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A REVIEW OF WESTERN NGWAKETSE WILDLIFE UTILIZATION PROJECT

A Report to the DWNP

By

The Natural Resources Management Project Team

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REVIEW OF WESTERN NGWAKETSE WILDLIFE UTILIZATION PROJECT

1. Introduction and Purpose

In 1986 the Government of Botswana published its Wildlife Conservation Policy, a policy which explicitly encouraged wildlife utilization projects in the poorer regions of the country. As the main statutory agency, the Department of Wildlife and National Parks (DWNP) has sought to involve District and local authorities in initiating wildlife utilization schemes, particularly within Wildlife Management Areas (WMA). The proposal to begin a wildlife harvesting project in Southern District came from the Assistant Game Warden and the District officer (Lands). A pilot project, centered on the Wildlife Management Area (WMA 40) in Western Ngwaketse, was begun in April 1990.

The Wildlife Management Area in Southern District includes some 2,510 square kilometres (or 9.3% of district lands). It forms an elongated corridor linking other Wildlife Management Areas in Kweneng and Kgalagadi Districts. Since aerial surveys conducted by DWNP indicate wildlife distribution throughout Western Ngwaketse, utilization and management plans cover the whole subdistrict although mainly focused on the wildlife management area. The most numerous wildlife species are springbok, hartebeest, ostrich, steinbok and duiker. Gemsbok, kudu, eland and wildebeest are encountered less frequently. Vegetation is broadly classified as Kgalagadi Plain with open thorn/Microphyllous savanna (Environmental Services, 1988). Soils are typically sandy with the lack of water being considered a major constraint to development.

After an initial visit to Western Ngwaketse in February, 1991 and after consultation with the DWNP and the Reference Group for the Project, the Natural Resources Management Project Team was requested to undertake an assessment of this pilot wildlife utilization project. This assessment involved three stages:

- Review of relevant documents and papers.
- Site visits to Mabutsane and surrounding communities to accumulate specific information and to interview community members and project participants.
- Analysis of reviews and site visits to describe lessons learned to guide the inception and implementation of similar wildlife utilization projects.

The main goal of this assessment was to gain an understanding of project decisions and directions during the first year. Since the viability and sustainability of wildlife utilization within Wildlife Management Areas remains an important DWNP objective, the assessment provided an opportunity for generating guidelines for other projects.

1.1 Villages and Settlements in Western Ngwaketse Sub-District

Mabutsane is the administrative center for the Sub-District and is centrally located along the Trans-Kalahari Road. It contains the main government offices, including those for the Village Development Committee, Social and Community Development, the Land Board, the Economic Promotion Fund (EPF), the Financial Assistance Programme, the Department of Wildlife and National Parks (DWNP), the Veterinary Department, the Post Office, Police, Co-operatives, the Health Clinic and the Sub-District Council. The center contains a pre-school, primary and secondary schools with a RAD hostel for children of poor parents attending the schools from within Mabutsane and elsewhere. As the economic hub of the region, Mabutsane includes three bars, one restaurant/guest house, three general stores, a butchery, a bakery, a tannery, a leather workshop, and a brickworks. In addition, there are two churches, an airstrip and a football field.

Mabutsane village was established by six families from Kokong in 1961. They settled after a borehole was drilled to water cattle driven from Ghanzi District to the BMC abattoir in Lobatse. This reliable borehole has attracted people and cattle keepers subsequently from Southern and surrounding districts. During the drought years of the 1970s and 1980s, hunter/gatherers (RADs) were forced to settle near the village because of its reliable water supply. They also came to rely on the relief and temporary work programmes provided by the Government. Today the population of Mabutsane is estimated to be 1,500 residents.

Other major villages in Western Ngwaketse are Sekoma, east of Mabutsane along the main road, Khakhea south, and Kokong and Morwamosu along the western border. The population for the sub-District is estimated at 11,500 of which some 2,000 are RADs (Environmental Services, 1988). Small RAD settlements are scattered throughout, with the larger ones, identified as beneficiaries of the Wildlife Utilization Project by the Rural Area Development Officer (RADO) and District Land Use Planning Unit (DLUPU), as follows:

Village	Pop'n
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1. Mokgochudi	207
2. Kutuku	138
3. Thankane	325
4. Mahotshane	216
5. Itholoke	211
6. Kanaku	184

Total	1,281

1.2 Economic Activities and Land Use

The principal economic activities are extensive cattle and small stock rearing and marketing with a small proportion for local consumption. Most settlements keep goats, sheep and chickens, either owned or on loan. Donkeys and dogs are owned by many RADs but comparatively few possess cattle and horses. The SRDA tannery, leather workshop, and butchery depend entirely upon local production.

