Remote area dwelling (RAD) hunters dependent on wildlife for subsistence were issued free Special Game Licenses (SGLs) for the first time under the UHR. SGLs were issued to legitimise subsistence hunting, to protect RADs from harassment and prosecution, and to allow them to further benefit economically from the sale of wildlife products (although commercial use has never been legalised)(DWNP, 1979). Under the current system, field officers of the Remote Area Development Programme (RADP) are meant to assist and advise

DWNP licensing officers concerning eligibility of RADs requiring Special Game Licenses. In an effort to reduce the numbers of SGLs issued in recent years, DWNP have used different, and often rather arbitrary criteria in determining eligibility. Anyone employed (albeit temporarily), or owning livestock may be considered ineligible. This means that skilled hunters temporarily employed by safari hunting operators lose the right to hunt on SGLs during the rest of the year, and licenses may in turn be issued to less skilled or non-hunters.

Numbers of animals made available through SGL quotas have not been considered when most hunting quotas are established from wildlife census data, and license returns from which offtakes and success rates may be determined have never been required. Original and current entitlements of subsistence hunters holding Special Game Licenses for Ngamiland CHAs are listed in Table 1.

Table 3.1 Current Hunter Entitlement for Special Game Licenses issued in Ngamiland

Species	Number	Est. kg meat	Notes
Buffalo[1]	2	550	1. Buffalo, wildebeest, eland and sitatunga still appear on SGLs, though subsistence hunting of these species is illegal at present for biological reasons, and they are meant to be deleted on issue.
Wildebeest[1]	4	450	
Eland[1]	1	230	
Sitatunga[1]	1	40	
Duiker	30	250	
Steenbok	30	180	
Ostrich	2	130	2. Gemsbok do not occur in most of these CHAs.
Warthog	3	110	
Kudu	1	105	
Impala	4	160	3. Wild dogs are an Endangered Species.
Lechwe	3	120	
Tsessebe	1	80	
Gemsbok[2]	2	245	4. Except conserved species.
APPROX. TOTAL MEAT		2650	
Monitor Lizard	10		
Wildcat	50		
Jackal	Unlimited		
Bat-eared Fox	50		
Silver Fox	10		
Genet	50		
Caracal	10		
Monkey	20		
Spotted Hyaena	20		
Wild dog[3]	Unlimited		
Baboon	Unlimited		
All Birds[4]	Unlimited		

3.1.3 Other Citizen Hunting

Hunting by citizens other than SGL holders still includes some subsistence hunting. A large proportion of the quota, especially for valuable species, is allocated for commercial and recreational meat and trophy hunting by those who are not dependent on wildlife for subsistence. The current system favours a minority of wealthy and influential people from urban areas, who want continued access to wildlife resources on the same, or better terms as poor rural residents who would normally rely on hunting for much of their livelihood.

As a result there has been a steady loss of access to resources by WMA residents and other subsistence hunters (also non-RADs) as an increasing proportion of the available quota was issued to more affluent citizen hunters, a large proportion of whom are from outside the district or region. At the same time there has been widespread abuse of Single Game Licenses (non-endorsement overshooting, photocopying, multiple transfers for commercial use, etc.) and increased illegal hunting, particularly of valuable species such as buffalo and zebra.

3.2 Licensed Hunting by Citizens in the New CHAs

The records available from DWNP indicate that 20 SGLs have been issued to residents of Godigwa for (former) CHA 5 during 1993-94. Khwai residents were issued 34 SGLs for CHA 7, Mababe residents got 33 SGLs for CHA 8, and 18 SGLs were issued at Xaxaba for CHA 21 during the same period.

Table 3.2 Special Game Licenses issued 1993-1994

Number of SGLs issued 1993-4	Home Area	Old CHA	Approx. Equivalent New CHAs
20	Godigwa	5	14(part)
34	Khwai	7	16(part), 20(whole)
33	Mababe	8	40?
18	Xaxaba	21	30(part)
-	-	6	14 & 16(parts), 15
-	-	9	26, 29, 30(part)

As part of these former CHAs, the new CHAs NG/14, NG/16, NG/20 and NG/30 are affected as areas in which licensed 'traditional' subsistence hunting is practised. No SGLs were apparently issued for former CHAs 6 and 9 (parts of which comprise the new CHAs NG/15, NG/26 and NG/29), though "extensive subsistence hunting" in CHA 9 was mentioned in the land use plan (DLUPU), and both areas have been extensively used by citizens hunters holding Single Game Licenses.

CHA tender guidelines state that "*provision should be made for allocating some of the quota for citizen hunting*. Operators should understand that such hunting will be carried out under the direct supervision of the lessee, to a timetable imposed by the lessee, and *all prices of animals so offered will be market related to current market prices of meat and skins. The lessee will be required to suggest methods of distributing this quota among citizens in a fair and objective manner*, and furnish the quota of animals to be so utilised by citizen hunters in their areas to DWNP so that licenses may be issued in a timely and appropriate fashion. *Failure to allocate a quota for this purpose will only be allowed for biological reasons agreed to by DWNP*" (our emphasis).

Proposals for ways of administering and controlling citizen hunting are required by the guidelines for all tender proposals and will thus become a part of the lease agreement. Continued access to the CHAs for purposes of licensed hunting is guaranteed in the lease agreement, though terms and conditions, means of access, types of licenses and quotas, etc., are not mentioned. Subsistence hunters dependent on wildlife as a source of food are unlikely to be able to pay "market-related prices" for part of the quota, nor under existing terms of SGLs (if these are still in force), will they be able to sell their hunting quotas to lessees.

Unless the control of access to wildlife by citizen hunters is carried out with sensitivity by the lessee, this is bound to increase conflict between operators and citizen hunters and other users of the areas.

3.3 Conclusions

The issues concerning traditional hunting rights in the commercial CHAs have a potential for causing conflict between the various parties concerned. Any changes to subsistence hunting is likely to have the greatest impact on RADs who are most dependent on the wildlife resource for their livelihood, especially since existing trends are reducing their share of this resource. Legal provision is made both in the tender documents and in the lease for protection of these rights, but the changes in regime for single game and special game licenses is likely to cause resentment. Quota allocations for citizen hunting made by the lessee should be divided by DWNP to accommodate both single game licenses and special game licenses. These issues can only be preempted by careful cooperation between all parties concerned.

4 TRADITIONAL RESOURCE USE IN THE MULTIPLE USE CHAs

The rights and resources listed below are by no means comprehensive, or definitive. It is clear, however, that the traditional use of resources in the areas now encompassed by the WMA and the commercial leasehold CHAs is a vital part of the economies of many of the people living in and around these areas. At present, too little is known about this aspect of use of the CHAs to allow rigorous definition of what these rights actually are in economic or ecological terms. It is intended that these aspects will be addressed through extensive socio-economic and ecological research over the course of the next year (NRMP). Pending the results of this research, the material included in this document is given as background to the issues concerning traditional rights in these areas, and is not intended to be prescriptive.

4.1 Introduction

Utilisation of natural resources occurs at different levels throughout the Kwando and Okavango WMAs, varying from opportunistic gathering of products for immediate consumption to collection of resources expressly for commercial gain. While it is clear that off-take is higher closer to settlements, resource use is not solely linked to habitation. Settlement patterns have largely been determined by biological factors (see Chapter 1), but people do make use of resources in areas further afield. Thus lack of habitation within a CHA should *not* be used to construe lack of use of that area. This section provides a general overview of the customary rights that people have, and some of the more frequently used resources.

The information given below is intended as background of resource use, and how this is related to traditional rights. It must be stressed that the data have been extracted from documentation whose main emphasis has been either on areas peripheral to those now of concern, or on other aspects of the areas.

No field surveys or studies of use levels were undertaken specifically for this report. A full physical survey of the natural resource utilisation will produce a more accurate picture.

4.1.1 Traditional Rights Relating to Natural Resources

These rights are based on subsistence levels (*sensu lato)* of utilisation and exist within the framework of current legislation. They include, but are not limited to:

- the right of residence (subject to TLA)
- the right of access
- the right of transit
- the right to hunt (subject to WC&NP Act)
- the right to fish
- the right to harvest wild plant and insect resources
- the right to casual use of public water

Such rights are not bound to any specific time, route or location, but are carried out as and where the resources are available.

4.2 Resource Utilisation

Existing information regarding the present extent of natural resource use is related to the presence of settlements. More documentation exists for use within the Okavango WMA than for the Kwando WMA. This can be attributed to several factors:

- Population levels are higher along the western fringe of the Delta with correspondingly higher intensity of use.
- This zone is the District's CFDA.
- More research has been done along this fringe area.
- The south-western delta is also more accessible than are the settlements along the peripheries of the Kwando WMA.

Thus while it may seem obvious that NG/26, NG/29 and NG/30 are more heavily utilised than NG/14, NG/15, NG/16 and NG/20 because there are more people in or near these areas, the discrepancy in documented resource utilisation is exacerbated by the lack of information available from the communities close to the Kwando WMA.

Previously documented resource utilisation specific to each area is presented in Appendices 1 - 7.

4.2.1 Hunting

All hunting, even subsistence hunting, is bound by the Wildlife Conservation and National Parks Act and must be carried out with a valid license issued by the DWNP. Subsistence hunting can only be undertaken with a Special Game License. The issuing of such licenses in the CHA will in future be decided by DWNP based on wildlife quotas determined for the CHA and based on the species set aside for Special Game Licenses. Other citizen hunting is governed by the issue of single game licenses, the numbers of which are based on quotas.

4.2.2 Fishing

Currently no legislation exists controlling the off-take of fish from Botswana's waters. The following is a list of the more commonly eaten fish, but it is by no means complete.

Table 4.1 Some fish resources

SCIENTIFIC	ENGLISH	SETSWANA
Cichlidae spp.	Bream	Tlhapi
Clarias spp.	Barbel	Thone
Hepstetus odoe	Pike	-
Hydrocynus forskahlii	Tigerfish	Ngweshe
Schilbe mystus	Butter catfish	-

4.2.3 Plant Resources

This is a preliminary list of documented plant utilisation at subsistence level. It is far from exhaustive. It indicates that the resources are drawn from a broad cross-section of vegetation types, and that types of use of these resources are equally broad.

There is little information relating to many veld products used by BaSarwa.

Table 4.2 Some plant resources

SCIENTIFIC	ENGLISH	SETSWANA	USE
-	Thatching grass	Mokamakama	building
Acacia erioloba	Camelthorn	Mogotlho	building, firewood
Acacia erubescens	Black thorn	Moloto	firewood, fencing, gum
Acacia hebeclada	Candle-pod acacia	Setshi	fencing, gum
Acacia karroo	Sweet thorn	Mooka	building, firewood, medicinal, tannin
Acacia luederitzii	Bastard umbrella thorn	Mokwelekwele	firewood, fencing
Acacia tortilis	Umbrella thorn	Mosbu	firewood, utensils
Adansonia digitata	Baobab	Moana	food, medicinal
Albizia anthelmintica	Worm-cure albizia	Monoga	medicinal
Albizia versicolor	Poison-pod albizia	Mosindangoma	mekoro, soap
Artemisia afra	Wild wormwood	Lengana	food (tea)
Baikiaea plurijuga	Rhodesian teak	Mokusi	timber, mekoro
Bauhinia petersiana	White bauhinia	Mokoshi	food (edible pods)
Bauhinia thonningii	Camel's foot	Monukunuku	food (edible pods)
Berchemia discolor	Bird plum	Motsintsila	food, dyes
Boophone disticha	lily	-	poison
Boscia albitrunca	Shepherd's tree	Motlhopi	medicinal, utensils
Burkea africana	Wild syringa	Mosheshe	building, medicinal, crafts
Colophospermum mopane	Mopane	Mophane	firewood, building, crafts
Combretum hereroense	Russet bush-willow	Mokabi	firewood
Combretum imberbe	Leadwood	Motswiri	building, firewood
Combretum massambicense	Knobby combretum	Motsheketsane	building
Commiphora africana	Poison-grub commiphora	-	host for *Diamphidia* insects
Croton megalobotrys	Fever berry	Motsebi	poison, medicinal, utensils
Cyperus articulatus	Sedge	-	crafts
Cyperus papyrus	Papyrus	Koma	food, crafts
Dialium engleranum	Kalahari pod berry	-	food
Dalbergia melanoxylon	Zebrawood	-	crafts, medicinal
Dichapetalum cymosum	Poisonleaf	Mogau	poison, food
Dichrostachys cinerea	Sickle bush	Moselesele	fencing, medicinal
Diospyros lycioides	Red star-apple	Letlhajwa	food, toothbrush
Diospyros mespiliformis	African ebony	Mokutshumo	food, mekoro
Elephantorrhiza elephantina	Eland's bean	Mositsane	tanning
Euclea divinorum	Magic guarri	Motlhakola	food, dyes
Euphorbia tirucalli	-	-	poison
Ficus sycomorus	Sycamore fig	Motshaba	food, mekoro, crafts
Garcinia livingstonei	African mangosteen	Motsaudi	food,
Gardenia spatulifolia	Gardenia	Morala	crafts, medicinal
Gloriosa superba	Flame lily	-	medicinal
Grewia bicolor	False brandy-bush	Mogwana	food
Grewia flava	Brandy-bush	Moretlwa	food
Grewia flavescens	Rough-leaved raisin berry	Mokgompatha	food, utensils
Guibourtia coleosperma	False mopane	Tsaodi	food, utensils
Harpagophytum procumbens	Grapple plant	Sengaparile	medicinal
Hibiscus spp.	-	-	utensils
Hyphaene petersiana	Real fan palm	Mokolwane	crafts, food
Indigofera spp.	-	-	dyes
Kigelia africana	Sausage tree	Moporota	mekoro, building, medicinal
Lonchocarpus capassa	Rain tree	Mopororo	mekoro, crafts, medicinal
Miscanthus junceus	-	Moxaa	building
Nymphaea caerula	Water lily	Tswii	food
Nymphaea lotus	Water lily	Tswii	food
Parinari curatellifolia	Mobola plum	Mobola	food
Peltophorum africanum	Weeping wattle	Mosetlha	medicinal, crafts
Phoenix reclinata	Wild date palm	Tsaro	food, crafts
Phragmites australis	Reeds	Letlhaka	building
Pluchea leubnitziae	Wild sage	Mokudiane	medicinal
Pterocarpus angolensis	Mukwa	Mukwa	timber, mekoro, crafts
Rhus tenuinervis	Kalahari taaibos	Morupaphiri	food, tanning
Ricinodendron rautanenii	Mankettti tree	Mongongo	food
Sanseviera scabrifolia	"Sisal" plant	Mosokelatsabeng	crafts, utensils
Sclerocarya birrea	Morula	Morula	food, mekoro
Sesbania sesban	River bean	-	medicinal
Solanum panduraeforme	-	-	poison
Swartzia madagascariensis		-	poison
Terminalia prunioides	Purple-pod terminalia	Motshiara	building, firewood
Terminalia sericea	Silver-leaf terminalia	Mogonono	utensils, building, medicinal, dues
Typha capensis	Bulrush	Tshita	food
Vangueria infausta	False medlar	Mmilo	food
Ximenia americana	Small sourplum	Moruthologa	food
Ximenia caffra	Large sourplum	Moruthologawakgomo	food
Ziziphus mucronata	Buffalo thorn	Mokgalo	utensils, medicinal

4.2.4 Insect Resources

Some of the insects used for food and poisons are listed below.

Table 4.3 Some insect resources

SCIENTIFIC	ENGLISH	SETSWANA	IMPORTANCE
Apis mellifera	African honey bee	Dinotse	Food - honey
Cirina forda	Acacia worm	-	Food
Diamphidia simplex	Flea beetle larvae	-	Arrow poison
Gonimbrasia belina	Mopane worm	Phane	Food
Macrotoma natala	Longhorn beetle larvae	Mabungu	Food
Polyclada sp.	Flea beetle larvae	-	Arrow poison
Trigona sp.	Mopane bee	Thobo	Food - honey

4.2.5 Discussion

The information presented here is incomplete. Time constraints and the terms of reference of this study preclude its expansion. Continual updating is, however, considered vital to a fuller understanding of traditional natural resource utilisation. A more intensive literature search will undoubtedly add considerably to these lists. However, it should be noted that such documentation cannot define the full range and timing of the use of the resources. Because the ecosystems supporting the resource base are extremely dynamic, the availability, productivity and value of the resources is constantly changing.

Research is required to fill gaps in knowledge about all facets of traditional natural resource use in the WMAs.

5 POTENTIAL CONFLICT ISSUES

Under the lease conditions, different types of resource use in the same CHA will continue. As all BaTswana have the right to customary use of the resources, there is the potential for competition between residents of the delta area (with historical claim to resource rights) and people from outside. Under present conditions, this is likely to be limited to conflict between for example, people from Maun and residents of Tlhokatsebe. Since this is not controlled by legislation, this form of competition can seriously threaten the livelihood of the residents and the resource base, too. The other areas of potential conflict are between the lessee, the public, the Land Board, and DWNP. Most of the potential for conflict arises from the possible effects of the presence of numbers of people collecting various building materials (thatch, reeds, timber) on the aesthetic wilderness quality that the lessee is marketing. This conflict could be resolved with little difficulty by establishing agreements between users and lessee concerning timing and areas of use. This will require clear lines of communication.

The issues of potential conflict outlined below are indicative of the short term effects of these different forms of land use. They do not address the long term management and sustainable use issues, which are also considered very important, but are discussed separately in Chapter 5. They are also given to provide some idea of the kinds of disputes which may arise; they are not intended as a definitive list.

5.1 Competition for Plant Resources

In addition to the possibility of competition over resources between traditional users, there is also the potential for direct competition between lessee and traditional users, particularly over building materials, and especially in the early establishment phases of the camps and lodges in the CHAs.

The issue of sustainable utilisation of resources is important. While it is the lessee's responsibility to maintain the renewability of the leasehold's resources, he must still allow for traditional use of these resources. Should the lessee decide that a resource is being over-extended, he may feel the need to have traditional offtakes limited. While legal mechanisms exist for the verification of such a need, and for the imposition of such limits, the potential for conflict is high.

5.2 Fire

Potential for conflict between the lessee and traditional users may arise from the occurrence of fires in the CHAs. Fire control becomes part of the responsibilities of the lessee; traditional burning in the delta constitutes a high proportion of all fires. The lessee will feel bound to try and prevent these fires. Although traditional burning is in fact a contravention of the

Herbage Preservation Act, users are likely to see the lessee as the source of limitation of this activity.

5.3 Conflict between Artisanal and Recreational Fishing

This conflict has already been noted in other parts of the Okavango (SMEC, 1989). Recreational fishing is a small but (to some operators) important part of the tourism spectrum of activities. The extent of artisanal fishing is outlined in Chapter 5. In the long term, artisanal offtake levels are unlikely to become a threat to the fish resource due to constraints such as storage and transport. Careful zoning of areas suitable for net or trap fishing and others for recreational fishing is a simple first step towards avoiding conflict. A survey of the sustainability of this resource was done by NORAD to investigate the possibility of setting quotas (in press).

5.4 Hunting

There is a high potential for conflict between citizen and subsistence hunting and the lessee's safari hunting and photo-tourism operations. This is on two different levels:

- Disturbance - The wildlife resource is affected by hunting pressure, with effects on both hunter success rates and the habituation of the wildlife to viewers.

- Population management and productivity - The ability of the lessee to manage the wildlife resource (which he is required to do under the lease) may be complicated by the lack of feedback from SGL offtakes, and the necessity to manage the actual hunting. Conflicts may also occur between him and DWNP, who has the authority (but not necessarily the capacity) to enforce the laws.

There is also the potential for resentment arising from perceptions of the effects of trophy hunting on the resource. Further conflict may arise from patrolling activities undertaken by the lessee. There is also high potential for resentment over the control of citizen hunting by the lessee, and over the payment of "market-related" costs for this hunting. Further problems may occur if these costs are not uniform from one area/lessee to another.

5.5 Access and Transit

Potential conflicts may arise between the lessee and people in transit as a result of either impact of the transit traffic on the wilderness quality of the area, or through illegal offtake monitoring on the part of the lessee.

6 SUMMARY AND RECOMMENDATIONS

The findings of this report are derived only from previously documented data concerning the use of natural resources in the areas specified. The report is not intended to be a definitive record of resource use nor of localities of use.

Natural resources in the Okavango and Kwando WMAs have been and are traditionally used by people living in and around the areas. The location of resource use varies due to relatively rapid changes in hydrology, human settlement and tsetse fly distribution. Changes in the areas suitable for natural resources use will continue.

The traditional rights to the use of natural resources within the 7 multiple use commercial CHAs are protected under customary law (and the Tribal Land Act) and in terms of the lease. The rights to commercial use for tourism and related activities of the resources are granted to the lessee subject to the conditions of the lease.

There are potential areas of conflict between these two forms of resource use. Most of these, however, can be preempted by establishing agreements and regular communication between the two user groups. Conflicts relating to plant resource use are likely to occur where harvesting threatens the prescribed land use and natural resource base. This is expected to occur as the scale of traditional use is replaced by larger scale commercial offtake of resources. Conflict between artisan fishing and sport fishing is expected to increase as both industries grow. The lessee is responsible for fire control; friction may result where this curbs traditional veld burning. The most severe and immediate conflict will probably relate to citizen hunting as the onus for management has been shifted to the lessee. Access by people outside of the lessee's tourism operations is also a possible source of conflict.

There are also potential problems concerning the management of the resources. The legislation for this aspect, and the responsibilities of the lessee and lessor are clear. However, there are no hard data on the biological productivity of the resource; the point at which offtake becomes unsustainable is not known.

Although some of the institutions needed for the management of use do exist, the capacity of these institutions is limited by size, experience and funding. Current levels of communication between the private sector and the various local and central government agencies concerned are insufficient to allow rapid responses to critical management issues.

6.1 Institutional Requirements

Most of the potential conflicts can be prevented simply by improving the level of communications. It is clear that the bulk of the administrative burden will fall on the Land Board as lessor, arbitrator and representative of the people's interests. In order to reduce misunderstanding and to address disputes the following institutional aspects are recommended:

- Formation of a WMA Management Committee with the permanent position of a WMA Coordinator (as recommended by van der Heiden, 1990). This committee should be answerable directly to Land Board, and should comprise the following members: WMA Coordinator as Secretary, TLB Secretary, DWNP representative, DoT representative, DLUPU representative, and lessees (whose attendance should be obligatory). Duties should include:

  i. Monitoring of activities within the lease areas through regular field trips.

  ii. Resolution of disputes and conflicts relating to traditional rights and utilisation.

  iii. Provision of open lines of communication between communities and Land Board and between Land Board and the Lessee.

  iv. Coordination of activities with the Agricultural Resources Conservation Committee.

- The WMA coordinator should be answerable directly to the TLB Secretary, and be able to make day-to-day management decisions for the smooth running of the leasehold system. Most of the enabling legislation exists in the framework of the TLA. If regulation becomes necessary, and the Agricultural Resources Conservation Act needs to be used to assist TLB in the resource management of the WMAs, it will be necessary to strengthen the technical capacity of the Agricultural Resources Conservation Committee in Maun.

6.2 Changes to the Lease Agreement

The "Wildlife Management Lease" document as it stands has already been subjected to several revisions in an attempt to protect the rights of all persons who may be affected by the leasehold. It is not possible to predict all the potential problems with the leasehold system; some of these are only likely to emerge once the system has been in place for a while. For this reason the lease carries a clause allowing for review after 5 years. The suggestions for changes listed below could be considered at that stage:

- Because some WMAs overlap with some CHAs (as is the case in Ngamiland), Clause 2.1 should be rephrased to specify whether "communities within the Management Area" refers to communities in the management lease area, ie. the CHA, or to the communities in the WMA.

- It is unclear whether Clause 2.3 excludes citizen hunting; it is suggested that "reasons not associated with commercial tourism or hunting or game capturing" be amended to "reasons not associated with commercial tourism or commercial hunting or game capturing", assuming that is the intent of this clause.

- Clause 7.9 also requires updating in terms of the TLA amendment. It should reflect that section 26 of the TLA has been deleted from the Act by TL (Amendment) Act 14 of 1993. In terms of the new section 38 which replaces Section 26, the Land Board's consent is not required if the rights are transferred in respect of land which has been developed to the satisfaction of the Land Board, or if the land is being sold in execution to a citizen of Botswana (Land Board must be notified, however).

Perhaps the most important aspect is that legal mechanisms for ensuring preferential rights to locally resident people be investigated and instituted.

Clearly, if good communications and working relationships are established between lessor and lessee, there is the possibility of instituting changes to the lease agreement before the five-year review period occurs.

6.3 Hunting

BaTswana, particularly in Ngamiland, have always assumed the right to hunt, unlike citizens of most neighbouring countries. Increased pressure on declining wildlife resources means this right can no longer be taken for granted. As the use of resources must be restricted and prioritised, poor residents of remote areas with few other economic opportunities (who currently have least control over access to wildlife) should be the principal beneficiaries of its use.

- The bulk of the citizen hunting quotas, including economically valuable species, should be reserved for WMA residents and subsistence hunters from resident and neighbouring communities.
- If Special Game Licenses are to remain in use, provisions should be made to allow subsistence hunters to sell animals from their SGL quotas to lessees on the same terms as other citizen hunters can sell Single Game Licenses.
- Monitoring of SGL success rates is needed to ascertain offtake.
- Guidelines should be drafted to standardise the charges levied for single game licenses by the lessee.

6.4 Liaison between Resource Users

Clear and regular communication between Land Board, Lessee and Communities is essential especially during the initial implementation of the lease agreements. The CHA boundaries are not based on ecological divisions; ecological units are larger than the CHAs, and sound resource management must take account of this fact. The following institutional structures are suggested to facilitate this communication, and to assist in cooperative management of ecological units, which are not coincident with the boundaries of the CHAs.

All conflicts or complaints *must* be directed to Land Board; there should not be direct confrontation between resource users, as this will lead to increased resentment.

Apart from the formation of the WMA Management Committee, the appointment of an executive officer and the strengthening of the Agricultural Resources Conservation Committee, the Lessees should be advised to act together, forming a *Joint Management Committee* within each WMA and to elect a representative to sit on each of the statutory bodies.

DoT, in connection with the National Conservation Strategy Agency, should lobby for official recognition of "Wilderness Appeal" as a national resource which can be protected in terms of the National Conservation Act.

6.5 Research and Monitoring Requirements

The data compilation exercise carried out for this report has shown that very little information on natural resource utilisation exists. This report should be seen as a preliminary database only.

Socio-economic research into natural resource use has largely been limited to specific products. Most notable are studies on the basket-making industry (Terry:1986,1987, Cunningham *et al*:1982), the mekoro industry (Ecosurv: 1988) and on the District's CFDA and CSDA (Bendsen *et al*:1987, Utrecht University:1993).

While such studies have addressed the importance of particular resources in the lives of people living in the delta, there is very little information on the extent to which natural resources contribute to the economies of these people. For a clear understanding of traditional use of natural resources, detailed data must be collected. In particular, information pertaining to types of resource and their use, location and levels of harvesting activities, and the extent that people's livelihoods are dependent on resource utilisation is required.

While a comparatively large amount of information exists on what *kinds* of resources are used, very little is known about current rates of resource use, except where legislation provides for some feedback from the user (hunting license returns). Even in this case, the quantity and quality of the feedback is insufficient to allow even rudimentary conclusions about the state of the resource to be drawn. The wildlife resource is monitored by DWNP aerial surveys on an annual basis, but at a low intensity of coverage. This results in high margins of error, and also means that cryptic animals (eg, leopard bushbuck and kudu) are generally under-counted.

A semi-formal commercial market in many of the plant resources exists already, but little is known about volumes, rates of turnover, and economic values. There is also little direct documentation of the productivity of any of the major plant resources in the WMAs.

The following research programmes are seen as necessary to appropriate management of the resources. These should, if possible, be instituted by the appropriate authority (primarily Land Board). Most research is short-term and can be done through the University of Botswana or by bringing in outside expertise. Preliminary socio-economic data collection could be set up through schools and wildlife clubs. The monitoring programmes should be based on the findings of the research and structured so that they can be done within the constraints of local capacity (even if interpretation of the results still requires short term expert inputs). It is considered very important that local capacity building for management be initiated as soon as possible. The suggestions below are identified requirements, and closer definition of aims and objectives for these gaps is needed.

6.5.1 Resource Baselines

An improved level of understanding of the resource base is required. This can be achieved through improved monitoring by the lessee and detailed mapping of vegetation at 1:50 000 scale.

6.5.2 Resource Dynamics

An understanding of all important resource dynamics is needed to ascertain the levels of sustainable offtake of resources. Research programmes aimed at ascertaining these levels and determining limits to acceptable change (LAC) are essential.

6.5.3 Conflicts in Land Use

Conflict in land use objectives will usually occur before the maximum sustainable levels of offtake are reached for most resources. In the multiple use CHAs it is critical to ascertain at what level of natural resource use the primary land use activity is impinged upon.

6.5.4 Socio-economic Data Baselines

A socio-economic baseline is required for the WMA and surroundings to ascertain:

- how extensive current levels of natural resource utilisation are,
- the levels at which subsistence use of natural resources becomes commercial,
- to identify the contribution that traditional natural resources make to the average household economy.

The baseline should be structured to allow easy monitoring.

6.5.5 Zoning

As part of his management plan, the lessee could consider establishing resource zones which are related to traditional use. This would require consulting users of these resources. For example, to avoid conflict between artisanal fishing and sport fishing, it may be necessary to identify all areas important for fishing and zone these areas for different types of fishing equipment.

6.5.6 Monitoring of Resource Use

"The main weakness in Botswana's system of development and conservation planning is its limited implementation and monitoring capacity, its variety of implementing and monitoring agents and lack of coordination between them." (van der Heiden, 1992).

Resource monitoring
DWNP should recommend a structured system of monitoring natural resources and resource use in the CHAs. The monitoring should be carried out by the lessee and presented to DWNP on a certain date and in a prescribed format. This would be used for management decision making. Prescribed monitoring should be included in the lease agreement at first revision and the financial implications made clear to the lessee prior to financial tenders being made.

- Wildlife populations and movements: monitoring of these is essential to management.

- Veld products such as letlhaka should be monitored using aerial photography to check that Limits to Acceptable Change are not exceeded. Where appropriate, other monitoring programmes should be instituted.

Socio-economic monitoring
A programme should be designed to monitor potential changes in levels of use and levels of dependence, and to user feedback on the state of the resource.

6.6 Conclusions

The resource base should not be seen as existing only in terms of the divisions imposed on it by the boundaries of the CHAs. More accurate and useful data will be obtained from research and monitoring carried out at the scale of the WMA, rather than the CHA. By removing the issues relating to traditional resource utilisation from the level of individual CHAs, the potential for resentment over resource control can be reduced.

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	1987	*Mokola palm experimentation and extension activities in Ngamiland CFDA, Botswana.* Botswanacraft.
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1976 The peopling of the Okavango Delta, in Campbell, A. *et al* (eds) *Symposium on the Okavango Delta.* Botswana Society, Botswana.

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UNDP/FAO 1977 *Investigation of the Okavango Delta as a primary water resource for Botswana.* DP/BOT/71/506, Technical Report.

Utrecht University 1993 *Socio-economic Baseline Survey and Land Suitability Analysis in Ngamiland CSDA(ep), Final Report.* For DLUPU, GoB.

van der Heiden 1990 *Land Use Plan Okavango and Kwando WMAs.* DLUPU - Ngamiland District, GoB.

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Relevant Laws of Botswana

Agricultural Resources Conservation Act
Fauna Conservation (Amendment) Act (Cap 38:01 - unrepealed amendments and schedules)
Forest Act (Cap 38:04)
Herbage Preservation (Control of Fires) Act (Cap 38:04)
Natural Resources Protection (Model) Bye-laws (SI No. 30, 1992, Local Government (District Councils) Act)
State Land Act (Cap 32:01)
Tourism Act 22 of 1992
Tribal Land Act (Cap 32:02) and 1993 amendments
Unified Hunting Regulations (Statutory Instrument No. 19)
Water Act (Cap 34:05)
Wildlife Conservation and National Parks Act 28 of 1992

APPENDICES

Appendix 1: Controlled Hunting Area NG/14

NG/14

1 HISTORY OF SETTLEMENT

The HaMbukushu appear to have restricted their settlement in the 1700's to the north of the Kwando Valley. They tended to overlap with the BaYei who had settled along the Selinda, with their new centre close to Zibadianja. Disputes arose over use of the areas and a peg was posted in the ground to separate BaYei from HaMbukushu territory. Oral traditions place this peg at or near Horseshoe Bend, but more recent attempts to locate it have failed. When the people were evacuated from the area in the 1940's in response to the spread of tsetse fly, many HaMbukushu chose to return to the Caprivi Strip. There are still social ties across the border.

The presence of the BaSarwa in northern Botswana dates back at least 10 000 years. References to the village of Movombe approximate to its present location have been made since the beginning of this century. The "Hinterland San" referred to by Campbell as living along the northern Kwando in the 1950's (Campbell, 1976) are probably part of this group.

2 PRESENT POPULATION

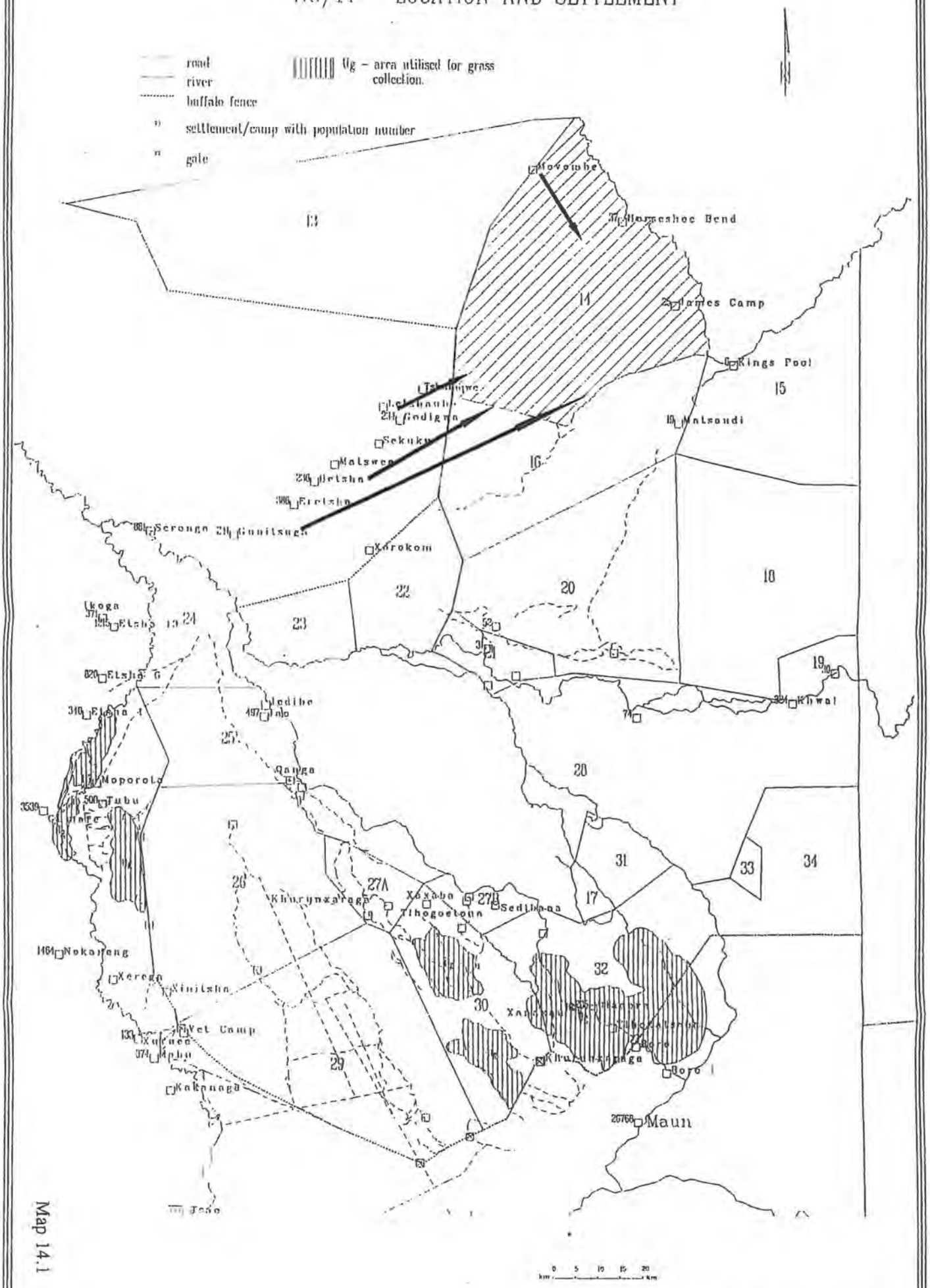
The village of Movombe appears to be relatively mobile, having shifted within a small range a few times. It is not clear whether it is currently within the boundaries of NG/14, but it is not unlikely that people enter the area for extended periods, or that the village itself may be reestablished on one of its previous sites.

Other people living in or using the area are government employees (DWA aquatic vegetation unit, BDF anti-poaching units) or associated with tourism activities.

Linkages
Caprivians who used to enter the area are probably now deterred by the presence of anti-poaching patrols. People living at Godigwa, Beetsa, and possibly Gunitsuga use the area for subsistence hunting and gathering. Since most subsistence use will come from these villages to the south-west, this would be the best place to set aside for citizen hunting while keeping wilderness or protected zones further to north-east.

It is clear from historical sources that this area has been settled and its resources used well into this century. However, much of the information is based on oral traditions, and accuracy with regard to dates and localities is low. The positions of communities most likely to use this area are shown on Map 14.1.

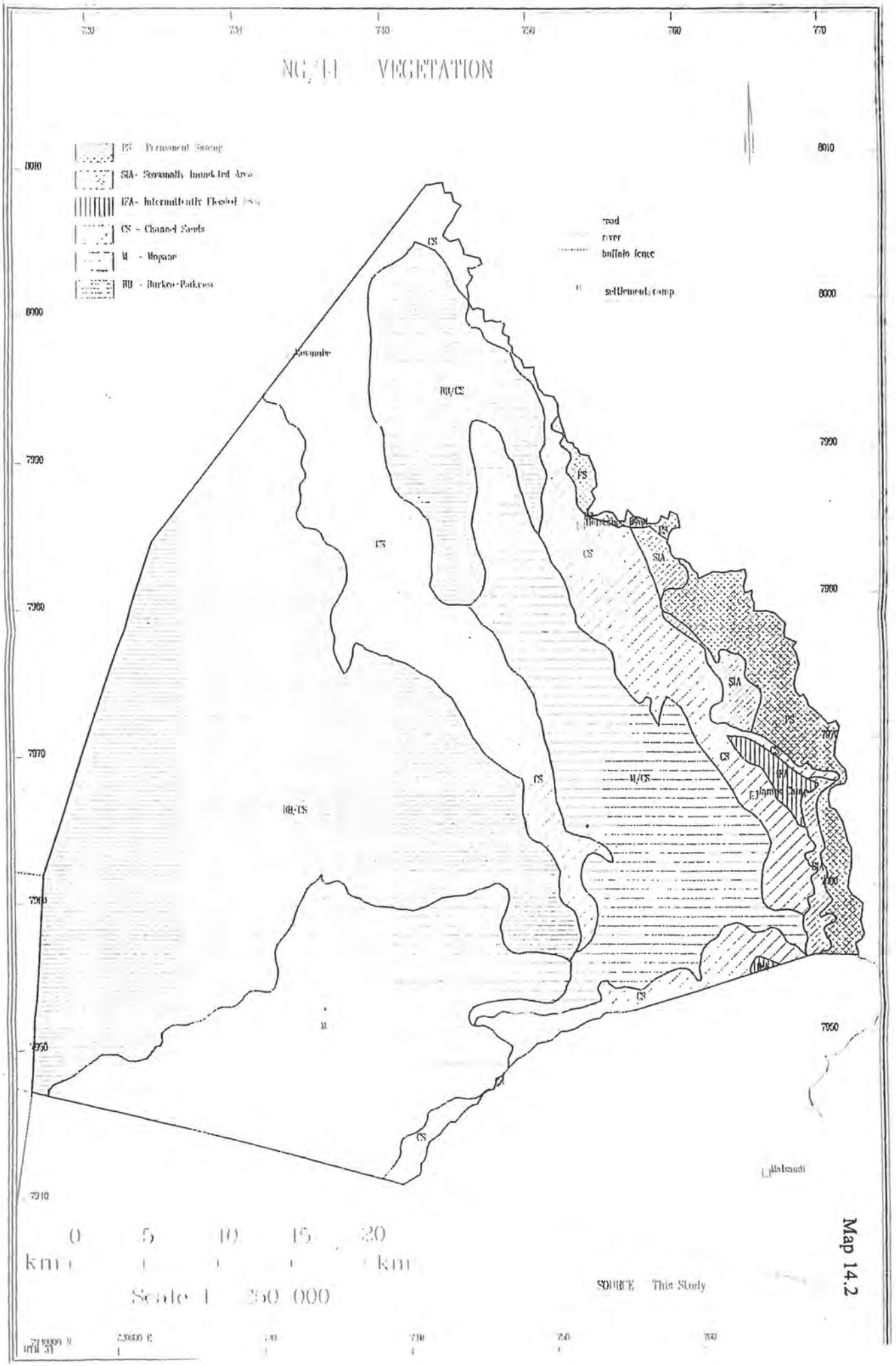
NG/14 - LOCATION AND SETTLEMENT



Map 14.1

Utilisation zones are only shown where previously mapped.

SOURCE: Ecological Zoning Okavango Delta, SMEC 1989
This Study


NG/H VEGETATION
PS - Permanent Swamp
SIA- Seasonally Inundated Area
FA- Intermittently Flooded Area
CS - Channel Seeds
M - Mopane
BB - Burkea-Baikiea
road
river
buffalo fence
settlement/camp
Kwando
Mahsudi
0 5 10 15 20
km
Scale 1 250 000
SOURCE This Study

Map 14.2

3 DOCUMENTED AGRICULTURAL USE

No arable farming was recorded for NG/14.

At a kgotla meeting in Beetsa in early 1994, the former San headman of Movombe told an informant that he had re-established his cattle post near Movombe, and in so doing was reclaiming a right from the period before all people were moved out due to tsetse fly - a right remembered for 50 years (Smith [1], *pers comm*).

4 DOCUMENTED RESOURCE BASE

The vegetation associations of NG/14 are shown in Map 14.2. The total area is 2247 km^2. This map is derived from a variety of sources; associations used by the Ecological Zoning project were used for areas prone to flooding. The mapping was done mainly from Landsat imagery and soil map interpretation. The associations found range from Mosheshe woodlands (on deep sands) to permanently flooded areas on the Kwando river system. Detailed species lists for these associations can be found in SMEC (1989), KGS (1991), and Deloitte & Touche (1992). The proportions of the various vegetation types are given in Table 14.1 below. The approximate areas of riverine woodland occurring in areas prone to flooding are given because this habitat type is a very important source of veld products, but is too small to map properly. The factor used to calculate areas is 7% (Ecosurv, 1988). This is a general figure for mixed permanent and seasonal swamp. Table 14.2 shows the distribution of species between vegetation associations.

Table 14.1 Vegetation Associations, NG/14

Association	Area (km^2)	Approx area of Riverine Woodland (km^2)	Proportion (%)
Burkea Baikiaea/Channel Sands (BB/CS)	982.20	-	43.71
Channel Sands (CS)	451.64	-	20.10
Intermittently Flooded Areas (IFA)	12.28	0.9	0.55
Mopane Savanna (M)	351.85	-	15.66
Mopane Savanna/Channel Sands (M/CS)	317.22	-	14.12
Perennial Swamp (PS)	94.76	6.9	4.22
Seasonally Inundated Areas (SIA)	37.38	2.7	1.66

[1] P. Smith is the resource specialist working on the Management Plan for the Community Wildlife Utilisation CHAs.