The generally low (300-400 mm) and stochastic rainfall (October to April) makes agriculture risky. Fields are ploughed and maintained both individually and communally with surpluses being sold during years of adequate rainfall. Local residents have used the Government ploughing and fencing services of the ALDEP and ARAP programmes to develop their plots. Sorghum, maize, beans and melons are the main crops.

Although hunting and gathering were important in the past, both activities have declined with the depletion of resources, particularly wildlife in recent years. Hunting and trapping continue in most RAD settlements and the DWNP has responded through issuing Special Game Licenses to those who qualify. Hunting by individuals other than RADs has been restricted by Council since 1987. This self-imposed ban on hunting within the Sub-District anticipated an increase in wildlife numbers. The project was designed to improve and to demonstrate the efficiency and utility of RAD production through hunting.

Gathering of wild plants and roots continues as a traditional activity. Wild plants are used for food, for local medicines, for building materials, and for sale. As yet, there is no systematic market for the sale of plant products.

2. Review of Project Documents and Project History

2.1 Methodology

Once the decision to evaluate the pilot project in Western Ngwaketse was made, the team accumulated project documents and other materials on Southern District within DWNP files, census statistics, maps and other information in government publications having relevance to the project. As these materials were assembled, they were assigned to members of the team for reading and for analysis. This information, discussed in team meetings, was an important guide for directing subsequent enquiries. Prior to the site visit, team members started to focus on activities within their speciality. The resource economist concentrated on economic transactions within Mabutsane, the rural sociologist on interviews within RAD settlements and with project committee members, and the wildlife specialist on hunting processes.

Each person made a list of questions for guidance in the field.

2.2 Brief history and literature review of pilot project

As wildlife declined in the Southern District, officials began to express concern for the welfare of those who traditionally depended upon that resource. For example the Southern District Development Plan for 1977-1982 lists as a specific goal "to design programmes to increase the income and productivity of the poor and to bring about a more equitable distribution of income in the district" (p.6). At this time, Western Ngwaketse was designated, by the DWNP, as "one of the five wildlife management areas in Botswana" (p 22) and the District Council hoped plans developed for the area would help alleviate two of the problems previously identified through village interviews. These problems and their relative rankings were unemployment and the lack of opportunities for Standard VII school leavers.

The Southern District's Annual Plan for 1981-82 lists as the goal for the wildlife sector "better utiliz(ation of) the current off-take. Efforts will concentrate initially on use of the skins and meat" (p. 80). It proposed a pilot tannery employing the RIIC vegetable tanning process, a skin grading system with incentives for hunters to improve the quality of their cured skins, and short courses in proper skinning and curing by the DWNP. The plan was also interested in "high quality biltong production...and possibly a wildlife cannery facility" (p. 81). "Current offtake figures" seemed sufficient to support eight small tanneries. It was concluded that tourism based on wildlife within the district lacked potential. The Council also mentioned a commissioned study of grapple plants and the coupling of this production with that for game skins in the western part of the district. The promotion of thatching grass was also considered as a source of supplementary income for rural residents.

During this same period, DWNP (or the Department of Wildlife, National Parks and Tourism as it was then known) was trying to find a resolution for declining rural resources and welfare. Two studies from the late 1970s are worthy of note for emphasizing the nature of this plight. In his undergraduate research paper, Patrick Molutsi investigated the impact of current wildlife regulations on the social organization of people in western Kweneng District (April, 1978). Among his findings were:

- That while wildlife contributed to the nation's economy, it was no longer sufficiently abundant to meet all the needs of subsistence hunters on a sustained basis.
- The impact of wildlife regulations, coupled with those of the Land Boards and Police, has been detrimental to

rural social organization.

- With no substitute provided for wildlife in rural areas, men were migrating elsewhere for work leaving their dependents to a questionable future.

Mark Murray investigated wildlife utilization in the Kalahari Sandveldt, which includes the western portions of Kweneng and Southern, as well as Kgalagadi and Ghanzi Districts (May 1978). In addition to his findings on kill rates and economic returns, he concluded that:

- Wildlife utilization remained an important economic activity for at least 39% of the resident population in the area surveyed.
- That wildlife utilization was THE most important economic activity for 16 % of this population (mainly RADs).

In 1986, the Government approved an important white paper, The Wildlife Conservation Policy, on the sustainable use of wildlife throughout Botswana (GOB, 1986). Among its specific objectives were:

- To develop the full potential of wildlife resources.
- To develop a commercial wildlife industry creating economic opportunities, jobs and incomes for rural people, thus enabling more rural dwellers to enter the wage economy.
- To increase the supply of game meat, for commercial or subsistence consumption, and to contribute to the nutritional objectives of the National Food Strategy.

This paper indicated that the needs of rural people were to be given particular attention and that land specifically designated for wildlife utilization would be demarcated as Wildlife Management Areas. Priority was placed on the creation of job opportunities and training for rural people.

In keeping with the guidelines of the above white paper, the Assistant Game Warden, Kanye initiated a proposal for the Western Ngwaketse Game Harvest Project in January 1988. The District Land Use Planning Unit began preparing management plans for the Wildlife Management Area in March 1988 (van Zwieten, 1988). The Game Harvesting Project was to bring in more revenue, provide more employment and make game meat more equitably available. Since wildlife stocks were low, the project recommended the continuation of a hunting ban for most citizens and restricting the harvesting project to RADs as a means of improving their efficiency and of increasing their incomes. Culling and cropping were to be combined with the processing and sale of wildlife products.

A feasibility study was conducted during 1988 for the Southern District Land Use Planning Unit (Environmental Services Botswana, 1988). The consultants expanded their scope of work beyond wildlife to include craft production

and marketing to increase the employment opportunities for women and non-hunting RADs. The game utilization component was not considered economically viable alone and was thought secondary to the promotion of income diversification and the efficient use of local skills and resources. Among a long list of recommendations, the more important ones, in light of subsequent developments, were:

- Hunting quotas should be based on an accurate census from regular seasonal aerial surveys.
- Subsistence needs of resident RADs should be met prior to the allocation of additional animals to other clients. Animals beyond this need should be allocated to resident citizens. Non district residents should pay higher licence fees than residents and transfers of licenses should be restricted.
- RADs holding licenses should have the option to hunt for themselves or sell/transfer their entitlements to the Game Harvesting Unit or hire the unit to hunt for them. RAD licenses were also permits enabling them to sell meat and skins.
- Five Game Harvesting Units (GHU) were to be established, each to operate independently from different settlements. Each unit would own donkeys and horses for hunting and transporting carcasses and skins back for processing.
- Village craft units were to be formed in each settlement. These were to produce crafts using locally available materials and skills. Women were to be encouraged to participate to the fullest extent in village craft and game harvesting activities. Crafts were to be emphasized in settlements where wildlife was not abundant.
- The Game Extension Officer (GEO) was to select, train and supervise individuals in game harvesting and craft production units. GEO was also responsible for securing viable markets and buyers for both products.

In 1988, a consulting team was employed to identify wildlife utilization products for DWNP (Cumming and Taylor, 1989). This team had reservations about the viability of the proposed project based on low wildlife numbers and the low returns expected from wildlife compared to livestock. They however supported the project with the following qualifications:

- Non-Governmental Organizations (NGOs) should be used to facilitate the project and to generate local participation.
- Project area to be modified to exclude TGLP ranches.
- The economic viability of the project be re-examined.
- A mechanism be designed for ensuring appropriate feedback for further conservation and management of wildlife. The consultants thought it likely that participants would use revenues generated by the project to purchase livestock rather than enhance

further wildlife production.

In light of these concerns, they recommended a programme of research be undertaken in support of research development. Among topics suggested for research were:

- Continual surveys and monitoring of wildlife populations within the project area.
- The development of harvesting techniques with specific reference to Sandvelt conditions including hunting on horseback, disturbance effects, practicalities of preparing meat and hides etc.
- Establishment of baseline information, formal and informal, regarding wildlife offtake.
- Sociological aspects of resource management including the questions of custodial rights to local natural resources and their uses.
- Studies of animal movements and sequential timing of harvesting programmes.

In January, 1990 plans for the Western Ngwaketse WMA were presented to Council. During this presentation and subsequently, Council felt increasing pressure from some residents to de-gazette some of the WMA to allow for the grazing of cattle (DOL 7/6/90). A series of kgotla meetings suggested that some portions of the WMA be considered for grazing at a future time.

The project was adopted by Southern District Council in March, 1990 and began in April, 1990 with the local manager recruited by an NGO, CORDE. The initial funds came from a grant provided by the EPF RAD programme. These funds were used for the purchase of a vehicle, building materials, and expended on other items including eight horses. To assist the project through its initial stages, a reference group was constituted with representatives from CORDE, DWNP, the DOL, and the Business Advisor for the RAD programme.