Table 14.2 Previously documented resource species in relation to habitats

RESOURCE	VEGETATION TYPE					
Acacia erioloba	-	-	-	-	CS	-
Acacia hebeclada	-	-	IFA	-	-	-
Baikiaea plurijuga	-	-	-	-	-	BB
Bauhinia petersiana	-	-	-	-	CS	BB
Bauhinia thonningii	-	-	-	-	-	BB
Boophone disticha (lily)	-	-	IFA	-	-	-
Burkea africana	-	-	-	-	-	BB
Colophospermum mopane	-	-	-	M	-	-
Combretum hereroense	PS	SIA	IFA	-	-	-
Combretum imberbe	PS	SIA	IFA	-	-	-
Combretum mossambicense	PS	SIA	IFA	-	-	-
Croton megalobotrys	PS	SIA	IFA	-	-	-
Cyperus articulatus	PS	SIA	IFA	-	-	-
Dialium engleranum	-	-	-	-	-	BB
Dichapetalum cymosum	-	-	-	-	-	BB
Dichrostachys cinerea	PS	SIA	IFA	M	CS	BB
Diospyros lycioides	PS	SIA	IFA	-	-	-
Diospyros mespiliformis	PS	SIA	-	-	-	-
Euclea divinorum	PS	SIA	-	-	-	-
Garcinia livingstonei	PS	SIA	-	-	-	-
Grewia flavescens	PS	SIA	IFA	-	-	-
Harpagophytum procumbens	-	-	-	-	-	BB
Kigelia africana	PS	SIA	-	-	-	-
Lonchocarpus capassa	PS	SIA	IFA	-	-	-
Miscanthus junceus	PS	SIA	-	-	-	-
Peltophorum africanum	-	SIA	IFA	-	-	-
Pterocarpus angolensis	-	-	-	-	-	BB
Rhus tenuinervis	-	SIA	IFA	-	-	-
Ricinodendron rautanenii	-	-	-	-	-	BB
Sclerocarya birrea	PS	SIA	IFA	-	-	-
Solanum panduraeforme	PS	SIA	IFA	-	-	-
Swartzia madagascariensis	PS	SIA	-	-	CS	-
Terminalia sericea	-	-	-	-	CS	-
Vangueria infausta	-	-	-	-	CS	BB
Ximenia americana	PS	SIA	IFA	-	-	BB
Ximenia caffra	PS	SIA	IFA	-	-	-
Ziziphus mucronata	PS	SIA	IFA	-	-	-

5 DOCUMENTED NATURAL RESOURCE USE

No records of commercial use of natural resources were found in this area. Records of subsistence use are shown in the tables below.

TABLE 14.3 Documented use of Plant Resources in NG/14

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Acacia erioloba	building, firewood	P	Beetsa, Gunitsuga	All year	1983	Taylor/Moss 1983
Acacia hebeclada	building	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Baikiaea plurijuga	timber, mekoro	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Bauhinia petersiana	food	P	Beetsa, Gunitsuga	Jul-Sept	1982	Taylor/Moss 1983
Bauhinia thonningii	food	P	Beetsa, Gunitsuga	Jun-Sept	1982	Taylor/Moss 1983
Boophone disticha	poison	A	Hinterland San	Nov-Dec	1950's	Campbell 1976
Burkea africana	build,medi,crafts	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Colophospermum mopane	building, firewood	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Combretum hereroense	utensils, firewood	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Combretum imberbe	building, firewood	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Combretum mossambicense	building	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Croton megaloboirys	utensils, medic	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Cyperus articulatus	crafts	A	Hinterland San	All year	1950's	Campbell 1976
Dialium engleranum	food	P	Beetsa,Guni,Godig	Jul-Oct	1977	KC Palgrave 1977
Dichapetalum cymosum	poison	A	Hinterland San	Aug-Oct	1950's	Campbell 1976
Dichrostachys cinerea	firewood, medic	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Diospyros lycioides	food	P	Beetsa, Gunitsuga	Jan-May	1982	Taylor/Moss 1983
Diospyros mespiliformis	food	P	Beetsa, Gunitsuga	Apr-Sept	1982	Taylor/Moss 1983
Euclea divinorum	food, dyes	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Garcinia livingstonei	food	P	Gunitsuga	Nov-Dec	1982	Taylor/Moss 1983
Grewia flavescens	food, utensils	P	Gunitsuga	All year	1982	Taylor/Moss 1983
Harpagophytum procumbens	medicinal	P	Beetsa, Gunitsuga	Mar-Apr	1982	Taylor/Moss 1983
Kigelia africana	mekoro,build,med	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Lonchocarpus capassa	mekoro,craft,med	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Miscanthus junceus	crafts	A	Hinterland San	All year	1950's	Campbell 1976
Peltophorum africanum	medicinal, craft	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Pterocarpus angolensis	mekoro,build,craf	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Rhus tenuinervis	food, tannin	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Ricinodendron rautanenii	food	A	Hinterland San	Feb-Oct	1950's	Campbell 1976
Sclerocarya birrea	food	P	Gunitsuga	Feb-Jun	1982	Taylor/Moss 1983
Solanum panduraeforme	poison	A	Hinterland San	Feb-May	1950's	Campbell 1976
Swartzia madagascariensis	poison	A	Hinterland San	Mar-Aug	1950's	Campbell 1976
Terminalia sericea	utensils, dyes	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Vangueria infausta	food	P	Gunitsuga	Jan-Apr	1982	Taylor/Moss 1983
Ximenia americana	food	P	Beetsa, Gunitsuga	Dec-Feb	1982	Taylor/Moss 1983
Ximenia caffra	food	P	Beetsa	Fruiting	1982	Taylor/Moss 1983
Ziziphus mucronata	medicinal	P	Beetsa	All year	1982	Taylor/Moss 1983

Other plant resources recorded as used in the Okavango and Kwando WMAs and which may occur in NG/14 are listed in Chapter 4. The reader is also referred to Cole (in press).

TABLE 14.4 Documented use of other resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Bird hunting	food	A	Hinterland San	All year	1950's	Campbell 1976
Cirina forda	food	A	Hinterland San	? ?	1950's	Campbell 1976
Fishing	food	A	H San, Kwando	All year	1950	Campbell 1976
Fishing	food	P	BaYei	All year	early 18C	Larson 1989
Game hunting	food	A	Godigwa	Season	1993	Utrecht Uni 1993
Game hunting	food	A	Hinterland San	All year	1950	Campbell 1976
Game hunting	food	A	Hinterland San	All year	1950's	Campbell 1976
Game hunting	food	P	BaYei	All year	early 18C	Larson 1989
Gonimbrasia belina	food	A	Hinterland San	Nov-Mar	1950's	Campbell 1976
Honey	food	A	Hinterland San	All year	1950's	Campbell 1976
Insects	poison	A	Hinterland San	All year	1950's	Campbell 1976
Livestock	grazing	P	BaYei	All year	early 18C	Larson 1989
Settlement	habitation	A	Hinterland San	All year	1950	Campbell 1976
Settlement	habitation	A	BaYei	All year	early 18C	Larson 1989

Note: for both tables A = Use actually occurring in NG/14
P = Use probably occurring in NG/14

Appendix 2: Controlled Hunting Area NG/15

NG/15

1 HISTORY OF SETTLEMENT

During the 1700's, BaYei settled along the Linyanti and Kwando Rivers to avoid oppression by the BaLozi. Habitation probably fluctuated in response to the presence of tsetse fly. Stigand's 1925 map records 2 villages, Simati's and Lefase's, just north-east of NG/15. In 1941/2, however, the Protectorate government moved all the inhabitants out of the area because of the expanding tsetse fly range.

2 PRESENT POPULATION

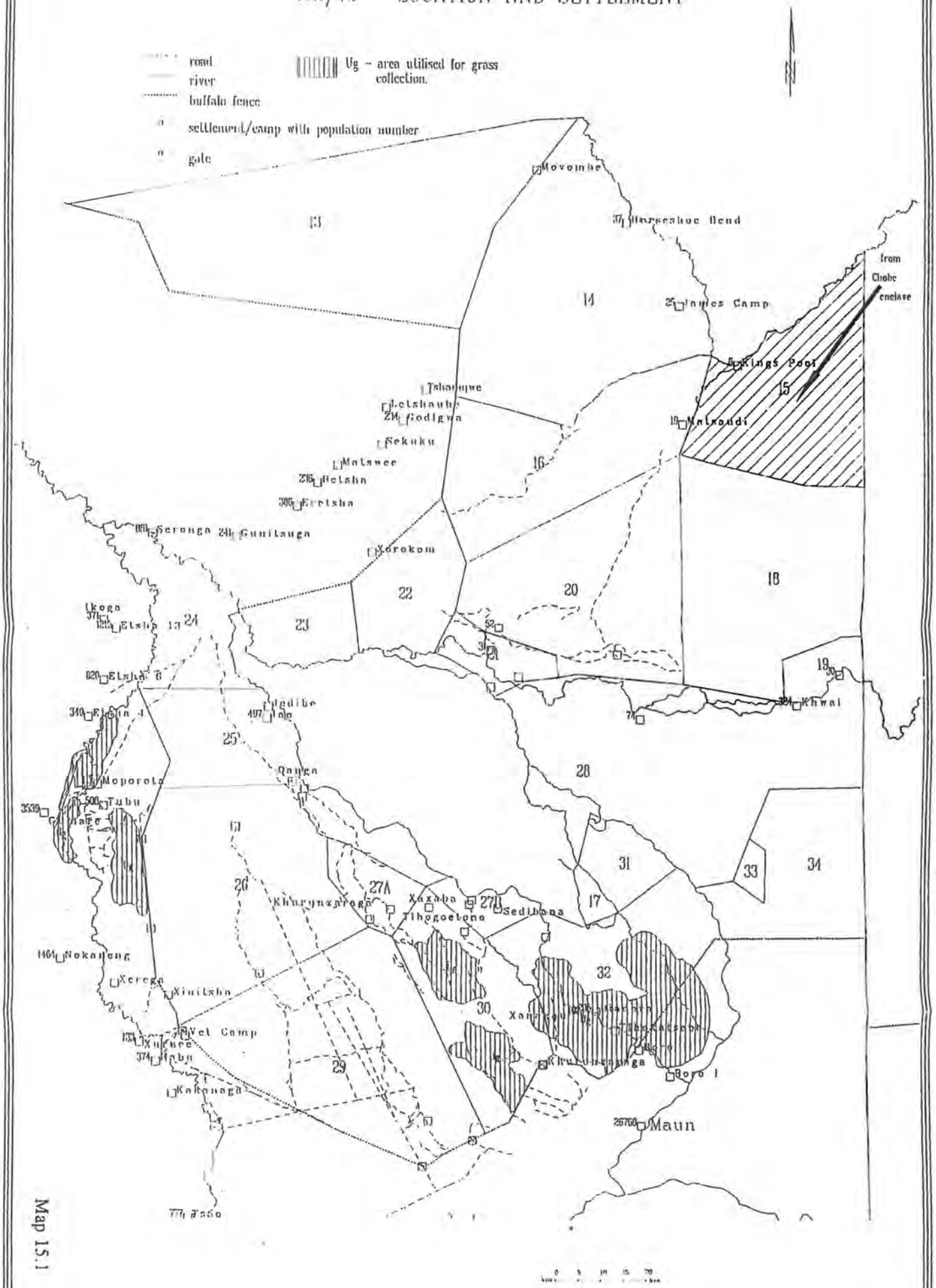
Aside from the tourism infrastructure, there is no present habitation recorded in NG/15.

Linkages
Main linkages to the area are with the Chobe Enclave. The villages closest, such as Katchikau, Satau and Parakurungu are the most likely source of resource users. These links are shown in Map 15.1.

3 DOCUMENTED AGRICULTURAL USE

There are no recent records of current arable or pastoral farming in NG/15.

NG/15 – LOCATION AND SETTLEMENT



Map 15.1

Utilisation zones are only shown where previously mapped.

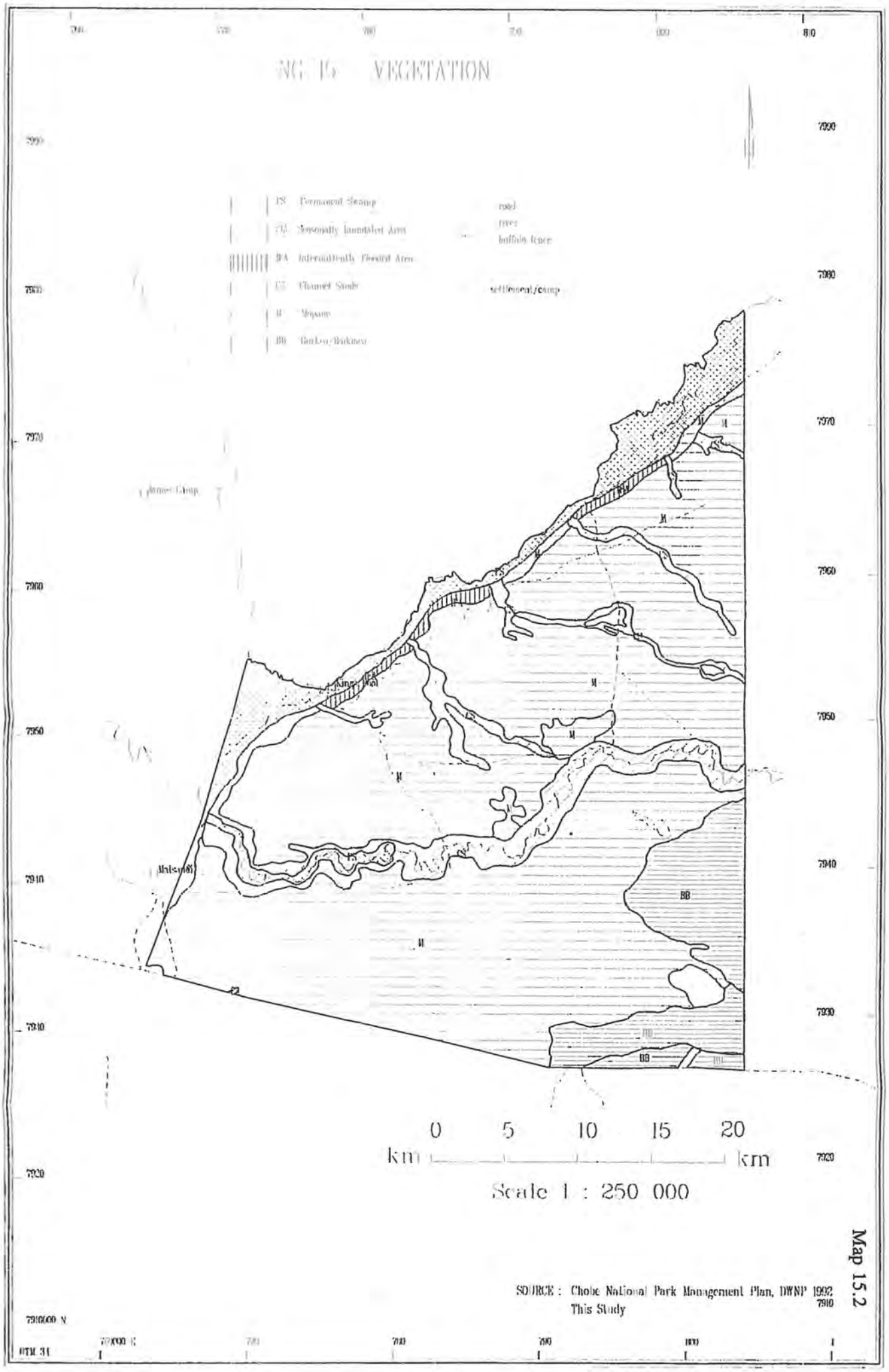
SOURCE Ecological Zoning Okavango Delta, SMEC 1989
This Study

4 DOCUMENTED RESOURCE BASE

The vegetation associations of NG/15 are shown in Map 15.2. The total area is 1223 km^2. This map is derived from a variety of sources; associations used by the Ecological Zoning project were used for areas prone to flooding. The mapping was done mainly from Landsat imagery and the Chobe National Park management plan. The associations found range from Mopane woodlands (on old alluvium) to permanently flooded areas on the Kwando river system. Detailed species lists for these associations can be found in SMEC (1989), KGS (1991), and Deloitte & Touche (1992). The proportions of the various vegetation types are given in Table 15.1 below. The approximate areas of riverine woodland occurring in areas prone to flooding are given because this habitat type is a very important source of veld products, but is too small to map properly. The factor used to calculate areas is 7% (Ecosurv, 1988). This is a general figure for mixed seasonal and permanent swamp. Table 15.2 shows the distribution of species between vegetation types.

Table 15.1 Vegetation Associations, NG/15

Association	Area (km^2)	Approx. area of riverine woodland	Proportion (%)
Burkea Baikiaea (BB)	112.44	-	9.19
Channel Sands (CS)	110.64	-	9.04
Intermittently Flooded Areas (IFA)	12.79	0.9	1.05
Mopane Savanna (M)	893.79	-	73.07
Permanent Swamp (PS)	93.59	6.6	7.65


NG 15 VEGETATION
PS Permanent Swamp
SA Seasonally Inundated Area
IFA Intermittently Flooded Area
CS Channel Scrub
M Mopane
BB Baikiaea/Bukinea
road
river
buffalo fence
settlement/camp
Kasane
Mabumbi
0 5 10 15 20
km km
Scale 1 : 250 000
SOURCE : Chobe National Park Management Plan, DWNP 1992
This Study
UTM 34

Map 15.2

Table 15.2 Previously documented resource species in relation to habitats

RESOURCE	VEGETATION TYPE			
Acacia erioloba	-	-	-	CS
Acacia hebeclada	-	IFA	-	-
Acacia erubescens/fleckii	-	-	-	CS
Acacia luederitzii	-	IFA	-	-
Acacia tortilis	-	IFA	M	-
Bauhinia petersiana	-	-	-	CS
Berchemia discolor	PS	-	-	-
Combretum hereroense	PS	IFA	-	-
Combretum imberbe	PS	IFA	-	-
Combretum mossambicense	PS	IFA	-	-
Croton megalobotrys	PS	IFA	-	-
Cyperus papyrus	PS	-	-	-
Dichrostachys cinerea	PS	IFA	M	CS
Diospyros lycioides	PS	IFA	-	-
Ficus sycomorus	PS	IFA	-	-
Garcinia livingstonei	PS	-	-	-
Gardenia spatulifolia	PS	IFA	-	-
Grewia flavescens	PS	IFA	-	-
Hyphaene petersiana	PS	IFA	-	-
Kigelia africana	PS	-	-	-
Lonchocarpus capassa	PS	IFA	-	-
Phoenix reclinata	PS	-	-	-
Pluchea leubnitziae	-	IFA	-	-
Rhus tenuinervis	-	IFA	-	-
Sclerocarya birrea	PS	IFA	-	-
Terminalia prunioides	-	IFA	-	-
Terminalia sericea	-	-	-	CS
Typha capensis	PS	-	-	-
Ximenia americana	PS	IFA	-	-
Ziziphus mucronata	-	-	-	-

5 DOCUMENTED NATURAL RESOURCE USE

Apart from the F.A.P. fishermen from the Enclave who were trucked in to Lake Zibadianja in 1987, no records of commercial resource use in NG/15 were found. Documented subsistence use is tabulated below.

TABLE 15.3 Documented use of plant resources in NG/15

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Acacia erioloba	building, firewood	P	Satau, Katchikau	All year	1983	Taylor/Moss 1983
Acacia erubescens/fleckii	building, firewood	P	Katchikau	All year	1982	Taylor/Moss 1983
Acacia hebeclada	building	P	Katchikau	All year	1983	Taylor/Moss 1983
Acacia luederitzii	building, firewood	P	Katchikau	All year	1982	Taylor/Moss 1983
Acacia tortilis	build,firewood,gum	P	Katchikau	All year	1982	Taylor/Moss 1983
Bauhinia petersiana	food	P	Katchikau	Jul-Sep	1982	Taylor/Moss 1983
Berchemia discolor	food, dyes	P	Katchikau	All year	1982	Taylor/Moss 1983
Combretum hereroense	utensils, firewood	P	Satau, Katchikau	All year	1982	Taylor/Moss 1983
Combretum imberbe	building, firewood	P	Katchikau	All year	1982	Taylor/Moss 1983
Combretum mossambicense	building	P	Satau, Katchikau	All year	1982	Taylor/Moss 1983
Croton megalobotrys	utensils, medic	P	Satau, Katchikau	All year	1982	Taylor/Moss 1983
Cyperus papyrus	food, crafts	P	Satau	All year	1982	Taylor/Moss 1983
Dichrostachys cinerea	firewood, medic	P	Satau, Katchikau	All year	1982	Taylor/Moss 1983
Diospyros lycioides	food	P	Satau, Katchikau	Jan-May	1982	Taylor/Moss 1983
Ficus sycomorus	food	P	Satau, Katchikau	Fruiting	1982	Taylor/Moss 1983
Garcinia livingstonei	food	P	Katchikau	Nov-Dec	1982	Taylor/Moss 1983
Gardenia spatulifolia	crafts, medicinal	P	Satau	All year	1982	Taylor/Moss 1983
Grewia flavescens	food, utensils	P	Katchikau	All year	1982	Taylor/Moss 1983
Hyphaene petersiana	crafts, food	P	Satau	All year	1982	Taylor/Moss 1983
Kigelia africana	mekoro,build,med	P	Satau, Katchikau	All year	1982	Taylor/Moss 1983
Lonchocarpus capassa	mekoro,craft,med	P	Satau, Katchikau	All year	1982	Taylor/Moss 1983
Phoenix reclinata	food	P	Satau, Katchikau	Feb-Apr	1982	Taylor/Moss 1983
Pluchea leubnitziae	medicinal	P	Satau	All year	1982	Taylor/Moss 1983
Rhus tenuinervis	food, tannin	P	Satau	All year	1982	Taylor/Moss 1983
Sclerocarya birrea	food	P	Satau, Katchikau	Feb-Jun	1982	Taylor/Moss 1983
Terminalia prunioides	utensils, firewood	P	Katchikau	All year	1982	Taylor/Moss 1983
Terminalia sericea	utensils, dyes	P	Satau, Katchikau	All year	1982	Taylor/Moss 1983
Typha capensis	food	P	Satau	All year	1982	Taylor/Moss 1983
Ximenia americana	food	P	Satau, Katchikau	Dec-Feb	1982	Taylor/Moss 1983
Ziziphus mucronata	medicinal	P	Satau, Katchikau	All year	1982	Taylor/Moss 1983

Other plant resources recorded as used in the Kwando and Okavango WMAs and which may occur in NG/15 are listed in Chapter 4. The reader is also referred to Cole (in press).

TABLE 15.4 Documented use of other resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Fishing	food	P	BaYei	All year	early 18C	Larson 1989
Game hunting	food	P	BaYei	All year	early 18C	Larson 1989
Livestock	grazing	P	BaYei	All year	early 18C	Larson 1989
Settlement	habitation	A	BaYei	All year	early 18C	Larson 1989

Note: for both tables A = Use actually occurring in NG/15
P = Use probably occurring in NG/15

Appendix 3: Controlled Hunting Area NG/16

NG/16

1 HISTORY OF SETTLEMENT

The Selinda spillway to the north-east was settled by BaYei who escaped from the Balozi in mid-1700's. They established their new capital close to Zibadianja, before moving down to the Okavango. After the rinderpest, tsetse fly disappeared south of the Kwando/Linyanti system, and cattle posts were established along the Selinda spillway. This area, too, was cleared of settlement in the early 1940's when tsetse fly again expanded its range.