In May/June, 1990 a series of meetings were held in all selected settlements to inform people in Western Ngwaketse about the project and "to introduce RADs to the fundamentals of sustainable wildlife utilization" (KCS Newsletter, 1990, p. 6). A committee consisting of eleven residents was appointed including those from Mokgochudi (1), Kutuku (2), Thankane (2), Mahotshwane (2), Itholoke (2), and Kanaku (2). Work began on clearing land and building a shed on the outskirts of Mabutsane. Committee members contributed their time and efforts to these building activities and received training in shooting, skinning, and biltong production. At the time of the initial team visit in February 1991, only two hunts had been undertaken by the utilization teams.

2.3 Problems identified through the review process

The review helped the team identify some problems linked to the project. Those publications useful in this regard were the Project Feasibility Study (1988), the Cumming and Taylor report (1989) and the Land Use Planning in Southern District report (1990). The Feasibility Study suggested an organizational structure for the game harvesting and craft units. This was a helpful basis for evaluating how structural components evolved and how decisions were made.

The Cumming and Taylor report (1989) questioned the viability of the project, given the low sustainable quota and returns from wildlife compared with those from livestock. They suggested that more research was needed on wildlife and that the project be developed from the "bottom up" using an NGO to facilitate community participation. Beyond these concerns, this report reviewed some important principles and policy issues that are as relevant to the Southern District as elsewhere in Botswana. These issues and principles are:

a. PARTICIPATORY PLANNING AND PROJECT IMPLEMENTATION - Communities and target groups must be involved at the outset in choosing among possible options and they must be fully involved in each subsequent stage as a project develops. For the Western Ngwaketse the question became how and when were the local communities involved? What inputs and suggestions did RADs have in the organization of the committee, the hunting groups, and with decisions on how to relate to other groups?

b. RIGHTS OF ACCESS TO RESOURCES AND SUSTAINABILITY - This problem is particularly acute in WMAs, where wildlife rights belong to the state but where everybody assumes the right of access. The major challenge is the development of locally understood and reinforcing rights of access to wildlife that promote sustainable use and at the same time foster a sense of ownership and stewardship in those who stand to benefit from exploiting the resource. The key issue is how "community" is defined and delineated, both for participants and those excluded, together with the establishment of economic and custodial rights. Not all members of a community need to be resident within an area; a "community of interests" which binds individuals together because of common objectives may be a community in project terms.

c. CAPACITY TO MANAGE RESOURCES - Since the inception of state management, rural communities have rarely, if ever, had the opportunity to exercise their traditional managerial skills. Has there been any consultation or involvement with users of wildlife about their objectives? Are there local traditions with reference

to the local uses of wildlife ? If so, how have these rights been upheld or enforced and do they provide a base upon which to incorporate new linkages?

d. DISTRIBUTION OF BENEFITS FROM WILDLIFE UTILIZATION - A further key issue is to define the "community" with reference to all land users. This issue is particularly relevant in areas, like those around Mabutsane, where livestock is the main competing resource of value. How will livestock owners react to the increasing viability of alternative land uses?

e. SCALE OF DEVELOPMENT AND WILDLIFE ENTERPRISES - This issue concerns the crafting of objectives and the orientation of projects in keeping with local institutions, skills, and with reference to their capacities to use and manage basic resources. Cumming and Taylor suggest that the type of projects needed are "ventures that can generate sufficient wealth to be attractive, are reasonably secure for rural residents, and yet can be developed at a scale that allows their full involvement, economically and in terms of resource management, from the start." Cumming and Taylor only raise the issue and did not attempt to provide any answers. Has the project paid any attention to the details of crafting or tailoring components to link successfully with local skills and enterprises ?

The Land Use Plan of the District Officer, Lands, Ngwaketse (June, 1990) emphasized the institutional constraints of the District Land Use Planning Unit (DLUPU). Although DLUPUs are intended to be action organizations addressing all rural development issues, this unit is not well established and most "members work along sectoral lines". Consequently, the DLUPU in the Southern District appears to have difficulty addressing most conservation issues and with enforcing existing legislation (particularly with keeping cattle out of WMAs).

Although the importance of sociological issues within the context of natural resource management was mentioned by Cumming and Taylor, the team found no evidence in any report or document that such issues had been addressed. What are the structures within local communities ? What are the institutional arrangements that tie them together and structure cooperation ? What are the coping and resource strategies of households ? How are roles and decisions allocated ? How have individuals of various ethnic groups been actors, rather than passive receivers, interacting with government edicts and in reference to other groups ? It was not possible to adequately assess such issues through reading the documents which the team reviewed.