2 PRESENT POPULATION

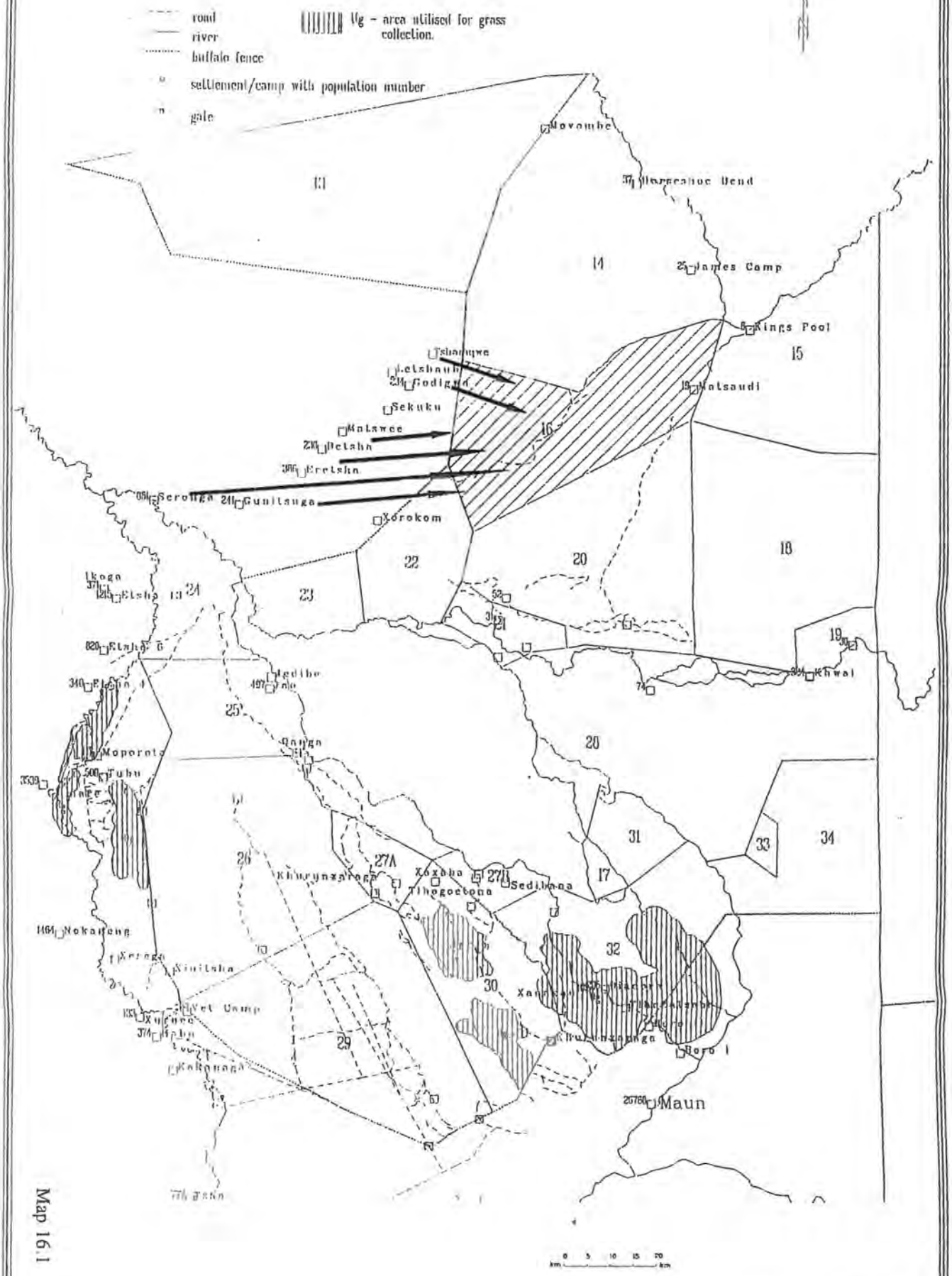
At present there are no settlements recorded in NG/16 apart from tourism infrastructure.

Linkages
As with NG/14, this area is used by the villages to the west: Godigwa, Beetsa, Eretsa and Gunitsuga. Citizen hunters from Maun as well as from the villages between Tshamqwe and Seronga hunted in this area under the old CHA system. Links are shown in Map 16.1.

3 DOCUMENTED AGRICULTURAL USE

No documentation regarding arable farming was found for NG/16. As noted above, people from Eretsa grazed their cattle in what is now NG/16 prior to the erection of the buffalo fence.

NG/16 – LOCATION AND SETTLEMENT



Map 16.1

Utilisation zones are only shown where previously mapped.

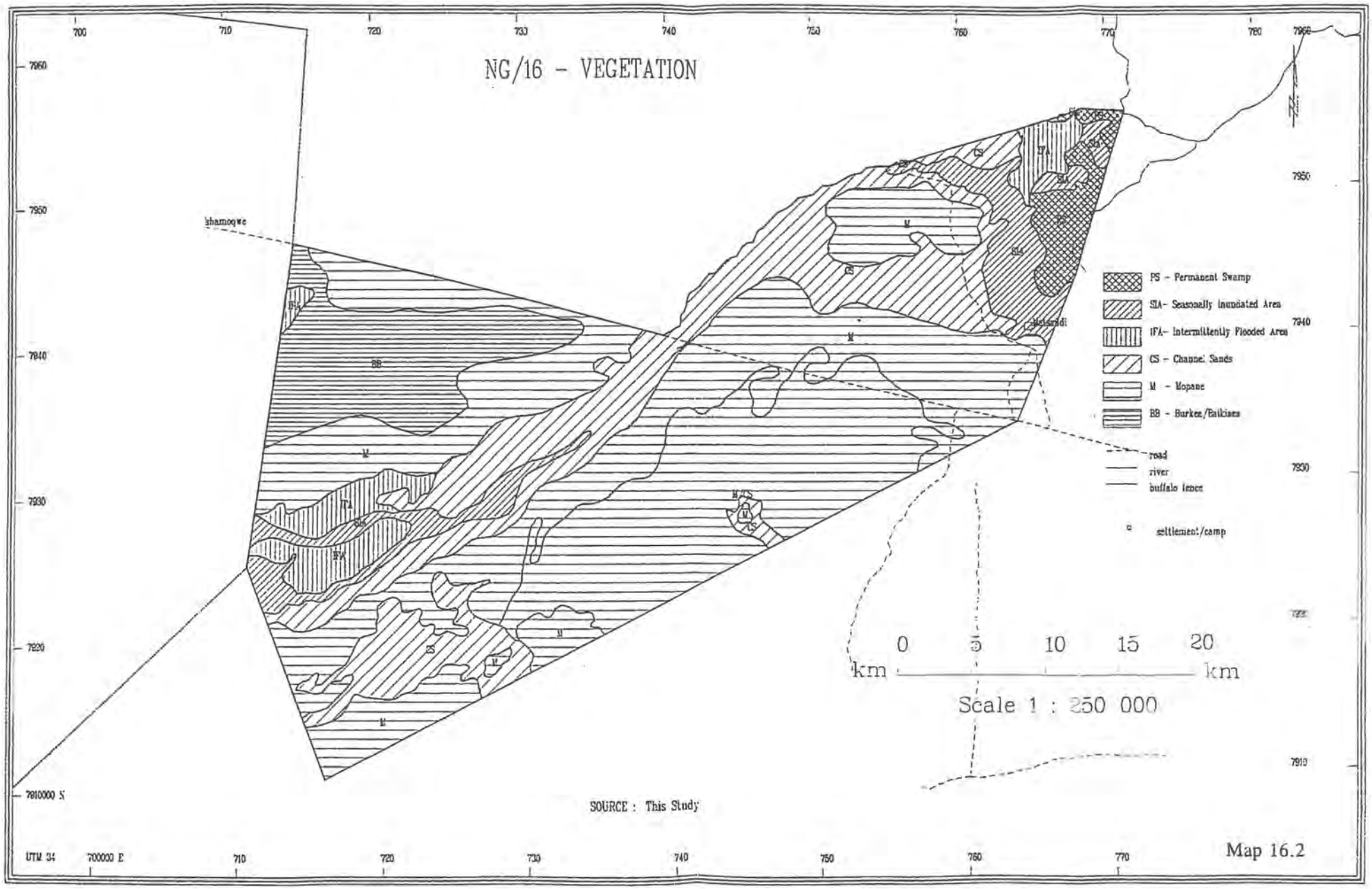
SOURCE : Ecological Zoning Okavango Delta, SMEC 1989
This Study

4 DOCUMENTED RESOURCE BASE

The vegetation associations of NG/16 are shown in Map 16.2. The total area is 1344 km^2. This map is derived from a variety of sources; associations used by the Ecological Zoning project were used for areas prone to flooding. The mapping was done mainly from Landsat imagery and soil maps. The associations found range from Mosheshe woodlands (on deep sands) to permanently flooded areas on the Kwando/Linyanti river system. Detailed species lists for these associations can be found in SMEC (1989), KGS (1991), and Deloitte & Touche (1992). The proportions of the various vegetation types are given in Table 16.1 below. The approximate areas of riverine woodland occurring in areas prone to flooding are given because this habitat type is a very important source of veld products, but is too small to map properly. The factor used to calculate areas is 7% (Ecosurv, 1988). This is a general figure for mixed permanent and seasonal swamp. Table 16.2 shows the distribution of species between vegetation associations.

Table 16.1 Vegetation Associations

Association	Area (km^2)	Approx. area of riverine woodland (km^2)	Proportion (%)
Burkea Baikiaea (BB)	132.28	-	9.84
Channel Sands (CS)	284.43	-	21.15
Infrequently Flooded Areas (IFA)	66.57	4.7	4.95
Mopane Savanna (M)	483.40	-	35.95
Mopane/Channel Sands (M/CS)	253.20	-	18.83
Permanent Swamp (PS)	32.17	2.2	2.39
Seasonally Inundated Areas (SIA)	92.69	6.5	6.89


NG/16 - VEGETATION
PS - Permanent Swamp
SIA- Seasonally Inundated Area
IFA- Intermittently Flooded Area
CS - Channel Sands
M - Mopane
BB - Burkea/Baikiaea
road
river
buffalo fence
settlement/camp
0 5 10 15 20
km km
Scale 1 : 250 000
Ishamogwe
Metsandi
SOURCE : This Study
UTM 34
700000 E
7810000 S

Map 16.2

Table 16.2 Previously documented resource species in relation to habitats

RESOURCE	VEGETATION TYPE					
Acacia erioloba	-	-	-	-	CS	-
Acacia erubescens/fleckii	-	-	-	-	CS	-
Acacia hebeclada	-	-	IFA	-	-	-
Baikiaea plurijuga	-	-	-	-	-	BB
Bauhinia petersiana	-	-	-	-	CS	BB
Bauhinia thonningii	-	-	-	-	-	BB
Boscia albitrunca	-	-	-	M	-	-
Burkea africana	-	-	-	-	-	BB
Colophospermum mopane	-	-	-	M	-	-
Combretum hereroense	PS	SIA	IFA	-	-	-
Combretum imberbe	PS	SIA	IFA	-	-	-
Combretum mossambicense	PS	SIA	IFA	-	-	-
Croton megalobotrys	PS	SIA	IFA	-	-	-
Dialium engleranum	-	-	-	-	-	BB
Dichrostachys cinerea	PS	SIA	IFA	M	CS	BB
Diospyros lycioides	PS	SIA	IFA	-	-	-
Diospyros mespiliformis	PS	SIA	-	-	-	-
Euclea divinorum	PS	SIA	-	-	-	-
Garcinia livingstonei	PS	SIA	-	-	-	-
Gardenia spatulifolia	PS	SIA	IFA	-	-	-
Grewia flava & bicolor	PS	SIA	IFA	-	CS	-
Grewia flavescens	PS	SIA	IFA	-	-	-
Guibourtia coleosperma	-	-	-	-	-	BB
Harpagophytum procumbens	-	-	-	-	-	BB
Kigelia africana	PS	SIA	-	-	-	-
Lonchocarpus capassa	PS	SIA	IFA	-	-	-
Peltophorum africanum	-	SIA	IFA	-	-	-
Pterocarpus angolensis	-	-	-	-	-	BB
Rhus tenuinervis	-	SIA	IFA	-	-	-
Sclerocarya birrea	PS	SIA	IFA	-	-	-
Terminalia sericea	-	-	-	-	CS	-
Vangueria infausta	-	-	-	-	CS	BB
Ximenia americana	PS	SIA	IFA	-	-	BB
Ximenia caffra	PS	SIA	IFA	-	-	-
Ziziphus mucronata	-	-	-	-	-	-

5 DOCUMENTED NATURAL RESOURCE USE

No records of commercial use of resources in this area were found. Documented subsistence utilisation is recorded in the tables below.

TABLE 16.3 Documented use of plant resources in NG/16

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Acacia erioloba	building, firewood	P	Beetsa, Gunitsuga	All year	1983	Taylor/Moss 1983
Acacia erubescens/fleckii	building, firewood	P	Gunitsuga	All year	1982	Taylor/Moss 1983
Acacia hebeclada	building	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Baikiaea plurijuga	timber, mekoro	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Bauhinia petersiana	food	P	Beetsa, Gunitsuga	Jul-Sep	1982	Taylor/Moss 1983
Bauhinia thonningii	food	P	Beetsa, Gunitsuga	Jun-Sep	1982	Taylor/Moss 1983
Boscia albitrunca	medi, utensils	P	Gunitsuga	All year	1982	Taylor/Moss 1983
Burkea africana	build,medi,crafts	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Colophospermum mopane	building, firewood	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Combretum hereroense	utensils, firewood	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Combretum imberbe	building, firewood	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Combretum mossambicense	building	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Croton megalobotrys	utensils, medic	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Dialium engleranum	food	A	Beetsa,Guni,God	Jul-Oct	1977	KC Palgrave 1977
Dichrostachys cinerea	firewood, medic	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Diospyros lycioides	food	P	Beetsa, Gunitsuga	Jan-May	1982	Taylor/Moss 1983
Diospyros mespiliformis	food	P	Beetsa, Gunitsuga	Apr-Sep	1982	Taylor/Moss 1983
Euclea divinorum	food, dyes	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Garcinia livingstonei	food	P	Gunitsuga	Nov-Dec	1982	Taylor/Moss 1983
Gardenia spatulifolia	crafts, medicin	P	Beetsa	All year	1982	Taylor/Moss 1983
Gathering	food, utensils	P	BuGakhwe	All year	Historic	Swedeplan 1989
Grewia flava & bicolor	food	P	Beetsa	Dec-Jun	1982	Taylor/Moss 1983
Grewia flavescens	food, utensils	P	Gunitsuga	All year	1982	Taylor/Moss 1983
Guibourtia coleosperma	food, utensils	P	Beetsa	All year	1982	Taylor/Moss 1983
Harpagophytum procumbens	medicinal	P	Beetsa, Gunitsuga	Mar-Apr	1982	Taylor/Moss 1983
Kigelia africana	mekoro,build,med	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Lonchocarpus capassa	mekoro,craft,med	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Peltophorum africanum	medicinal, craf	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Pterocarpus angolensis	mekoro,build,craf	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Rhus tenuinervis	food, tannin	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Sclerocarya birrea	food	P	Gunitsuga	Feb-Jun	1982	Taylor/Moss 1983
Terminalia sericea	utensils, dyes	P	Beetsa, Gunitsuga	All year	1982	Taylor/Moss 1983
Vangueria infausta	food	P	Gunitsuga	Jan-Apr	1982	Taylor/Moss 1983
Ximenia americana	food	P	Beetsa, Gunitsuga	Dec-Feb	1982	Taylor/Moss 1983
Ximenia caffra	food	P	Beetsa	Fruiting	1982	Taylor/Moss 1983
Ziziphus mucronata	medicinal	P	Beetsa	All year	1982	Taylor/Moss 1983

Other plant resources recorded as used in the Okavango and Kwando WMAs and which may occur in NG/16 are listed in Chapter 4. The reader is also referred to Cole (in press).

Table 16.4 Documented use of other resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Fishing	food	A	Beetsa, Godigwa	All year	Pre-buffalo fen	OCC (Draft) 1994
Fishing	food	P	BaQankwe	All year	Historic	Swedeplan 1989
Fishing	food	P	BaYei	All year	early 18c	Larson 1989
Game hunting	food	A	Maun	Season	1988	Ecozoning 1989
Game hunting	food	P	BaYei	All year	early 18C	Larson 1989
Game hunting	food	P	BaQankwe	All year	Historic	Swedeplan 1989
Game hunting	food	A	Tshamqwe-Seronga	Season	1988	Ecozoning 1989
Game hunting	food	A	Beetsa, Godigwa	Season	Pre-buffalo fen	OCC (Draft) 1994
Game hunting	food	A	Godigwa	Season	1993	Utrecht Uni 1993
Livestock	grazing	A	Eretsa, Gunitsuga	Dry	Pre-buffalo fen	OCC (Draft) 1994
Livestock	grazing	P	BaYei	All year	early 18C	Larson 1989
Settlement	habitation	A	San	All year	1968	Heinz 1986
Settlement	habitation	P	BaQankwe	All year	Historic	Swedeplan 1989
Settlement	habitation	A	BaYei	All year	early 18C	Larson 1989

Note: for both tables A = Use actually occurring in NG/16
P = Use probably occurring in NG/16

Appendix 4: Controlled Hunting Area NG/20

NG/20

1 HISTORY OF SETTLEMENT

When the BaYei moved down to the Delta in the mid-late 1700's, they found San people living along the waterways of the Delta. On Stigand's 1925 map Tlhogoeankwe's village is marked west of Gogoba, and thus within present-day NG/20. Campbell (1976) records River San living along the Moanatshira in the 1950's, and Heinz (1968) studied communities here in the late 1960's. Habitation spread as far south as Bodumatau, and when Moremi Game Reserve was formed in 1963, the settlements were relocated to the what is now Khwai village.

2 PRESENT POPULATION

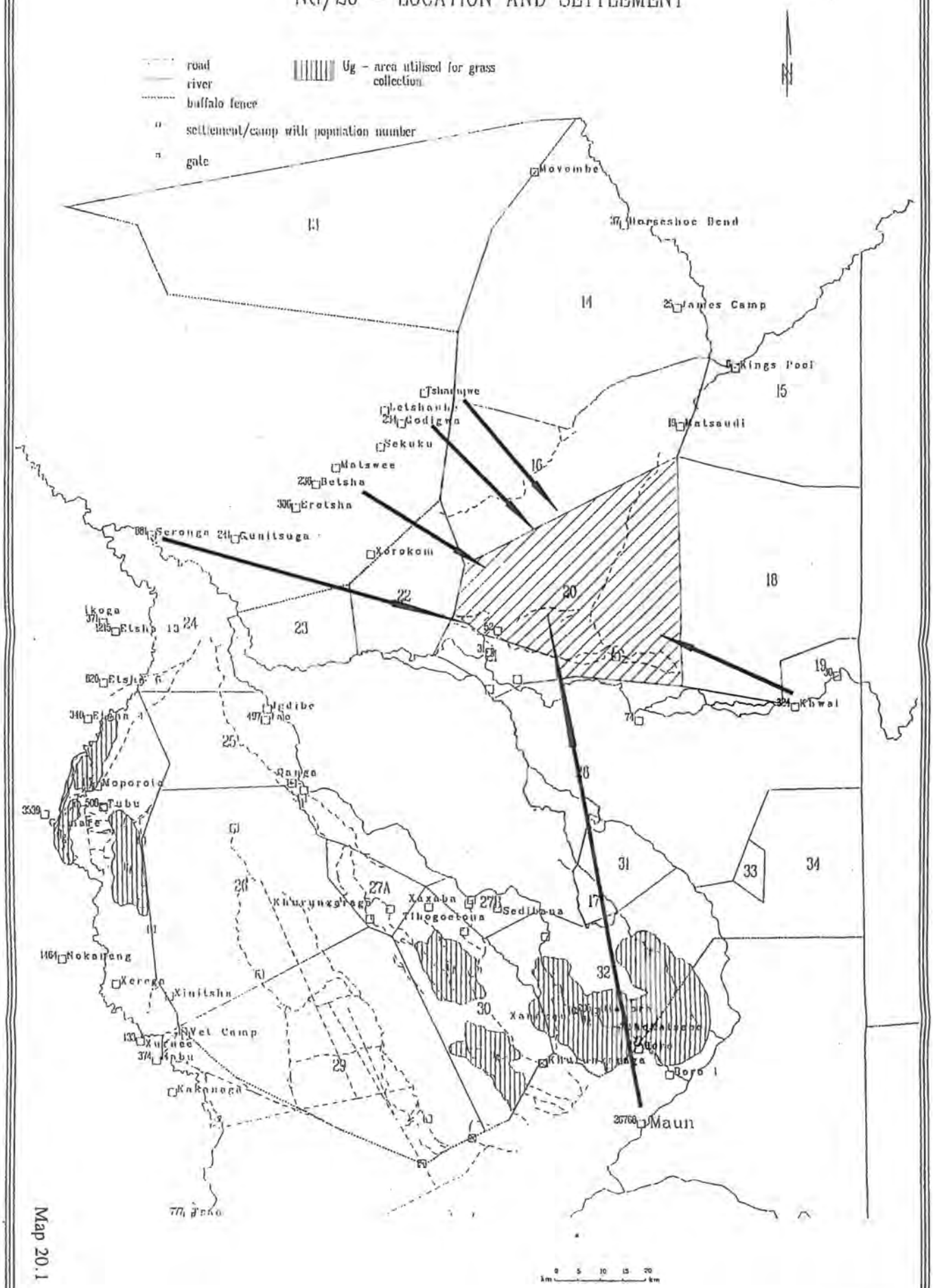
The only population present in the area is that associated with tourist related infrastructure.

Linkages
Khwai village, both historically and geographically has strong links with NG/20, particularly along the southern riverine fringe. Citizen hunters from Maun, as well as those from the villages between Tshamqwe and Seronga, hunted in this area as part of the original CHA 7. These links are shown on Map 20.1.

3 DOCUMENTED AGRICULTURAL USE

No recent arable or pastoral farming in NG/20 has been recorded.

NG/20 – LOCATION AND SETTLEMENT



Map 20.1

Utilisation zones are only shown where previously mapped.