3. Initial site visit (February 25-26, 1991)

3.1 Composition of team and mission

The initial visit was a brief one to enable a World Wide Fund for Nature (WWF) representative to review the project for possible funding. In addition to the WWF representative, the team was represented by the resource economist, a community wildlife specialist, and an assistant game warden counterpart. The team visited the tannery and leather workshop, DWNP offices, and the game harvesting unit in Mabutsane. They also interviewed the game harvesting project manager employed by CORDE and two Peace Corps volunteers who served as business advisors to the tannery and to the Financial Assistance Programme (FAP).

3.2 Findings

The team discovered that the project was not functioning as originally intended and that some Mabutsane residents had expressed their concern at being excluded from the project. The utilization project had become centralized in Mabutsane, from which hunts were mounted by vehicle rather than by horses and donkeys from each settlement. Only two hunts had taken place which had culled 23 animals from the project quota of 795. Ten rounds of ammunition were expended per animal killed. Some District residents, who were banned from hunting for five years to enable wildlife numbers to increase, were concerned that the project was only for RADs and that they were unable to purchase licenses for animals not utilized by the project.

The project had cleared and established its headquarters on a one hectare site east of Mabutsane. They had fenced the site, nearly completed the biltong drying shed and had laid pipes for water to the site.

On the basis of this initial set of observations and interviews, the team concluded as follows:

- On the need for further socio-economic study and analysis.
- That the project should include as many segments of the Western Ngwaketse "community" as possible.
- That the project be redesigned to incorporate a more holistic and realistic approach to the area's resources.
- On the need for further training courses in the use of firearms and in the preparation of skins.

These conclusions were further elaborated in the team's subsequent reports to DWNP and to CORDE.

3.3 Report to DWNP

As a prospective supporter of the project, the WWF representative reported numerous concerns particularly that the project was not proceeding as planned and was not being adequately monitored. Concern was also expressed that the project was exclusively oriented towards RADs rather than towards the wider community. There was little, if any, communication between the project leadership and the Sub-District Council. Decisions and planning for the project had been exclusively top down with no monitoring and evaluation as it had proceeded. Furthermore, the few benefits had gone to committee members, not to their settlements. Hunting practices had shown poor returns.

Two further developments were denied. The request for an additional tannery exclusively for the project was questioned because the SRDA tannery, in operation for some eight years, was inadequately supplied with skins. The request for a village scout programme was also questioned since DWNP regularly patrols the wildlife management area and friction between RADs and the community might be further exacerbated.

The WWF representative recommended a detailed review of the project by DWNP/NRMP and CORDE. Continued involvement of WWF in the project would be contingent upon the project becoming community directed, sustainable and ecologically sound.

In addition to these considerations, the team found the current project non viable and its hunting techniques, as practiced, were neither legal nor technologically sustainable.

3.4 Report to CORDE

The reports of the WWF and the DWNP/NRMP were presented to the project reference group sponsored by CORDE on March 6, 1991. During this meeting specific problems were discussed including limited working capital, the divisions between community members and project participants, the relationship between the management group and their settlements, project logistics, hunting and record keeping, spatial distances between settlements, and local lack of hunting skills. It was decided that the quota of licenses should be allocated to the community and not exclusively for RADs.

The steering committee for the project accepted unanimously the suggestion that the project be reappraised by the NRMP team.

4. Second site visit (March 18-22, 1991)

4.1 Composition of team and methodologies

This visit included the rural sociologist, resource economist, a wildlife extension specialist, and a DWNP extension counterpart. Each team member concentrated on gathering information within their own expertise in Mabutsane and the nearby settlement of Kanaku. The rural sociologist observed community interactions and interviewed all committee members, all residents present in Kanaku, and selected RADs and others in Mabutsane. The wildlife extension specialist concentrated on the activities of the project hunting group and accompanied them on two hunts. During these activities he observed shooting, butchery, sales of meat and the preparation of skins and trophies. The resource economist interviewed some members of the project committee, the SRDA tannery, the leatherworks, retailers, small scale industries, and civil servants in Mabutsane. The DWNP extension counterpart facilitated the work of the resource economist and wildlife extension specialist whilst the CORDE representative helped translate for the rural sociologist.

The rural sociologist spent three consecutive days at Kanaku observing and interviewing residents. Each day was spent interviewing households in a single residential cluster. During these interviews, no standard format or questionnaire was used rather general information sought included length of residence, relationships with other households, children's affiliations and locations, activities of members, and life history. The total people interviewed for Kanaku are listed in the Table below.