SOURCE : Ecological Zoning Okavango Delta, SMEC 1989
This Study

4 DOCUMENTED RESOURCE BASE

The vegetation associations of NG/20 are shown in Map 20.2. The total area is 1264 km². This map is derived from a variety of sources; associations used by the Ecological Zoning project were used for areas prone to flooding. The mapping was done mainly from Landsat imagery and soil maps. The associations found range from Mopane savanna woodlands (on old alluvium) to permanently flooded areas on the Moanatshira/Khwai river system. Detailed species lists for these associations can be found in SMEC (1989), KGS (1991), and Deloitte & Touche (1992). The proportions of the various vegetation types are given in Table 20.1 below. The approximate areas of riverine woodland occurring in areas prone to flooding are given because this habitat type is a very important source of veld products, but is too small to map properly. The factor used to calculate areas is 7% (Ecosurv, 1988). This is a general figure for mixed permanent and seasonal swamp. Table 20.2 shows the distribution of species between vegetation associations.

Table 20.1 Vegetation Associations, NG/20

Association	Area (km²)	Approx. area of riverine woodland	Proportion (%)
Channel Sands (CS)	157.13	-	9.57
Intermittently Flooded Areas (IFA)	12.57	0.8	0.77
Intermittently Flooded Areas/Mopane Savanna (IFA/M)	0.95	-	0.06
Intermittently Flooded Areas/Mopane/ Channel Sands (IFA/M/CS)	7.22	-	0.44
Mopane Savanna (M)	299.12	-	18.21
Mopane Savanna/Channel Sands (M/CS)	966.59	-	58.85
Permanent Swamp (PS)	57.82	4.0	3.52
Seasonally Inundated Areas (SIA)	140.85	9.8	8.58

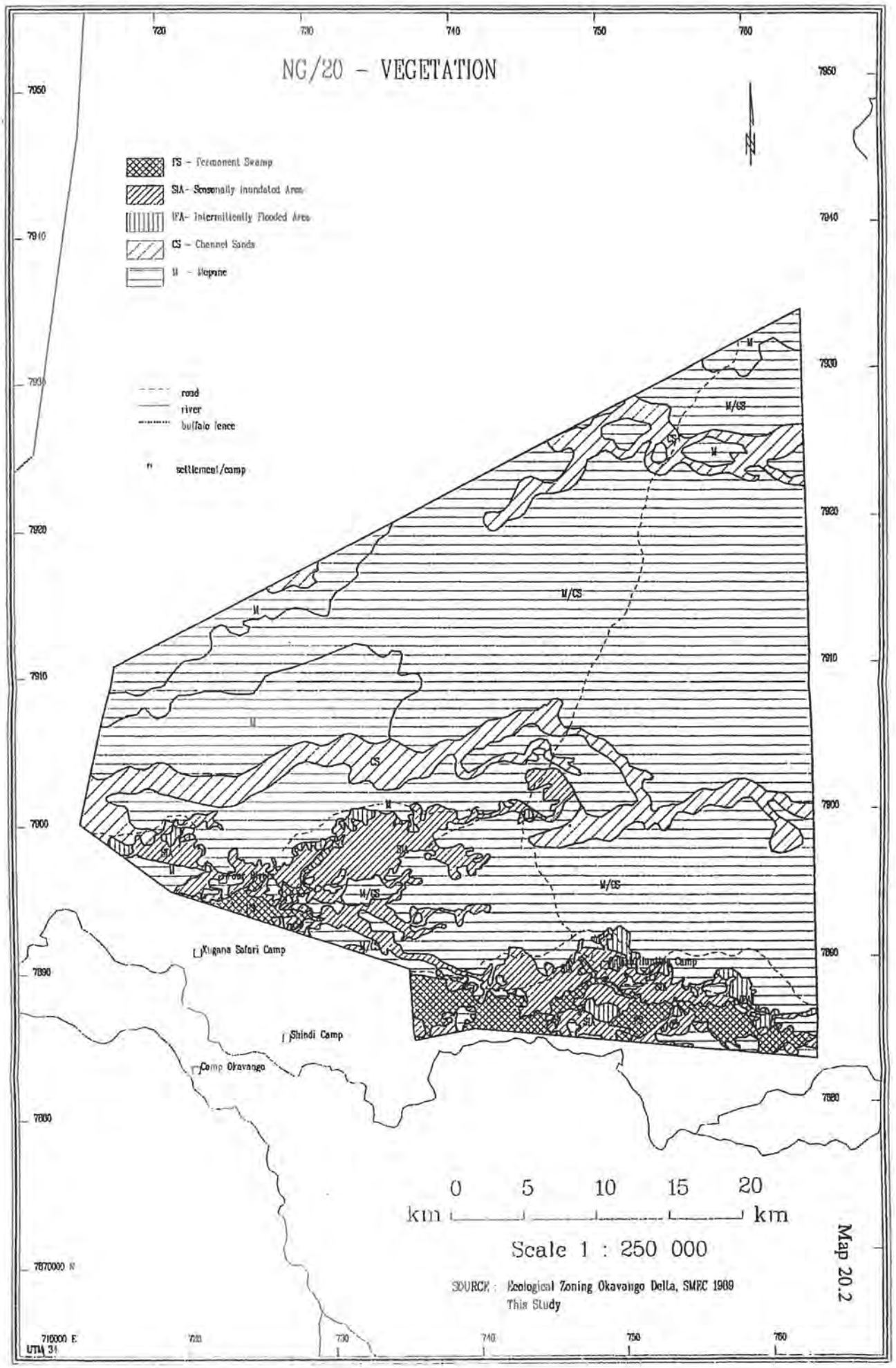

NG/20 - VEGETATION
PS - Permanent Swamp
SIA - Seasonally Inundated Area
IFA - Intermittently Flooded Area
CS - Channel Sands
M - Mopane
road
river
buffalo fence
settlement/camp
M/CS
Xugana Safari Camp
Shindi Camp
Camp Okavango
0 5 10 15 20
km km
Scale 1 : 250 000
SOURCE: Ecological Zoning Okavango Delta, SMEC 1989
This Study
Map 20.2

Table 20.2 Previously documented resource species in relation to habitats

RESOURCE	VEGETATION TYPE				
Acacia erioloba	-	-	-	-	CS
Acacia hebeclada	-	-	IFA	-	-
Acacia luederitzii	-	SIA	IFA	-	-
Acacia tortilis	-	SIA	IFA	M	-
Albizia versicolor	PS	-	-	-	-
Bauhinia petersiana	-	-	-	-	CS
Berchemia discolor	PS	SIA	-	-	-
Colophospermum mopane	-	-	-	M	-
Combretum hereroense	PS	SIA	IFA	-	-
Combretum imberbe	PS	SIA	IFA	-	-
Croton megalobotrys	PS	SIA	IFA	-	-
Cyperus articulatus	PS	SIA	IFA	-	-
Dichrostachys cinerea	PS	SIA	IFA	M	CS
Diospyros mespiliformis	PS	SIA	-	-	-
Euphorbia ingens	PS	SIA	-	-	-
Ficus sycomorus	PS	SIA	IFA	-	-
Gloriosa superba (flame lily)	PS	SIA	-	-	-
Grewia flava & bicolor	PS	SIA	IFA	-	CS
Grewia flavescens	PS	SIA	IFA	-	-
Kigelia africana	PS	SIA	-	-	-
Lonchocarpus capassa	PS	SIA	IFA	-	-
Miscanthus junceus	PS	SIA	-	-	-
Nymphaea caerula & lotus	PS	SIA	IFA	-	-
Phragmites australis	PS	SIA	-	-	-
Sclerocarya birrea	PS	SIA	IFA	-	-
Sesbania microphylloides	-	-	IFA	-	-
Terminalia sericea	-	-	-	-	CS
Ximenia americana	PS	SIA	IFA	-	-

5 DOCUMENTED NATURAL RESOURCE USE

No records of commercial utilisation of resources have been recorded for NG/20. Records of subsistence utilisation are tabulated below.

TABLE 20.3 Documented use of plant resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Acacia erioloba	building, firew	A	Khwai	All year	1983	Taylor/Moss 1983
Acacia hebeclada	building	P	Khwai	All year	1982	Taylor/Moss 1983
Acacia luederitzii	building, firew	P	Khwai	All year	1982	Taylor/Moss 1983
Acacia tortilis	build,firew,gum	P	Khwai	All year	1982	Taylor/Moss 1983
Albizia versicolor	soap	P	River San	All year	1950's	Campbell 1976
Bauhinia petersiana	food	P	Khwai	Jul-Sep	1982	Taylor/Moss 1983
Berchemia discolor	utensils	P	River San	All year	1950's	Campbell 1976
Colophospermum mopane	building, firew	P	Khwai	All year	1982	Taylor/Moss 1983
Combretum hereroense	utensils, firew	P	Khwai	All year	1982	Taylor/Moss 1983
Combretum imberbe	building, firew	P	Khwai	All year	1982	Taylor/Moss 1983
Croton megalobotrys	utensils, medic	P	Khwai	All year	1982	Taylor/Moss 1983
Cyperus articulatus	crafts	P	River San	All year	1950's	Campbell 1976
Dichrostachys cinerea	firewood, medic	P	Khwai	All year	1982	Taylor/Moss 1983
Diospyros mespiliformis	mekoro	P	River San	All year	1950's	Campbell 1976
Euphorbia ingens	poison	P	River San	All year	1950's	Campbell 1976
Ficus sycomorus	food	P	Khwai	Fruiting	1982	Taylor/Moss 1983
Gloriosa superba	medicinal	P	Khwai	Jan-Apr	1982	Taylor/Moss 1983
Grewia flava & bicolor	food	P	Khwai	Dec-Jun	1982	Taylor/Moss 1983
Grewia flavescens	food, utensils	P	Khwai	All year	1982	Taylor/Moss 1983
Kigelia africana	mekoro	P	River San	All year	1950's	Campbell 1976
Kigelia africana	mekoro,build,med	P	Khwai	All year	1982	Taylor/Moss 1983
Lonchocarpus capassa	mekoro	P	River San	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro,craft,med	P	Khwai	All year	1982	Taylor/Moss 1983
Miscanthus junceus	crafts	P	River San	All year	1950's	Campbell 1976
Nymphaea caerula & lotus	food	P	Khwai	All year	1982	Taylor/Moss 1983
Phragmites australis	building	P	River San	Aug-Nov	1950's	Campbell 1976
Sclerocarya birrea	medicinal	P	River San	All year	1950's	Campbell 1976
Sclerocarya birrea	food	P	Khwai	Feb-June	1982	Taylor/Moss 1983
Sesbania microphylloides	medicinal	P	Khwai	Jun-Dec	1982	Taylor/Moss 1983
Terminalia sericea	medicinal	P	River San	All year	1950's	Campbell 1976
Ximenia americana	food	P	Khwai	Dec-Feb	1982	Taylor/Moss 1983

Other plant resources recorded as used in the Okavango and Kwando WMAs and which may occur in NG/20 are listed in Chapter 4. The reader is also referred to Cole (in press).

Table 20.4 Documented use of other resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	WHEN	DATA SOURCE
Bird hunting	food	P	River San	All year	up to 1950's	Campbell 1976
Cirina forda	food	P	River San	? ?	up to 1950's	Campbell 1976
Fishing	food	A	River San	All year	1950	Campbell 1976
Fishing	food	P	River San	All year	up to 1950's	Campbell 1976
Fishing	food	P	BaYei	All year	early 18c	Larson, 1989
Fishing	food	A	River San	All year	1950	Campbell 1976
Game hunting	food	A	River San	All year	1950	Campbell 1976
Game hunting	food	A	Maun	Season	1988	Ecozoning 1989
Game hunting	food	A	Tshamqwe-Seronga	Season	1988	Ecozoning 1989
Game hunting	food	P	River San	All year	up to 1950's	Campbell 1976
Game hunting	food	P	BaYei	All year	early 18C	Larson, 1989
Gonimbrasia belina	food	P	River San	Nov-Mar	up to 1950's	Campbell 1976
Honey	food	P	River San	All year	up to 1950's	Campbell 1976
Livestock	grazing	P	Khwai	All year	1920's	Campbell 1976
Livestock	grazing	P	BaYei	All year	early 18C	Larson, 1989
Settlement	habitation	A	BaYei	All year	early 18C	Larson, 1989
Settlement	habitation	A	River San	All year	1950	Campbell 1976

Note: for both tables A = Use actually occurring in NG/20
P = Use probably occurring in NG/20

Appendix 5: Controlled Hunting Area NG/26

NG/26

1 HISTORY OF SETTLEMENT

Stigand's map (1925) shows a village called "Chichale's" probably in the area now known as Xenitshaa, which was inhabited in 1922. It also refers to Mokwati's village, inhabited in 1911, but removed by 1922. Cattle posts were probably fairly well spread throughout the area during the period after the rinderpest and before the return of the tsetse fly in the 1930's. In the late 1960's Heinz visited a community of BuGakhwe settled on some of the islands close to Xichera (Qanga).

2 PRESENT POPULATION

No settlements other than tourism infrastructure are recorded.

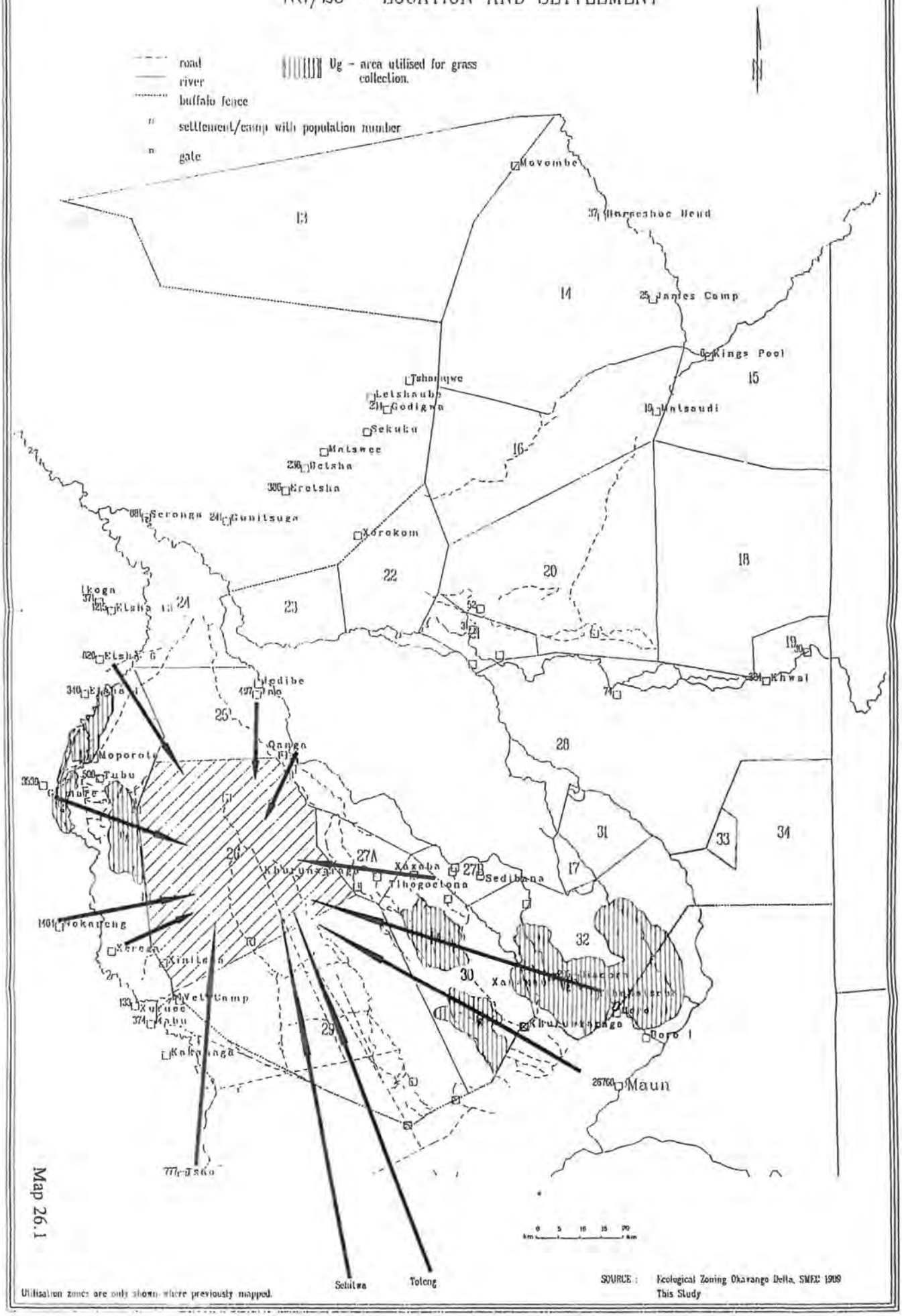
Linkages
NG/26 is important for access between the Jao and Jedibe settlements, and the communities and facilities west of the Thaoge (Etsha and Gumare). It is also important as a fall-back grazing area when conditions are very dry. People from Gumare and as far south as Xerega (near Nokaneng) have been known to trek their cattle round the top of the buffalo fence to graze. Collection of plant resources by people from Etsha, Gumare and Nokaneng occurs. Some small settlements existing along the middle area of the Boro make use of resources from the north-eastern side, as do F.A.P. fishermen operating in that area. Citizen hunting by people from Tsau, Sehitwa, Toteng and Maun takes place. These links are shown in Map 26.1.

3 DOCUMENTED AGRICULTURAL USE

Melapo farming along the Potae River within the buffalo fence was recorded in 1988 in the Ecozoning Report (1989).

Grazing of livestock by inhabitants of Habu, Nokaneng, Xerega and Gumare are documented for 1981 in the CFDA Report and for 1988 in Ecozoning Report. This use appears to have been limited to the dry season mainly under pressure from drought conditions.

NG/26 - LOCATION AND SETTLEMENT



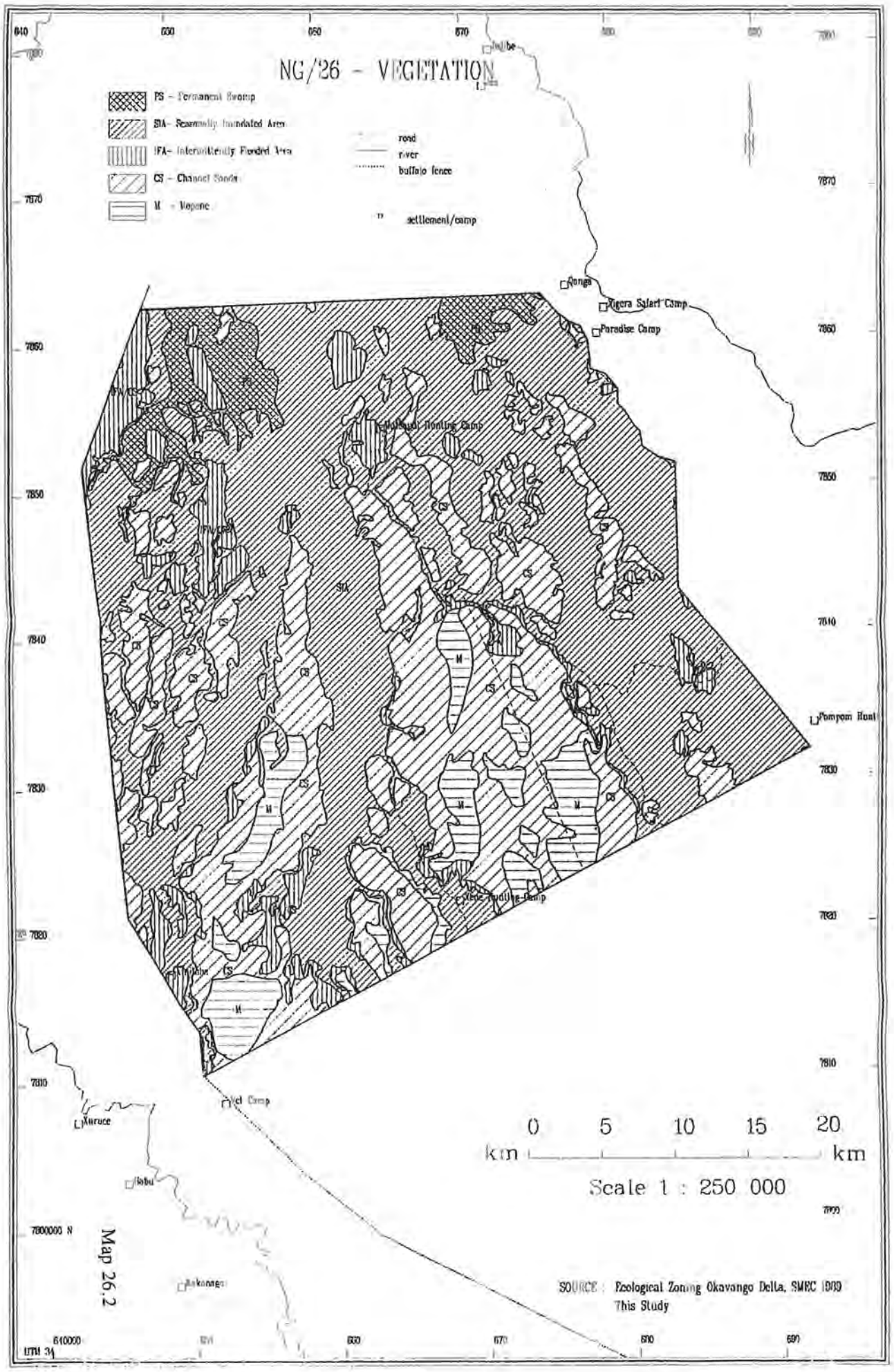
Map 26.1

4 DOCUMENTED RESOURCE BASE

The vegetation associations of NG/26 are shown in Map 26.2. The total area is 1735 km². This map is derived from a variety of sources; associations used by the Ecological Zoning project were used for areas prone to flooding. The mapping was done mainly from Landsat imagery and soil maps. The associations found range from Mopane woodlands (on old alluvium) to permanently flooded areas fed by overspill from the Jao river system. Detailed species lists for these associations can be found in SMEC (1989), KGS (1991), and Deloitte & Touche (1992). The proportions of the various vegetation types are given in Table 26.1 below. The approximate areas of riverine woodland occurring in areas prone to flooding are given because this habitat type is a very important source of veld products, but is too small to map properly. The factor used to calculate areas is 7% (Ecosurv, 1988). This is a general figure for mixed permanent and seasonal swamp. Table 26.2 shows the distribution of species between vegetation associations.

Table 26.1 Vegetation Associations, NG/26

Association	Area (km²)	Approx. area of riverine woodland	Proportion (%)
Channel Sands (CS)	506.42	-	29.18
Channel Sands/Intermittently Flooded Areas (CS/IFA)	10.57	-	0.61
Intermittently Flooded Areas (IFA)	30.19	2.1	1.74
Intermittently Flooded Areas/Channel Sands (IFA/CS)	105.94	-	6.10
Mopane Savanna (M)	126.04	-	7.26
Permanent Swamp (PS)	74.08	5.2	4.27
Seasonally Inundated Areas (SIA)	882.57	61.74	50.85


NG/26 - VEGETATION
PS - Permanent Swamp
SIA- Seasonally Inundated Area
IFA- Intermittently Flooded Area
CS - Channel Sands
M - Mopane
road
river
buffalo fence
settlement/camp
Tigera Safari Camp
Paradise Camp
Pompom Hunt
Xurace
Jabu
Jakonage
0 5 10 15 20
km km
Scale 1 : 250 000
SOURCE : Ecological Zoning Okavango Delta, SMEC 1989
This Study

Map 26.2

Table 26.2 Previously documented resource species in relation to habitats

RESOURCE	VEGETATION TYPE				
Acacia erioloba	-	-	-	-	CS
Acacia erubescens/fleckii	-	-	-	-	CS
Acacia hebeclada	-	-	IFA	-	-
Acacia karroo	PS	-	-	-	-
Acacia luederitzii	-	SIA	IFA	-	-
Acacia tortilis	-	SIA	IFA	M	-
Albizia versicolor	PS	-	-	-	-
Berchemia discolor	PS	SIA	-	-	-
Boscia albitrunca	-	-	-	M	-
Colophospermum mopane	-	-	-	M	-
Combretum hereroense	PS	SIA	IFA	-	-
Combretum imberbe	PS	SIA	IFA	-	-
Croton megalobotrys	PS	SIA	IFA	-	-
Cyperus articulatus	PS	SIA	IFA	-	-
Dichrostachys cinerea	PS	SIA	IFA	M	CS
Diospyros lycioides	PS	SIA	IFA	-	-
Diospyros mespiliformis	PS	SIA	-	-	-
Euclea divinorum	PS	SIA	-	-	-
Euphorbia ingens	PS	SIA	-	-	-
Ficus sycomorus	PS	SIA	IFA	-	-
Garcinia livingstonei	PS	SIA	-	-	-
Grewia flava & bicolor	PS	SIA	IFA	-	CS
Grewia flavescens	PS	SIA	IFA	-	-
Hibiscus spp.	PS	-	-	-	-
Hyphaene petersiana	PS	SIA	IFA	-	-
Indigofera spp.	PS	SIA	-	-	-
Kigelia africana	PS	SIA	-	-	-
Lonchocarpus capassa	PS	SIA	IFA	-	-
Miscanthus junceus	PS	SIA	-	-	-
Nymphaea caerula & lotus	PS	SIA	IFA	-	-
Peltophorum africanum	-	SIA	IFA	-	-
Phoenix reclinata	PS	SIA	-	-	-
Phragmites australis	PS	SIA	-	-	-
Pluchea leubnitziae	-	-	IFA	-	-
Rhus tenuinervis	-	SIA	IFA	-	-
Sanseviera scabrifolia	PS	-	-	-	-
Sclerocarya birrea	PS	SIA	IFA	-	-
Terminalia prunioides	-	SIA	IFA	-	-
Terminalia sericea	-	-	-	-	CS
Thatching grass	-	-	IFA	-	-
Ximenia americana	PS	SIA	IFA	-	-
Ziziphus mucronata	PS	SIA	IFA	-	-

5 DOCUMENTED NATURAL RESOURCE USE

Resources for the basket industry are becoming scarce close to main weaving centres of Etsha and Gumare. There are records (Taylor & Moss 1983, Bendsen & Gelmroth 1983, Ecozoning Report 1989) of collection of weaving and dye material by men purely for the purpose of re-sale to basket-makers. It is possible that some of this commercial collection takes place in NG/26. F.A.P fishermen operating along the middle Boro River enter into NG/26 (Fisheries 1994). Subsistence use is tabulated below.

TABLE 26.3 Documented use of plant resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	WHEN	DATA SOURCE
Acacia erioloba	building, firew	P	Tsau, Etsa, Gum	All year	1983	Taylor/Moss 1983
Acacia erubescens/fleckii	building, firew	P	Gum,Etsa,Nok,Tsau	All year	1982	Taylor/Moss 1983
Acacia hebeclada	building	P	Etsa, Gumare	All year	1982	Taylor/Moss 1983
Acacia karroo	build,firew,tan	P	Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Acacia luederitzii	building, firew	P	Etsa,Tsau,Nokan	All year	1982	Taylor/Moss 1983
Acacia tortilis	build,firew,gum	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Albizia versicolor	soap	P	BaYei	All year	up to 1950's	Campbell 1976
Berchemia discolor	dyes	A	Etsa	All year	1988	Ecozoning 1989
Berchemia discolor	utensils	P	BaYei	All year	up to 1950's	Campbell 1976
Boscia albitrunca	medi, utensils	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Colophospermum mopane	building, firew	P	Etsa	All year	1982	Taylor/Moss 1983
Combretum hereroense	utensils, firew	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Combretum imberbe	building, firew	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Croton megalobotrys	utensils, medic	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Croton megalobotrys	poison	P	BaYei	Dec-Jan	up to 1950's	Campbell 1976
Cyperus articulatus	crafts	P	BaYei	All year	up to 1950's	Campbell 1976
Dead trees	firewood	A	Gumare	All year	1981	H&H Bendsen 1983
Dichrostachys cinerea	firewood, medic	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Diospyros lycioides	food	P	Etsa,Gum,Nok,Tsau	Jan-May	1982	Taylor/Moss 1983
Diospyros mespiliformis	food,mekoro,ute	P	Etsa, Gumare	All year	1982	Taylor/Moss 1983
Diospyros mespiliformis	mekoro	P	BaYei	All year	up to 1950's	Campbell 1976
Euclea divinorum	food, dyes	P	Etsa, Gumare	All year	1982	Taylor/Moss 1983
Euclea divinorum	dyes	A	Etsa	All year	1988	Ecozoning 1989
Euphorbia ingens	poison	P	BaYei	All year	up to 1950's	Campbell 1976
Ficus sycomorus	food	P	Gumare, Tsau	Fruiting	1982	Taylor/Moss 1983
Garcinia livingstonei	food	P	Etsa,Gum,Nok,Tsau	Nov-Dec	1982	Taylor/Moss 1983
Gathering	food, utensils	P	BaNoka	All year	Historic	Swedeplan 1989
Gathering	food, utensils	P	BuGakhwe	All year	Historic	Swedeplan 1989
Grewia flava & bicolor	food	P	Etsa,Gum,Nok,Tsau	Dec-Jun	1982	Taylor/Moss 1983
Grewia flavescens	food, utensils	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Grewia spp.	utensils	P	BaYei	All year	up to 1950's	Campbell 1976
Herbs	medicinal	A	Etsa	All year	1981	H&H Bendsen 1983
Hibiscus spp.	utensils	P	BaYei	All year	up to 1950's	Campbell 1976
Hyphaene petersiana	crafts	A	Etsa	All year	1981	H&H Bendsen 1983
Hyphaene petersiana	crafts, food	P	Etsa,Gumare,Nok	All year	1982	Taylor/Moss 1983
Hyphaene petersiana	crafts	A	Etsa	All year	1988	Ecozoning 1989
Hyphaene petersiana	food	A	Gumare	All year	1981	H&H Bendsen 1983
Indigofera spp.	dyes	A	Etsa	All year	1988	Ecozoning 1989
Kigelia africana	mekoro	P	BaYei	All year	up to 1950's	Campbell 1976
Kigelia africana	mekoro,build,med	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Lonchocarpus capassa	mekoro,craft,med	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Lonchocarpus capassa	mekoro	P	BaYei	All year	up to 1950's	Campbell 1976
Miscanthus junceus	crafts	P	BaYei	All year	up to 1950's	Campbell 1976
Nymphaea caerula	food	P	BaYei	All year	up to 1950's	Campbell 1976
Nymphaea caerula & lotus	food	A	Gumare	All year	1981	H&H Bendsen 1983
Peltophorum africanum	medicinal, craf	P	Nokaneng	All year	1982	Taylor/Moss 1983
Phoenix reclinata	food	P	Etsa, Gumare	Feb-Apr	1982	Taylor/Moss 1983
Phragmites australis	building	P	BaYei	Aug-Nov	up to 1950's	Campbell 1976
Pluchea leubnitziae	medicinal	P	Gum,Nokaneng,Tsau	All year	1982	Taylor/Moss 1983
Rhus tenuinervis	food, tanning	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983
Sanseviera scabrifolia	crafts,utensils	P	Etsa	All year	1982	Taylor/Moss 1983
Sanseviera spp.	utensils	P	BaYei	All year	up to 1950's	Campbell 1976
Sclerocarya birrea	food	A	River San	Feb-June	1966	Heinz 1968
Sclerocarya birrea	medicinal	P	BaYei	All year	up to 1950's	Campbell 1976
Terminalia prunioides	utensils, firew	P	Nokaneng, Tsau	All year	1982	Taylor/Moss 1983
Terminalia sericea	utensils, dyes	P	Gumare, Tsau	All year	1982	Taylor/Moss 1983
Terminalia sericea	medicinal	P	BaYei	All year	up to 1950's	Campbell 1976
Thatching grass	building	A	Gumare, Nokaneng	Apr-Aug	1988	Ecozoning 1989
Wild fruits	food	A	Etsa	All year	1981	H&H Bendsen 1983
Ximenia americana	food	P	Etsa,Gum,Nok,Tsau	Dec-Feb	1982	Taylor/Moss 1983
Ziziphus mucronata	medicinal	P	Etsa,Gum,Nok,Tsau	All year	1982	Taylor/Moss 1983

Other plant resources recorded as used in the Okavango and Kwando WMAs and which may occur in NG/26 are listed in Chapter 4. The reader is also referred to Cole (in press).

TABLE 26.4 Documented use of other resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	WHEN	DATA SOURCE
Bird hunting	food	P	BaYei	All year	up to 1950's	Campbell 1976
Bird hunting	food	A	CFDA villages	Season	1988	Ecozoning 1989
Cirina forda	food	P	BaYei	? ?	up to 1950's	Campbell 1976
Fishing	food	P	BuGakhwe	All year	Historic	Swedeplan 1989
Fishing	food	A	Etsa	All year	1981	H&H Bendsen 1983
Fishing	food	P	BaNoka	All year	Historic	Swedeplan 1989
Fishing	food	A	Gumare, Nokanen	All year	1981	H&H Bendsen 1983
Game hunting	food	A	Etsa	Season	1981	H&H Bendsen 1983
Game hunting	food	A	Sehi,Tote,Tsau	Season	1988	Ecozoning 1989
Game hunting	food	A	Maun	Season	1988	Ecozoning 1989
Game hunting	food	A	CFDA villages	Season	1988	Ecozoning 1989
Game hunting	food	P	BaYei	All year	up to 1950's	Campbell 1976
Game hunting	food	A	Gumare, Nokanen	Season	1981	H&H Bendsen 1983
Game hunting	food	P	BaNoka	All year	Historic	Swedeplan 1989
Game hunting	food	P	Hambukushu	All year	up to 1950's	Campbell 1976
Game hunting	food	P	BuGakhwe	All year	Historic	Swedeplan 1989
Gonimbrasia belina	food	P	BaYei	Nov-Mar	up to 1950's	Campbell 1976
Honey	food	P	BaYei	All year	up to 1950's	Campbell 1976
Honey	food	A	Etsa	All year	1981	H&H Bendsen 1983
Livestock	grazing	A	Gumare, Nokanen	Dry	1981	H&H Bendsen 1983
Livestock	grazing	A	Xerega	Dry	1981	H&H Bendsen 1983
Livestock	grazing	A	Gumare,Nok,Habu	Dry	1988	Ecozoning 1989
Mekoro	access	P	Hambukushu	All year	up to 1950's	Campbell 1976
Melapo fields	arable farming	A	Nokaneng	Oct-May	1988	Ecozoning 1989
Settlement	habitation	P	BuGakhwe	All year	Historic	Swedeplan 1989
Settlement	habitation	A	River San	All year	1966	Heinz 1968
Settlement	habitation	P	BaNoka	All year	Historic	Swedeplan 1989

Note: for both tables A = Use actually occurring in NG/26
P = Use probably occurring in NG/26

Appendix 6: Controlled Hunting Area NG/29

NG/29

1 HISTORY OF SETTLEMENT

Little documentation of habitation within this area has been recorded. This is largely due to the presence of tsetse fly. Tawana cattle posts were present during the tsetse fly free period after the rinderpest. Campbell (1976) noted River San living along the Matsebi River in the 1950's. Until the erection of the buffalo fence in 1983 it is likely that temporary grazing sites were regularly used by communities associated with the OvaHerero settlements of Habu and Nokaneng.

2 PRESENT POPULATION

Aside from tourism infrastructure, there are no settlements in NG/29.

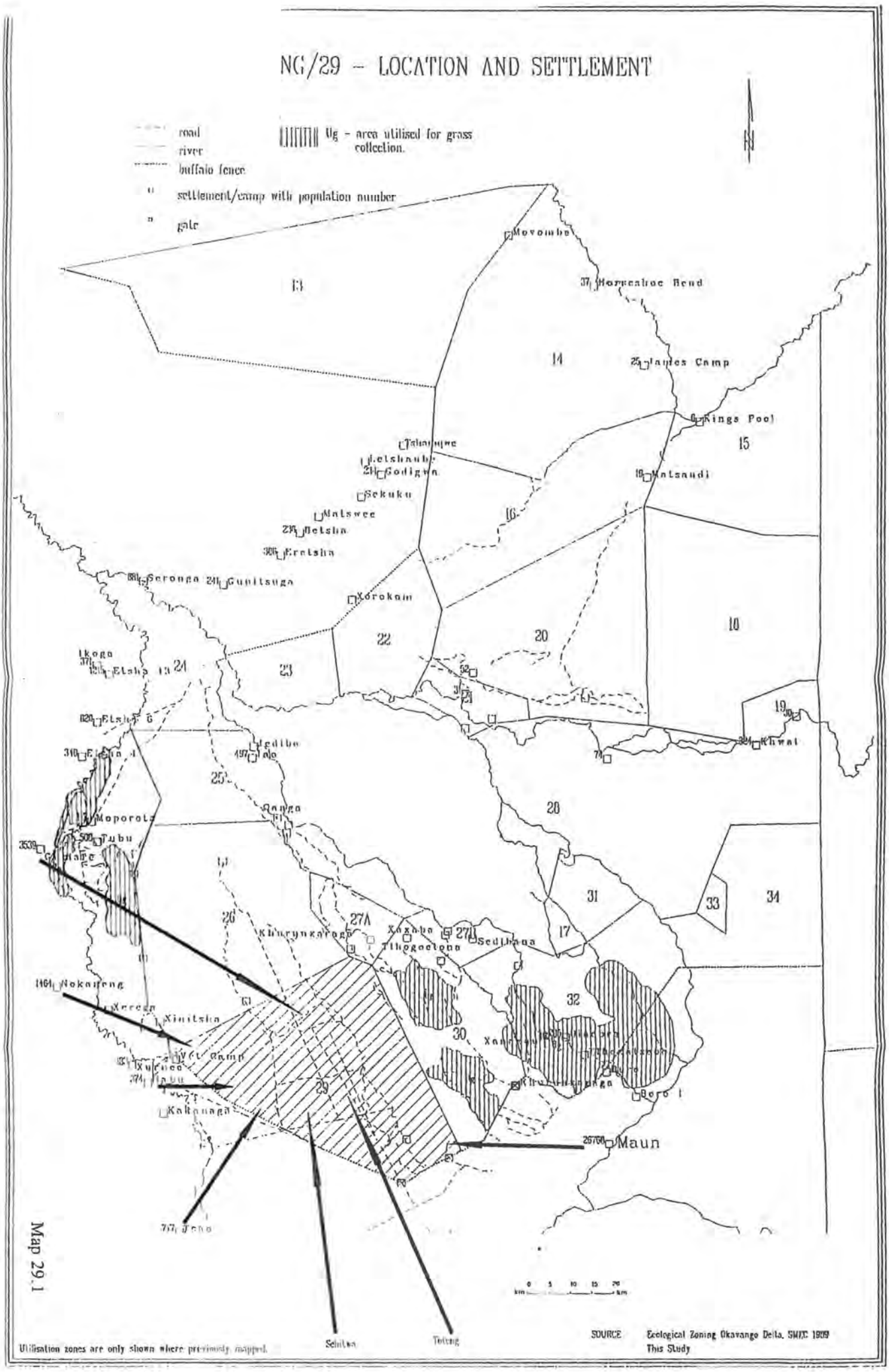
Linkages
As recently as 1988 grazing of livestock by cattle-owners from Habu, Nokaneng and Gumare within NG/29 was recorded (Ecozoning 1989). These villages are also associated with the area for the gathering of veld products (Bendsen 1983, Taylor & Moss 1983). People from Tsau, Sehitwa and Toteng are recorded as collecting grass and reeds here. Citizen hunting is done by people from these villages as well as from Maun. This links are shown in Map 29.1.

3 DOCUMENTED AGRICULTURAL USE

There are no records of arable farming in NG/29.

Grazing of livestock by inhabitants of Gumare, Habu and Nokaneng reported in 1981 in CFDA report, and in 1988 by Ecozoning report. This is usually during the dry season, mainly under pressure from drought conditions.

NG/29 – LOCATION AND SETTLEMENT



Map 29.1

Utilisation zones are only shown where previously mapped.

SOURCE Ecological Zoning Okavango Delta, SMEC 1989
This Study

4 DOCUMENTED RESOURCE BASE

The vegetation associations of NG/29 are shown in Map 29.2. The total area is 1848 km². This map is derived from a variety of sources; associations used by the Ecological Zoning project were used for areas prone to flooding. The mapping was done mainly from Landsat imagery and soil maps. The associations found range from Mopane woodlands (on old alluvium) to permanently flooded areas on the Xudum river system. Detailed species lists for these associations can be found in SMEC (1989), KGS (1991), and Deloitte & Touche (1992). The proportions of the various vegetation types are given in Table 29.1 below. The approximate areas of riverine woodland occurring in areas prone to flooding are given because this habitat type is a very important source of veld products, but is too small to map properly. The factor used to calculate areas is 7% (Ecosurv, 1988). This is a general figure for mixed permanent and seasonal swamp. Table 29.2 shows the distribution of species between vegetation associations.

Table 29.1 Vegetation Associations, NG/29

Association	Area (km²)	Approx. area of riverine woodland	Proportion (%)
Channel Sands (CS)	472.92	-	25.58
Intermittently Flooded Areas (IFA)	127.41	8.9	6.89
Intermittently Flooded Areas/Mopane Savanna/Channel Sands (IFA/M/CS)	3.59	-	0.19
Mopane Savanna (M)	164.04	-	8.87
Mopane/Channel Sands (M/CS)	651.48	-	35.24
Seasonally Inundated Areas (SIA)	429.26	30.1	23.22

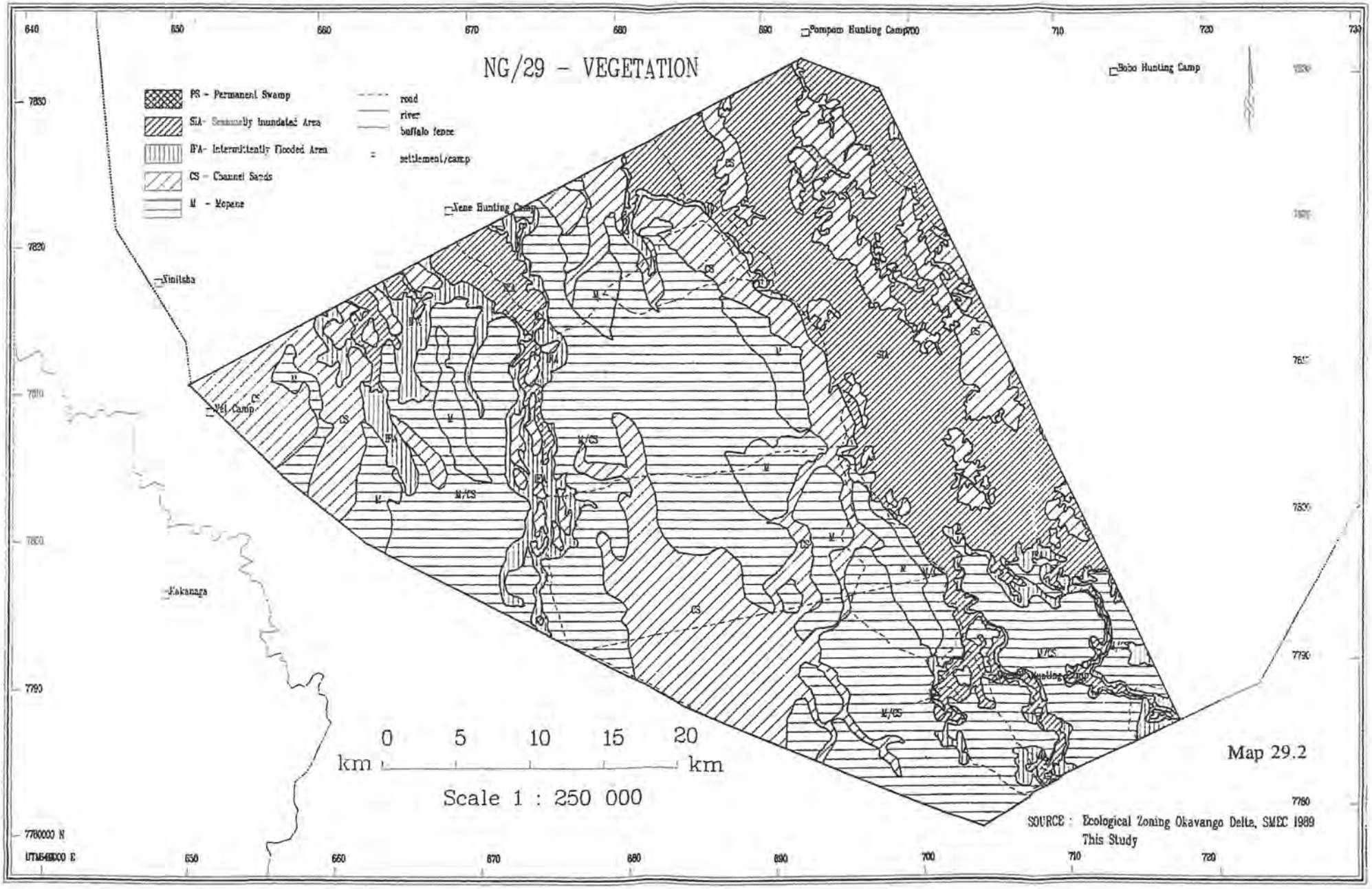

NG/29 - VEGETATION
PS - Permanent Swamp
SIA- Seasonally Inundated Area
IFA- Intermittently Flooded Area
CS - Channel Sands
M - Mopane
road
river
buffalo fence
settlement/camp
Pompom Hunting Camp
Bobo Hunting Camp
Xene Hunting Camp
Xinitsha
Pel Camp
Kakanaga
0 5 10 15 20
km km
Scale 1 : 250 000
Map 29.2
SOURCE : Ecological Zoning Okavango Delta, SMEC 1989
This Study