Summary of interviews held in Kanaku, March 19-21, 1991

Total interviews	29
women	18
men	11
missed	4 women
Children of households	
present	23
attending preschool	11
away (unspecified)	27
away attending school	17
in Mabutsane (not in school)	16

Six interviews (5 women, 1 man) were accomplished with

residents in the RAD compound on the margins of Mabutsane and two interviews, for comparative purposes, with other residents on the morning of March, 22nd. In addition, three mornings or afternoon sessions were spent interviewing the eleven men comprising the Western Ngwaketse Wildlife Committee. From each of these committee members information sought included employment history, father's occupation, formal schooling, land and livestock ownership, hunting experiences, previous committee experience and how the individual was chosen to sit on the committee.

4.2 Micro economic survey - Mabutsane

4.2.1 Observations of commercial activities

A. LIVESTOCK:- The principal economic activities are based on extensive livestock rearing. Families own cattle, goats, and sheep. The area's cattle herd numbers some 4,700 head under 32 brands (average herd size ranges from 15 - 600 animals). Brands are registered in the name of the eldest lineage male, but most men within the extended group can claim a portion of the herd.

Calving rate is about 60% with mortality averaging 2%. Total offtake is in the region of 7.5%, including culls. The annual sale to the abattoir in Lobatse is around 4% (188 animals in 1990) with local sales, mainly culled cows, around 3.5% (165 animals).

B. TRADE:-

Trading stores: The village has three general stores, but one of these is poorly stocked and seldom open. Thuku's General Store incorporates a butchery and plans to open a clothing and furniture section. This store averages a monthly turnover of P. 35,000 of which about 40% is on credit. Mabutsane General Store offers easier credit and has a turnover rate of P. 22,000 per month. This business also has a shop in Motokwe (Kwena District). Both of these general stores also haul livestock to the BMC in Lobatse. They charge P. 40 per head and use the return journey to transport stock for their stores.

Bars: There are three bars in the village and one bar/restaurant. The bar/restaurant is connected with a guesthouse and is operated by the SRDA tannery. Beer sales amount to some 300 cases per month. Soda sales are roughly 200 cases per month. The SRDA restaurant sells an average of 360 meals per month (between P. 3-4 each). The guesthouse averages 30 beds per month (at P. 12 per bed).

Brickworks: This business turns over between P. 7 -

9,000 per month. It manufactures stock bricks and breeze blocks mainly for sale to government and local builders. At full capacity, the brickworks could produce some 45,000 bricks or blocks per month. At present it operates at 50 % capacity. Because of the unreliable labour supply, the owner is planning to introduce new machinery to ensure reliable production quotas.

Bakery: The bakery is run by two women who buy flour from Thuku's General Store. The bakery makes about P. 50 profit after management salaries of P. 100 per month are deducted. The health inspector has recently told the proprietors that they must construct more hygienic facilities to stay in operation.

Sewing project: This project was started in 1982 and produces school uniforms. It is run by two women, who after further training, expect to turn a profit of P. 100 per month after salaries.

SRDA tannery: The tannery has operated for eight years. It employs eight women on piece work, paying each P. 3.90 for each finished skin. The average monthly production is 250 tanned skins per month. This production is purchased by the SRDA office in Kanye. Kanye also supplies the tannery's lime and salt. Additional raw materials for using the traditional tanning process (using plant materials) are collected and purchased locally.

SRDA leather workshop: This workshop employs eight women, who are paid a daily wage of P 7.38. The workshop produces traditional dance outfits for schools and dance troops. In the opinion of management, the workshop operates at 50% capacity and has a two year backlog of orders.

C. GOVERNMENT OFFICES:- Most information gathered from the Mabutsane community profile came from the village clinic. This included information on the origin of residents, their ethnic affiliations and fecundity rates. There are three schools, a preschool, a primary and a recently opened secondary school. RAD children from settlements and whose parents reside within Mabutsane, are boarded at a hostel on the outskirts of the town. Other government offices include Community Development, Water Development, the Post Office, the DWNP, the Police, the FAP and EPF Offices, the Veterinary Department, the Land Board, and the RAD Office. There are some 70 civil servants stationed in Mabutsane. According to the Postmistress, her office averages 35 mail orders from South African catalogues each month. These average P.65 with some 50% placed by civil servants. Two orders per month are placed by RADs from neighboring settlements.