Table 29.2 Previously documented resource species in relation to habitats

RESOURCE	VEGETATION TYPE				
Acacia erioloba	-	-	-	-	CS
Acacia hebeclada	-	-	IFA	-	-
Acacia karroo	PS	-	-	-	-
Acacia luederitzii	-	SIA	IFA	-	-
Acacia tortilis	-	SIA	IFA	M	-
Adansonia digitata	PS	SIA	-	-	-
Albizia versicolor	PS	-	-	-	-
Artemisia afra (tea)	-	-	-	M	CS
Berchemia discolor	PS	SIA	-	-	-
Boscia albitrunca	-	-	-	M	-
Colophospermum mopane	-	-	-	M	-
Combretum hereroense	PS	SIA	IFA	-	-
Combretum imberbe	PS	SIA	IFA	-	-
Croton megalobotrys	PS	SIA	IFA	-	-
Cyperus articulatus	PS	SIA	IFA	-	-
Dichrostachys cinerea	PS	SIA	IFA	M	CS
Diospyros lycioides	PS	SIA	IFA	-	-
Diospyros mespiliformis	PS	SIA	-	-	-
Euclea divinorum	PS	SIA	-	-	-
Euphorbia ingens	PS	SIA	-	-	-
Ficus sycomorus	PS	SIA	IFA	-	-
Garcinia livingstonei	PS	SIA	-	-	-
Gardenia spatulifolia	PS	SIA	IFA	-	-
Grewia flava & bicolor	PS	SIA	IFA	-	CS
Grewia flavescens	PS	SIA	IFA	-	-
Hibiscus spp.	PS	-	-	-	-
Hyphaene petersiana	PS	SIA	IFA	-	-
Kigelia africana	PS	SIA	-	-	-
Lonchocarpus capassa	PS	SIA	IFA	-	-
Miscanthus junceus	PS	SIA	-	-	-
Nymphaea caerula	PS	SIA	IFA	-	-
Parinari curatellifolia	PS	SIA	-	-	-
Phoenix reclinata	PS	SIA	-	-	-
Phragmites australis	PS	SIA	-	-	-
Pluchea leubnitziae	-	-	IFA	-	-
Rhus tenuinervis	-	SIA	IFA	-	-
Sanseviera spp.	PS	-	-	-	-
Sclerocarya birrea	PS	SIA	IFA	-	-
Terminalia prunioides	-	SIA	IFA	-	-
Terminalia sericea	-	-	-	-	CS
Thatching grass	-	-	IFA	-	-
Ximenia americana	PS	SIA	IFA	-	-
Ziziphus mucronata	PS	SIA	IFA	-	-

5 DOCUMENTED NATURAL RESOURCE USE

People from Etsa, Gumare and Nokaneng collect mokolwane (*Hyphaene petersiana*) leaves for sale to basket weavers (Taylor & Moss 1983). It is possible that they enter what is now NG/29 to do so. Thatching grass and reeds are collected for commercial use in Maun (Ecozoning 1989). The tables below list records of subsistence resource utilisation.

TABLE 29.3 Documented use of plant resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Acacia erioloba	building, firewood	P	Tsau, Etsa, Gum	All year	1983	Taylor/Moss 1983
Acacia hebeclada	building	P	Nokaneng, Tsau	All year	1982	Taylor/Moss 1983
Acacia karroo	build, firewood, tan	P	Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Acacia luederitzii	building, firewood	P	Etsa, Tsau, Nokan	All year	1982	Taylor/Moss 1983
Acacia tortilis	build, firewood, gum	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Adansonia digitata	food	P	HaMbukushu	Apr-May	1950's	Campbell 1976
Albizia versicolor	soap	P	BaYei	All year	1950's	Campbell 1976
Albizia versicolor	soap	P	River San	All year	1950's	Campbell 1976
Albizia versicolor	soap	P	HaMbukushu	All year	1950's	Campbell 1976
Artemisia afra	food	P	HaMbukushu	All year	1950's	Campbell 1976
Berchemia discolor	utensils	P	HaMbukushu	All year	1950's	Campbell 1976
Berchemia discolor	utensils	P	River San	All year	1950's	Campbell 1976
Berchemia discolor	utensils	P	BaYei	All year	1950's	Campbell 1976
Boscia albitrunca	medi, utensils	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Colophospermum mopane	building, firewood	P	Etsa	All year	1982	Taylor/Moss 1983
Combretum hereroense	utensils, firewood	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Combretum imberbe	building, firewood	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Croton megalobotrya	utensils, medic	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Croton megalobotrya	poison	P	BaYei	Dec-Jan	1950's	Campbell 1976
Cyperus articulatus	crafts	P	BaYei	All year	1950's	Campbell 1976
Cyperus articulatus	crafts	P	HaMbukushu	All year	1950's	Campbell 1976
Cyperus articulatus	crafts	P	River San	All year	1950's	Campbell 1976
Dichrostachys cinerea	firewood, medic	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Diospyros lycioides	food	P	Etsa, Gum, Nok, Tsau	Jan-May	1982	Taylor/Moss 1983
Diospyros mespiliformis	food, mekoro, uten	P	Etsa, Gumare	All year	1982	Taylor/Moss 1983
Diospyros mespiliformis	food	P	HaMbukushu	Apr-Sep	1950's	Campbell 1976
Diospyros mespiliformis	mekoro	P	River San	All year	1950's	Campbell 1976
Diospyros mespiliformis	mekoro	P	HaMbukushu	All year	1950's	Campbell 1976
Diospyros mespiliformis	mekoro	P	BaYei	All year	1950's	Campbell 1976
Euclea divinorum	food, dyes	P	Etsa, Gumare	All year	1982	Taylor/Moss 1983
Euphorbia ingens	poison	P	BaYei	All year	1950's	Campbell 1976
Euphorbia ingens	poison	P	River San	All year	1950's	Campbell 1976
Ficus sycomorus	food	P	Gumare, Tsau	Fruiting	1982	Taylor/Moss 1983
Garcinia livingstonei	food	P	Etsa, Gum, Nok, Tsau	Nov-Dec	1982	Taylor/Moss 1983
Gardenia spatulifolia	crafts, medicm	P	Nokaneng, Tsau	All year	1982	Taylor/Moss 1983
Gathering	food, utensils	P	BuGakiswe	All year	Historic	Swedeplan 1989
Gathering	food, utensils	P	BaNoka	All year	Historic	Swedeplan 1989
Grewia flava & bicolor	food	P	Etsa, Gum, Nok, Tsau	Dec-Jan	1982	Taylor/Moss 1983
Grewia flava	food	P	HaMbukushu	Mar-Jun	1950's	Campbell 1976
Grewia flavescens	food, utensils	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Grewia spp	utensils	P	BaYei	All year	1950's	Campbell 1976
Herbs	medicinal	A	Etsa	All year	1981	H&H Bendsen 1983
Hibiscus spp	utensils	P	BaYei	All year	1950's	Campbell 1976
Hyphaene petersiana	food	A	Gumare	All year	1981	H&H Bendsen 1983
Hyphaene petersiana	crafts, food	P	Etsa, Gumare, Nok	All year	1982	Taylor/Moss 1983
Hyphaene petersiana	crafts	A	Etsa	All year	1981	H&H Bendsen 1983
Hyphaene petersiana	food, crafts	P	HaMbukushu	All year	1950's	Campbell 1976
Kigelia africana	mekoro	P	BaYei	All year	1950's	Campbell 1976
Kigelia africana	mekoro, build, med	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Kigelia africana	mekoro	P	River San	All year	1950's	Campbell 1976
Kigelia africana	mekoro	P	HaMbukushu	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro	P	BaYei	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro	P	HaMbukushu	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro	P	River San	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro, craft, med	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Miscanthus junceus	crafts	P	HaMbukushu	All year	1950's	Campbell 1976
Miscanthus junceus	crafts	P	River San	All year	1950's	Campbell 1976
Miscanthus junceus	crafts	P	BaYei	All year	1950's	Campbell 1976
Nymphaea caerula & lotus	food	A	Gumare	All year	1981	H&H Bendsen 1983
Nymphaea caerula	food	P	BaYei	All year	1950's	Campbell 1976
Pariinari curatellifolia	food	P	HaMbukushu	All year	1950's	Campbell 1976
Phoenix reclinata	food, crafts	P	HaMbukushu	All year	1950's	Campbell 1976
Phragmites australis	building	A	Maun	Aug-Nov	1988	Ecotoning 1989
Phragmites australis	building	A	Sehi, Tsau, Tsau	Aug-Nov	1988	Ecotoning 1989
Phragmites australis	building	P	River San	Aug-Nov	1950's	Campbell 1976
Phragmites australis	building	P	BaYei	Aug-Nov	1950's	Campbell 1976
Phragmites australis	building	P	HaMbukushu	Aug-Nov	1950's	Campbell 1976
Pluchea leubnitzae	medicinal	P	Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Rhus tenuinervis	food, tanin	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983
Sansevieria spp.	utensils	P	BaYei	All year	1950's	Campbell 1976
Sclerocarya birrea	medicinal	P	River San	All year	1950's	Campbell 1976
Sclerocarya birrea	food	P	HaMbukushu	Feb-Jun	1950's	Campbell 1976
Sclerocarya birrea	medicinal	P	HaMbukushu	All year	1950's	Campbell 1976
Sclerocarya birrea	medicinal	P	BaYei	All year	1950's	Campbell 1976
Terminalia prunioides	utensils, firewood	P	Nokaneng, Tsau	All year	1982	Taylor/Moss 1983
Terminalia sericea	utensils, dyes	P	Gumare, Tsau	All year	1982	Taylor/Moss 1983
Terminalia sericea	medicinal	P	HaMbukushu	All year	1950's	Campbell 1976
Terminalia sericea	medicinal	P	River San	All year	1950's	Campbell 1976
Terminalia sericea	medicinal	P	BaYei	All year	1950's	Campbell 1976
Thatching grass	building	A	Maun	Apr-Aug	1988	Ecotoning 1989
Thatching grass	building	A	Sehi, Tsau, Tsau	Apr-Aug	1988	Ecotoning 1989
Thatching grass	building	A	Gumare, Nokaneng	Apr-Aug	1988	Ecotoning 1989
Unspecified veld products	food, medicinal	A	Habu	All year	1981	H&H Bendsen 1983
Wild fruits	food	A	Etsa	All year	1981	H&H Bendsen 1983
Ximenia americana	food	P	Etsa, Gum, Nok, Tsau	Dec-Feb	1982	Taylor/Moss 1983
Ziziphus mucronata	medicinal	P	Etsa, Gum, Nok, Tsau	All year	1982	Taylor/Moss 1983

Other plant resources used in Okavango and Kwando WMAs and which may occur in NG/29 are listed in Chapter 4. The reader is also referred to Cole (in press).

TABLE 29.4 Documented use of other resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Bird hunting	food	P	HaMbukushu	All year	1950's	Campbell 1976
Bird hunting	food	A	CFDA villages	Season	1988	Ecozoning 1989
Bird hunting	food	P	River San	All year	1950's	Campbell 1976
Bird hunting	food	P	BaYei	All year	1950's	Campbell 1976
Cirina forda	food	P	River San	? ?	1950's	Campbell 1976
Cirina forda	food	P	BaYei	? ?	1950's	Campbell 1976
Cirina forda	food	P	HaMbukushu	? ?	1950's	Campbell 1976
Fishing	food	P	River San	All year	1950's	Campbell 1976
Fishing	food	A	Gumare, Nokaneng	All year	1981	H&H Bendsen 1983
Fishing	food	P	BaNoka	All year	Historic	Swedeplan 1989
Fishing	food	P	BuGakhwe	All year	Historic	Swedeplan 1989
Game hunting	food	A	Maun	Season	1988	Ecozoning 1989
Game hunting	food	P	BuGakhwe	All year	Historic	Swedeplan 1989
Game hunting	food	A	Habu	Season	1981	H&H Bendsen 1983
Game hunting	food	A	River San	All year	1950	Campbell 1976
Game hunting	food	A	Etsa	Season	1981	H&H Bendsen 1983
Game hunting	food	A	CFDA villages	Season	1988	Ecozoning 1989
Game hunting	food	A	Sehi,Tote,Tsau	Season	1988	Ecozoning 1989
Game hunting	food	P	BaNoka	All year	Historic	Swedeplan 1989
Game hunting	food	P	HaMbukushu	All year	1950's	Campbell 1976
Game hunting	food	P	River San	All year	1950's	Campbell 1976
Game hunting	food	P	BaYei	All year	1950's	Campbell 1976
Gonimbrasia belina	food	P	River San	Nov-Mar	1950's	Campbell 1976
Gonimbrasia belina	food	P	BaYei	Nov-Mar	1950's	Campbell 1976
Gonimbrasia belina	food	P	HaMbukushu	Nov-Mar	1950's	Campbell 1976
Honey	food	A	Etsa	All year	1981	H&H Bendsen 1983
Honey	food	P	BaYei	All year	1950's	Campbell 1976
Honey	food	P	HaMbukushu	All year	1950's	Campbell 1976
Honey	food	P	River San	All year	1950's	Campbell 1976
Livestock	grazing	A	Gumare,Nok,Habu	Dry	1988	Ecozoning 1989
Livestock	grazing	A	Habu	Dry	1981	H&H Bendsen 1983
Livestock	grazing	A	Gumare, Nokaneng	Dry	1981	H&H Bendsen 1983
Mekoro	access	P	HaMbukushu	All year	1950's	Campbell 1976
Settlement	habitation	P	BaNoka	All year	Historic	Swedeplan 1989
Settlement	habitation	P	BuGakhwe	All year	Historic	Swedeplan 1989
Settlement	habitation	A	River San	All year	1950	Campbell 1976

Note: for both tables A = Use actually occurring in NG/29
P = Use probably occurring in NG/29

Appendix 7: Controlled Hunting Area NG/30

NG/30

1 HISTORY OF SETTLEMENT

BaNoka and BuGakhwe have been recorded in scattered settlements in the Delta since the BaYei arrived in the mid-late 1700's. Stigand's map of 1925 shows Tlhogoetona's village situated on the Kiri in 1922. Although this settlement has shifted slightly within a small area, it has retained its approximate location for at least 70 years.

2 PRESENT POPULATION

Tlhogoetona's village is now located at in the north-west corner of NG/30. Aside from this settlement all other residence is associated with tourism infrastructure.

Linkages
Villages along the Boro River such as those at Tlhokatsebe flats collect resources in this area. Being close to Maun, NG/30 is a popular area for citizen hunting. Links are shown on Map 30.1.

3 DOCUMENTED AGRICULTURAL USE

There are no records of current arable or pastoral farming in NG/30.

NG/30 - LOCATION AND SETTLEMENT

road
river
buffalo fence
settlement/camp with population number
gate
area utilised for grass collection

Mayombe
Horseshoe Bend
James Camp
Kings Pool
Shakawe
Letshaub
Godigwa
Sekuku
Matswee
Netsha
Eretsha
Seronga
Gunitsuga
Xorokom
Koga
Etsha 13
Etsha 6
Etsha 1
Jedibe
Jako
Mopopotsa
Tubu
Nokaneng
Seronga
Xinitsha
Vet Camp
Kakonaga
Tsaba
Sedibana
Thonbetona
Maun
Khwai
Mababe
Boro 1
Tsaba

Map 30.1

Utilisation zones are only shown where previously mapped

Schilwa Toteng

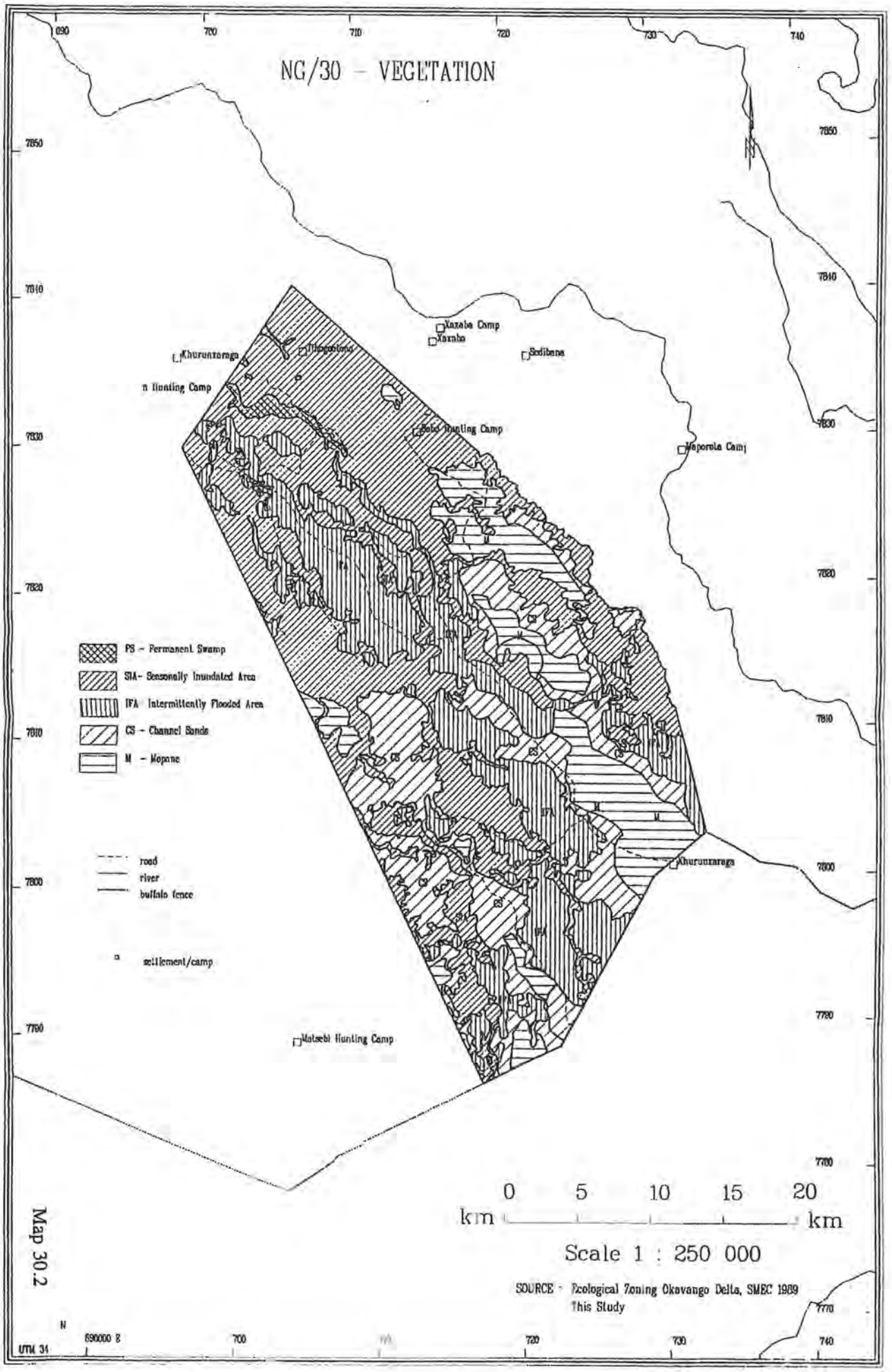
SOURCE : Ecological Zoning Okavango Delta, SMEC 1989
This Study

4 DOCUMENTED RESOURCE BASE

The vegetation associations of NG/30 are shown in Map 30.2. The total area is 951 km^2. This map is derived from a variety of sources; associations used by the Ecological Zoning project were used for areas prone to flooding. The mapping was done mainly from Landsat imagery and soil maps. The associations found range from Mopane woodlands (on old alluvium) to the perennial swamp of the Kiri river system. Detailed species lists for these associations can be found in SMEC (1989), KGS (1991), and Deloitte & Touche (1992). The proportions of the various vegetation types are given in Table 30.1 below. The approximate areas of riverine woodland occurring in areas prone to flooding are given because this habitat type is a very important source of veld products, but is too small to map properly. The factor used to calculate areas is 7% (Ecosurv, 1988). This is a general figure for mixed permanent and seasonal swamp. Table 30.2 shows the distribution of species between vegetation associations.

Table 30.1 Vegetation Associations, NG/30

Association	Area (km^2)	Approx. area of riverine woodland	Proportion (%)
Channel Sands (CS)	172.48	-	18.13
Channel Sands/Mopane Savanna (CS/M)	5.38	-	0.57
Intermittently Flooded Areas (IFA)	244.48	17.1	25.70
Mopane Savanna (M)	116.84	-	12.28
Mopane Savanna/Channel Sands (M/CS)	4.37	-	0.46
Permanent Swamp (PS)	7.92	0.5	0.83
Seasonally Inundated Areas (SIA)	399.67	27.9	42.02


NG/30 - VEGETATION
Khurumaraga
Thogoolong
n Hunting Camp
Xazabe Camp
Xazabe
Sodibene
Bobi Hunting Camp
Maporola Camp
Khurumaraga
Matsebi Hunting Camp
PS - Permanent Swamp
SIA- Seasonally Inundated Area
IFA Intermittently Flooded Area
CS - Channel Sands
M - Mopane
road
river
buffalo fence
settlement/camp
0 5 10 15 20
km km
Scale 1 : 250 000
SOURCE - Ecological Zoning Okavango Delta, SMEC 1989
This Study
UTM 34
N

Map 30.2

Table 30.2 Previously documented resource species in relation to habitat

RESOURCE	VEGETATION TYPE				
Acacia erioloba	-	-	-	-	CS
Acacia hebeclada	-	-	IFA	-	-
Adansonia digitata	PS	SIA	-	-	-
Albizia versicolor	PS	-	-	-	-
Artemisia afra (tea)	-	-	-	M	CS
Berchemia discolor	PS	SIA	-	-	-
Croton megalobotrys	PS	SIA	IFA	-	-
Cyperus articulatus	PS	SIA	IFA	-	-
Diospyros mespiliformis	PS	SIA	-	-	-
Euphorbia ingens	PS	SIA	-	-	-
Garcinia livingstonei	PS	SIA	-	-	-
Grewia flava	PS	SIA	IFA	-	-
Hibiscus spp.	PS	-	-	-	-
Hyphaene petersiana	PS	SIA	IFA	-	-
Kigelia africana	PS	SIA	-	-	-
Lonchocarpus capassa	PS	SIA	IFA	-	-
Miscanthus junceus	PS	SIA	-	-	-
Nymphaea caerula & lotus	PS	SIA	IFA	-	-
Phoenix reclinata	PS	SIA	-	-	-
Phragmites australis	PS	SIA	-	-	-
Sanseviera spp.	PS	-	-	-	-
Sclerocarya birrea	PS	SIA	IFA	-	CS
Sedges	PS	SIA	IFA	-	-
Terminalia sericea	-	-	-	-	CS
Thatching grass	-	-	IFA	-	-
Typha capensis	PS	SIA	IFA	-	-

5 DOCUMENTED NATURAL RESOURCE USE

The Ecozoning Report (1989) records people from Maun collecting thatching grass and reeds for sale in Maun. People living in the villages at Tlhokatsebe along the Boro also collect these products for commercial use, and it is likely that they enter NG/30 to do so (IUCN, 1992). There are several F.A.P. fishermen operating along the lower Boro. When water levels permit they extend their activities into NG/30 (Fisheries, 1994). Documented subsistence use is presented in tabular form below.

Table 30.3 Documented use of plant resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Acacia erioloba	building, firewood	P	Tsau, Etsa, Gumare	All year	1983	Taylor/Moss 1983
Acacia hebeclada	building	P	Nokaneng, Tsau	All year	1982	Taylor/Moss 1983
Adansonia digitata	food	P	HaMbukushu	Apr-May	1950's	Campbell 1976
Albizia versicolor	soap	P	BaYei	All year	1950's	Campbell 1976
Albizia versicolor	soap	P	River San	All year	1950's	Campbell 1976
Albizia versicolor	soap	P	HaMbukushu	All year	1950's	Campbell 1976
Artemisia afra	food	P	HaMbukushu	All year	1950's	Campbell 1976
Berchemia discolor	utensils	P	HaMbukushu	All year	1950's	Campbell 1976
Berchemia discolor	utensils	P	BaYei	All year	1950's	Campbell 1976
Berchemia discolor	utensils	P	River San	All year	1950's	Campbell 1976
Croton megalobotrys	poison	P	BaYei	Dec-Jan	1950's	Campbell 1976
Cyperus articulatus	crafts	P	BaYei	All year	1950's	Campbell 1976
Cyperus articulatus	crafts	P	River San	All year	1950's	Campbell 1976
Cyperus articulatus	crafts	P	HaMbukushu	All year	1950's	Campbell 1976
Dead trees	firewood	A	Boro villages	All year	1988	Ecozoning 1989
Diospyros mespiliformis	mekoro	P	River San	All year	1950's	Campbell 1976
Diospyros mespiliformis	mekoro	P	BaYei	All year	1950's	Campbell 1976
Diospyros mespiliformis	mekoro	P	HaMbukushu	All year	1950's	Campbell 1976
Diospyros mespiliformis	food	P	HaMbukushu	Apr-Sep	1950's	Campbell 1976
Euphorbia ingens	poison	P	BaYei	All year	1950's	Campbell 1976
Euphorbia ingens	poison	P	River San	All year	1950's	Campbell 1976
Garcinia livingstonei	mekoro	A	Maun	All year	1988	Ecozoning 1989
Gathering	food, utensils	P	BaNoka	All year	Historic	Swedeplan 1989
Gathering	food, utensils	P	BuGakhwe	All year	Historic	Swedeplan 1989
Grewia flava	food	P	HaMbukushu	Mar-Jun	1950's	Campbell 1976
Grewia spp.	utensils	P	BaYei	All year	1950's	Campbell 1976
Hibiscus spp.	utensils	P	BaYei	All year	1950's	Campbell 1976
Hyphaene petersiana	food, crafts	P	HaMbukushu	All year	1950's	Campbell 1976
Kigelia africana	mekoro	P	HaMbukushu	All year	1950's	Campbell 1976
Kigelia africana	mekoro	P	BaYei	All year	1950's	Campbell 1976
Kigelia africana	mekoro	P	River San	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro	P	River San	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro	A	Maun	All year	1988	Ecozoning 1989
Lonchocarpus capassa	mekoro	P	HaMbukushu	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro	P	BaYei	All year	1950's	Campbell 1976
Lonchocarpus capassa	mekoro	A	Boro villages	All year	1988	Ecozoning 1989
Miscanthus junceus	crafts	P	HaMbukushu	All year	1950's	Campbell 1976
Miscanthus junceus	crafts	P	River San	All year	1950's	Campbell 1976
Miscanthus junceus	crafts	P	BaYei	All year	1950's	Campbell 1976
Nymphaea caerula	food	P	BaYei	All year	1950's	Campbell 1976
Nymphaea caerula & lotus	food	A	Tlhokatsebe	All year	1993	Knight Piesold 1994
Phoenix reclinata	food, crafts	P	HaMbukushu	All year	1950's	Campbell 1976
Phragmites australis	building	P	HaMbukushu	Aug-Nov	1950's	Campbell 1976
Phragmites australis	building	A	Tlhokatsebe	Aug-Nov	1993	Knight Piesold 1994
Phragmites australis	building	P	River San	Aug-Nov	1950's	Campbell 1976
Phragmites australis	building	P	BaYei	Aug-Nov	1950's	Campbell 1976
Phragmites australis	building	P	Tlhokatsebe	Aug-Nov	1991	IUCN Report 1992
Phragmites australis	building	A	Maun	Aug-Nov	1988	Ecozoning 1989
Sanseviera spp.	utensils	P	BaYei	All year	1950's	Campbell 1976
Sclerocarya birrea	food	P	HaMbukushu	Feb-June	1950's	Campbell 1976
Sclerocarya birrea	medicinal	P	River San	All year	1950's	Campbell 1976
Sclerocarya birrea	medicinal	P	HaMbukushu	All year	1950's	Campbell 1976
Sclerocarya birrea	medicinal	P	BaYei	All year	1950's	Campbell 1976
Sedges	building	A	Tlhokatsebe	All year	1993	Knight Piesold 1994
Terminalia sericea	medicinal	P	BaYei	All year	1950's	Campbell 1976
Terminalia sericea	medicinal	P	River San	All year	1950's	Campbell 1976
Terminalia sericea	medicinal	P	HaMbukushu	All year	1950's	Campbell 1976
Thatching grass	building	A	Maun	Apr-Aug	1988	Ecozoning 1989
Thatching grass	building	A	Tlhokatsebe	Apr-Aug	1993	Knight Piesold 1994
Typha capensis	food	A	Tlhokatsebe	All year	1993	Knight Piesold 1994
Typha capensis	food	A	Tlhokatsebe	All year	1993	Knight Piesold 1994
Unspecified edible plants	food	A	Boro villages	All year	1988	Ecozoning 1989

Other plant resources recorded as used in the Okavango and Kwando WMAs and which may occur in NG/30 are listed in Chapter 4. The reader is also referred to Cole (in press).

TABLE 30.4 Documented use of other resources

RESOURCE	USE	DATA	USER ORIGIN	SEASON	RECORDED FOR	DATA SOURCE
Bird hunting	food	P	River San	All year	1950's	Campbell 1976
Bird hunting	food	P	HaMbukushu	All year	1950's	Campbell 1976
Bird hunting	food	P	BaYei	All year	1950's	Campbell 1976
Cirina forda	food	P	River San	? ?	1950's	Campbell 1976
Cirina forda	food	P	BaYei	? ?	1950's	Campbell 1976
Cirina forda	food	P	HaMbukushu	? ?	1950's	Campbell 1976
Fishing	food	A	Maun	All year	1988	Ecozoning 1989
Fishing	food	P	BaNoka	All year	Historic	Swedeplan 1989
Fishing	food	P	BuGakhwe	All year	Historic	Swedeplan 1989
Fishing	food	P	River San	All year	1950's	Campbell 1976
Fishing	food	A	Boro villages	All year	1988	Ecozoning 1989
Fishing	food	A	Boro	All year	1983 to 1994	Fisheries 1994
Game hunting	food	A	River San	All year	1950	Campbell 1976
Game hunting	food	P	BaYei	All year	1950's	Campbell 1976
Game hunting	food	P	BaNoka	All year	Historic	Swedeplan 1989
Game hunting	food	P	BuGakhwe	All year	Historic	Swedeplan 1989
Game hunting	food	A	Maun	Season	1988	Ecozoning 1989
Game hunting	food	P	River San	All year	1950's	Campbell 1976
Game hunting	food	P	HaMbukushu	All year	1950's	Campbell 1976
Gonimbrasia belina	food	P	BaYei	Nov-Mar	1950's	Campbell 1976
Gonimbrasia belina	food	P	HaMbukushu	Nov-Mar	1950's	Campbell 1976
Gonimbrasia belina	food	P	River San	Nov-Mar	1950's	Campbell 1976
Grewia flava	food	P	HaMbukushu	Mar-Jun	1950's	Campbell 1976
Honey	food	A	Maun	All year	1988	Ecozoning 1989
Honey	food	P	River San	All year	1950's	Campbell 1976
Honey	food	P	HaMbukushu	All year	1950's	Campbell 1976
Honey	food	P	BaYei	All year	1950's	Campbell 1976
Livestock	grazing	P	Boro	All year	1920's	Campbell 1976
Mekoro	access	A	Tlhokatsebe	All year	1993	Knight Piesold 1994
Mekoro	access	P	HaMbukushu	All year	1950's	Campbell 1976
Mopane honey	food	A	Maun	All year	1988	Ecozoning 1989
Settlement	habitation	P	BuGakhwe	All year	Historic	Swedeplan 1989
Settlement	habitation	P	BaNoka	All year	Historic	Swedeplan 1989
Settlement	habitation	A	River San	All year	1950	Campbell 1976

Note: for both tables A = Use actually occurring in NG/30
P = Use probably occurring in NG/30

Appendix 8: Inception Report and Team Members

NATURAL RESOURCE UTILISATION DATA COMPILATION

OKAVANGO/KWANDO WILDLIFE MANAGEMENT AREA

INCEPTION REPORT

25th JULY 1994

INTRODUCTION

In keeping with national priorities set out in the National Development Plan and the National Tourism Policy, many of the areas within the Okavango and Kwando Wildlife Management Areas (WMAs) are to be commercially leased. The allocation of the leases for these controlled hunting areas (CHAs) will take place in September 1994.

The lease agreements in the controlled hunting areas are such that the lessee must guarantee local residents continued traditional rights, of access to, and use of, natural resources in such areas. The Wildlife Management Lease, Section 2 states:

2.1 Notwithstanding this lease, the Lessee shall respect the traditional rights of existing communities within the Management Area, so that their way of life may continue unhampered. The rights referred to are listed in Annexure 2 hereto.

2.2 The Lessor shall use its best endeavours (but without assurance) to prevent further community settlements being established within the Management Area, further fields being cleared for the plough, or further livestock being introduced and shall otherwise ensure compliance with Section 15 of the Wildlife Conservation and National Parks Act and any regulations made thereunder.

2.3 Traditional rights of communities within the Management Area and lawful entry of other Botswana citizens for reasons not associated with commercial tourism or hunting or game capturing, exercised according to current legislation, shall be respected.

The Department of Wildlife and National Parks and Tawana Land Board recognise the need for an inventory of existing natural resource utilisation by people living in and around these areas, both at subsistence and commercial levels. Such information is necessary to ensure the continued right of access to such resources by local residents, better management of the area by the lessee, and the successful implementation of the National Land Use Plan in these areas with the minimum of social conflict.

The process for tendering for Multiple Use CHAs in the Okavango and Kwando Wildlife Management Areas is under way, with a deadline for tenders being the 31st August 1994. The CHAs in question are those in the Okavango WMA (NG 20, NG 26, NG 29 and NG 30) and those in the Kwando WMA (NG 14, NG 15, and NG 16).

Some documentation regarding the nature and extent of such utilisation exists but is widely dispersed and somewhat dated. Time constraints imposed by the deadline for the submission of concession tenders preclude an actual physical survey of current utilisation patterns. This would require a broad-based consultative survey. Because attention cannot be equitably spread in the given time frame and budget, it would be harmful to do any consultation in the field at this stage. This would raise expectations and generate feelings of unfairness. When consultation is done, it should only be undertaken if it can be done thoroughly and with a full physical survey.

The present land use plan for the Ngamiland WMAs was in part based on an ecological zoning exercise done in 1989, commissioned by the District Land Use Planning Unit (Ecological Zoning, Okavango Delta, SMEC, 1989). This study is a compilation of natural resource and land use information onto a series of thematic maps. The maps are at a scale of 1:100 000, and represent a

useful base for the development of material for the required annexure. The study was carried out for the Okavango, and does not cover the CHAs in the Kwando WMA; only a small portion of CHA NG 20 is covered.

The work proposed below is essentially an adaptation of the Ecological Zoning to provide information specific to the CHAs, and an extension to fill the gaps in resource *base* information for the Kwando CHAs and NG 20. Where possible, available resource use information will be put into the geographical context of the new CHAs. A careful examination of the legal basis, administrative understanding and capacity for management will be done. It is pointed out that traditional resource use in the CHAs is not only carried out by people living *within* the Management Areas, but also by people living on their peripheries. The present wording in the lease appears to preclude this.

The proposed approach is based on the following premises:

- Traditional use of natural resources within the Okavango Delta encompasses all areas and renewable resources of the delta. All natural resources have been used at some time in the past in all parts of the Delta.

- The DWNP/TLB's objective with this study is to establish the documented data available on customary resource use in the CHAs. This is for use in the Annexure 2 pertaining to traditional rights in the lease.

- The primary management objective for the WMA is the sustainable use of natural resources in a manner that does not threaten the wildlife resource.

- Traditional subsistence use of resources will not conflict with the above objective; commercial use of natural resources may.

- Land Board is the manager of all natural resources in the CHAs apart from wild animals. The concessionaires of Multiple Use CHAs are the appointed managers of the resources.

These premises define the basis for terms of reference for this study. In the absence of specific terms of reference, the work detailed and the schedules outlined in this inception report will be undertaken.

AIMS AND OBJECTIVES

The aims of this study are:

1) to compile and collate documented baseline data of natural resource utilisation in each controlled hunting area; this compilation should be structured to allow cross reference to the tender proposals which are to be submitted by prospective concessionaires. In particular, the following aspects need to be identified for each type of resource:
   - Location and extent
   - Seasonality and timing of utilisation
   - Routes of access or transit

2) to establish an agreed set of rules and definitions by which the issues concerning "traditional" resource use can be dealt with. This will require:
   - Identification of parties involved in the administration of the resources, and consultation with them.
   - Establishment of a agreed common set of definitions for all concepts involved in resource use.
   - Clarification and collation of the legal issues and mechanisms involved in this resource use.
   - Clarification of what *legally* constitutes traditional utilisation, and rights, and their relevance.

3) to identify the information requirements and potential approaches for a detailed study of the resource base, its use and potential productivity.

METHODOLOGY

An integrated database development and mapping exercise will be carried out, using all available existing data. Where this is inadequate, limitations will be defined, and where possible gaps will be filled. A report will be produced on the spatial and temporal data which relate to resource utilisation within the study area. The emphasis of this work will be to produce a series of maps with supporting documentation to provide a clear indication of the current state of knowledge of resource use. This will provide sufficient information to fulfil the first aim.

Consultation will be carried out with representatives from Land Board (sub and parent), DLUPU, Council, DWNP and HATAB to arrive at an agreed set of definitions and administrative/management objectives.

The study will be carried out in two stages:

i) Consultation, literature search, review and analysis. This will include consultation with the relevant District authorities, a thorough search through available records and definition of gaps. Resource base maps will be digitised during this stage.

ii) Compilation of all available information onto a new series of maps (where appropriate) with documentation, a series of definitions and rules, and recommendations for further work.

Most of the data collection will be done in Maun. Information will be obtained from (among others) the following sources:

- DLUPU - "Ecological Zoning Okavango Delta" reports, maps and data
- DWNP - Special Game Licences etc
- MoA - soils maps and satellite imagery
- MoA/Land Utilisation Office - particularly Bendsen's research for the Ngamiland CFDA, and her other reports on utilisation
- Tawana Land Board Secretary
- Gumare Sub-Land Board
- Satellite imagery and aerial photography - Okavango Delta block: ODB/91 and ODB/83 to be borrowed from Land Utilisation, Maun and Department of Surveys and Lands Gaborone.
- Existing documentation, such as works by Campbell, Henry, Terry and Cunningham (see bibliography)
- Ngamiland WMA Management Plan (on-going)
- Land Use Plan - Okavango and Kwando WMAs
- District Development Plan 4
- Interviews with key informants and specialists

Compilation and report writing will be undertaken in Gaborone. Consultation and working meetings will be held both in Maun and Gaborone; minutes and draft documents will be circulated widely with hard deadlines for perusal and finalisation. An early start will be made with the legal aspects as much of the following work and discussion will be contingent on this.

Suitable GIS equipment and PC ARC/INFO software will be used to capture and analyze the spatial data necessary. The Linyanti, Maun, Gumare and Shakawe soils maps will be digitised as base maps. Detail from the 1:100 000 Vegetation, Hydrology, Present Land Use and Tourism Infrastructure ecozoning maps will be digitised as the resource base maps for the delta area. Interpretation of

satellite imagery will be used to develop an equivalent level of detail for the Kwando/Linyanti system. Some detail will have to be extracted from the "Northern Rivers" 1:100 000 photomaps.

OUTPUTS

1) Documentation - A report with a description of the currently documented state of knowledge of resource use, (flora and fauna), identified information requirements and recommendations. A chapter will be devoted to each area, with accompanying maps.
2) Thematic Resource Maps - Soils, Vegetation, past habitation patterns, provenances of users and an updated map of documented resource use (equivalent to the "Present Land Use" maps of the ecozoning) for each CHA.
3) Computerised GIS database for traditional resource use in commercial CHAs.
4) Glossary of agreed terms and definitions
5) Legal synopsis for traditional resource user rights

REPORTING SCHEDULE

Because of the extremely tight schedule for this work, very short turn-around times are going to be necessary from draft stage to finalisation of both documents and maps. Frequent liaison between the consultant, Tawana Land Board and DWNP will be required to avoid the need for extensive revision of work. The following schedule is proposed (note that there are some changes from the schedule suggested in the draft proposal):

Starting Date	20th July
Inception Report and Meeting	25th July
Legal Synopsis	8th August
DDC Meeting	14th August
Draft Final Report	22nd August
Discussion of Draft Final	24th August
Final Report	30th August

FUNDING REQUIREMENTS

It must be noted that payment is required *on presentation* of invoices. This is necessary because the funding will be needed for the work to proceed.
Payment Schedules:

Inception	25%
Legal Synopsis	20%
Draft Final Report	35%
Final Report	20%

This study was carried out by the following team:

M. Murray-Hudson
D. Parry
B. Moeletsi
L. Cassidy
M. Murray

The maps were produced by Kalahari Game Services (Pty) Ltd.

Appendix 9: List of People Consulted

LIST OF PEOPLE CONSULTED

Mr M. Modibedi	Secretary of Tawana Land Board
Mr Sethoko	Chairman of Tawana Land Board
Kgosi Moremi	Tawana Regent
Mr E. Naane	District Officer (Lands) - Ngamiland
Ms Boipetswe	District Commisioner - Ngamiland
Mr V. Rantsabeng	Coordinator of Land Use Planning
Mr Rantsudu	Regional Agricultural Officer
Mr Theophilus	District Agricultural Officer
Mr M. Boom	Land Use Officer, Maun
Mr R. Bekker	Land Resource Assessor, Maun
Mr Dipholo	Agricultural Resources Board
Mr P. Mogotsi	Agricultural Resources Board
Mr Mmolawa	Agricultural Research Board
Mr K. Nkwane	Regional Game Warden, DWNP
Mr D. Mangubo	Principal Game Warden (M & U)
Mr D. Crowe	Principal Wildlfe Biologist
Mr R. Hartley	Resource Economist, NRMP
Mr J. Hazam	Extension Officer, NRMP
Mr J. HaBarad	Community Development Advisor, NRMP
Dr R. Bell	Senior Wildlife Planner - Wildlife Conservation in Northern Botswana (EEC Technical Assistance to DWNP 6-ACP-BT-040)
Mr [ ]	Licencing Officer, DWNP

Mr [ ]	Senior Forestry Officer, Maun
Mr J. Manyemane	Senior Fisheries Officer, Maun
Ms V. Morris	Acting Senior RADO, NWDC
Mr P. Smith	Resource specialist working on Management Plans for Community Wildlife Utilisation CHAs
Dr K. Ross	Administrator, Conservation International
Mr [X]	Hunter from Movombe
Mr [Y]	Hunter from Godigwa

Appendix 10: Abbreviations and Acronyms

LIST OF ABBREVIATIONS AND ACRONYMS USED IN THE REPORT

ARB	Agricultural Resources Board
BDF	Botswana Defence Force
CFDA	Communal First Development Area
CHA	Controlled Hunting Area
CSDA	Communal Second Development Area
DAHP	Department of Animal Health and Production
DLUPU	District Land Use Planning Unit
DoT	Department of Tourism
DWA	Department of Water Affairs
DWNP	Department of Wildlife and National Parks
Ecozone	Ecological Zone
FAP	Financial Assistance Policy
LAC	Limits of Acceptable Change
MCI	Ministry of Commerce and Industry
MLGL&H	Ministry of Local Government, Lands and Housing
MMRWA	Ministry of Mineral Resources and Water Affairs
MoA	Ministry of Agriculture
NRU	Natural Resource Utilisation
NWDC	North West District Council
RAD	Remote Area Dweller
RADO	Remote Areas Development Officer
RADP	Remote Areas Development Plan

RAO	Regional Agricultural Officer
SGL	Special Game Licence
TLA	Tribal Land Act
TLB	Tawana Land Board
UHR	Unified Hunting Regulations
WC&NP Act	Wildlife Conservation and National Parks Act
WMA	Wildlife Management Area
WML	Wildlife Management Lease