D. COMMUNITY FACILITIES:- These properties include water stand pipes for dwellings without mains plumbing, a community hall, air landing strip, football pitch, village development committee, kgotla, village co-operative, two churches, and a cemetery.

4.2.2 Observations and findings

Village businesses, small industries and the surrounding cattle posts employ around 134 people. Government accounts for an additional 70 jobs. Local employees are said to be unreliable and only prepared to work for short periods of time. Village economic activities are based upon extensive livestock rearing, salaries and allowances from resident civil servants, and the incomes derived from employment in small scale industries and retail businesses.

Livestock off-take is extremely low. This condition is probably because owners are attempting to build their herds to pre-drought numbers. Prior to the most recent drought, cattle numbers averaged about 8,500 head.

All small scale industries has been initiated with outside support. Currently, in the manufacturing sector, only the brickworks is self-sufficient. Its mainstay is local government building for the sub-district. The service sector appears to be flourishing.

4.3 Sociology of Kanaku settlement

4.3.1 Settlement history and links to Mabutsane

According to residents, there has been a settlement at Kanaku for at least three generations. Its present site, along a sandy track some 12 km. north of Mabutsane, was abandoned during the drought of the mid 1980s as residents settled peripherally around Mabutsane and in a smaller settlement some 4 km. north along the present track. Subsequently some of the RADs from Mabutsane and all of those from within the smaller settlement were moved back to Kanaku. According to some residents, the Sub-District Council informed them that they would receive further relief work and assistance only if they returned to Kanaku. Others said that they were forced to relocate.

Residents remain closely tied to Mabutsane by kinship, for water, for relief supplies, and for piecework. All household interviewed had kin residing in Mabutsane, either formally employed (rare), attached to a livestock post operated by a village owner, attending school, temporarily visiting, or attending the clinic.

Movements between Kanaku and Mabutsane are frequent and, for a few, a daily occurrence. The tractor driver, under contract to the Sub-District Council to deliver barrels of water, has a "wife" and parents in the settlement. His visits provide transport to town and back for many residents.

In addition to supplying water, the Sub-District Council fenced and ploughed a communal field (35-40 acres) in Kanaku. Residents were provided grapple seed (Sengaparile) and Morama plants, eight donkeys for ploughing, and work relief funds for constructing a preschool and a dam. Most residents participated in the work relief programme.

4.3.2 Arrangement of settlement as reflection of kinship

Three spatially distinct residential clusters are visible at Kanaku. Households in each of these clusters are related by kinship or by "marriage" (or long term relationship) to its oldest living member; specifically an elderly couple or man. The western most cluster was inhabited by two elderly men who were brothers-in-law, together with a "classificatory lineage brother" and their respective children and offspring. The central cluster included an elderly couple, their kin, and an elderly woman (no kin) displaced to the settlement at the same time. In the vicinity were two compounds inhabited by women. The residents of the larger compound were the wife and two grown daughters, with their children, of a man who worked as a cook in Mabutsane. The woman in the other compound was away. The third cluster was more scattered and housed the kin of three elderly men. Two of these men, both feeble, one partially blind with cataracts, were cared for and fed by two elderly sisters, one of whom was related by marriage. Other households were related to these elders. (Details of the genealogical structure of each of these clusters are on file with field notes.)

4.3.3 Findings from interviews

The current residents of Kanaku are a recent selective displacement of RADs from around Mabutsane. The agency apparently responsible for their displacement is the Sub-District Council. That some type of discrimination occurred is suggested by the following observations:

- Some RADs formerly from the settlement continue to live on the outskirts of Mabutsane.
- Focal members of clusters were not all originally from Kanaku (one was from Kokong, another from Ntsokwe).

- The continued attachment to relatives and events in the village.
- Elderly men in six households were traditional healers (ngaka).

This latter observation suggests a probable cause for the configuration: the elderly and those whose status or occupation conflict with more formal sector establishments, such as the clinic.

The three clusters comprise competitive groups for scarce resources and a barrier to communication. The two representatives on the game harvesting committee from this settlement were from one cluster (an elderly man and his son-in-law). Residents of the other clusters claimed to know little or nothing about the wildlife project and had not been involved in any of the discussions.

Activities engaged in by women seemed more dependable and supportive of dependents than those engaged in by men. Three elderly women cared for three elderly men, one woman cared for her mother, and three older men had married younger women. Each day, women were observed engaged in preparing food and returning to compounds with gathered melons and berries. Most women had engaged in work relief and piecework. A few young (20+ years of age) and middle-aged men (30+ years) were engaged in stock tending for others. One elderly healer was observed preparing a prescription.

A few older men were trained as hunters by the previous generation (father, father's brother). They used dogs and spears for killing larger mammals such as gemsbok, hartebeest, and springbok. One claimed to have killed a gemsbok in 1989 using those methods, but it is doubtful if many could make such kills anymore. One man's father, a traditional healer, had a muzzle loading gun, on which he had been trained. Two men sought mainly rodents and springhares and demonstrated their techniques with a long straight pole (lonyetse). Skins of a caracal and two foxes were observed drying on a compound fence. Some larger bones of medium sized animals (of undetermined species) littered the yards of at least three compounds.

Whereas elderly men harked back to the hunting feats of their fathers and their own earlier years, these traditions, like the wildlife they then pursued, have faded fast. Such hunting customs did not seem to have much currency with their children, who, likely as not, were elsewhere in school, at a cattle post, or on a farm.

The traditional methods by which individuals had made kills in the past (hunting, snaring, running down game)

would not provide the products, either in suitable condition or numbers, upon which to build a culling project for a larger community. Hunting skills need constant practice to keep up with changing circumstances. Most men knew that large game was scarce. One healer provided prescriptions for finding game, for making prey die quickly, and for protecting livestock against predators. Another mentioned instructions for making dogs sure trackers and tenacious killers.

Individual life histories illustrate details of lives spent on the margins, repeated discrimination and losses from interactions and relationships with those more economically prosperous. Mistrust, low self esteem and little cultural energy are dominate features. When asked about their future prospects and what they would like to achieve, most respondents seemed puzzled by the question and replied by asking for handouts. Men showed a preference for stock, the possession of which continued to elude most of them, rather than for wildlife. Some women had gathered berries and grasses for sale, fewer had made sales after expending the time/energy to collect them. Other women had been domestics and gardeners.

Household strategies differed. Most households had participated in, and continued to be dependent upon, work relief and rations. A few depended upon the formal employment of husbands and sons in Mabutsane. Most relatives further afield had not sent remittances. Two households depended upon trapping and hunting, supplemented by gathering, mafisa (stock tending) and remittances. The traditional healers received some income from distant clients. In many cases existing opportunities had not been taken. The communal field had not been ploughed or planted last season, yet there were several plantings of maize near individual houses. Of the eight donkeys given by the Sub-District Council to the settlement, at least five had been lost, strayed, or sold. The answer to what happened to the missing donkeys depended on who in each cluster one asked.

Some households in all clusters, particularly those of the focal elders, claimed ownership of a few goats and were keeping others on mafisa. The central cluster had sheep on mafisa, and some young men belonging to it were looking after cattle for men and a woman residing in Mabutsane. A herbalist in the third cluster claimed three cows which had wandered elsewhere. Some chickens were also held on mafisa.

Two young women had participated in a workshop on sewing, but when the course ended (and the sewing

machines were withdrawn), they had not continued with the skill. They expressed a hope that they would be included in further workshops on baking and crafts.

4.3.4 RADs in Mabutsane

Residents of the six households interviewed had come originally from Kanaku (2 hh), Motlokwe (2 hh), Lehututu, and Kokong. All the women claimed to be unmarried and to support themselves through drought relief work, odd jobs, council rations, brewing local beer, through their children's activities as farm labourers and cattle tenders and through their boyfriends. Only one woman claimed a part-time job as a cook at the primary school. Seven children attending primary and secondary schools in town staying at the RAD hostel rather than at home. The focus of these compounds were women and their children (mother-daughter). One household claimed to possess four goats, two others looking after goats had them taken away because of excessive losses to predators (jackals). All those interviewed complained about their condition of dependency and hoped for better circumstances.

4.4 Interviews with Western Ngwaketse Wildlife Committee

The Western Ngwaketse Wildlife Committee is composed of eleven men, two from each of the settlements of Kanaku, Mahotshwane, Thankana, Kutuku, Itholoke, and one from Mokgochudi. Information from these life histories are outlined (see table) and discussed briefly below.

4.4.1 Life history summary

Committee members can be divided into two groups on the basis of what they said their fathers did. The fathers of seven members were hunters/gatherers. Only one member of the group had attended school. He left school at Standard 3 because, as he put it, the "bigger boys" (representing another ethnic category) were undermining his studies.

Four members' fathers were farmers (herders) and only one of these sons had attended school and obtained a Grade 7 certificate. This individual had recently passed a bookkeeping course in Mabutsane and was the designated bookkeeper for the culling project.

Despite similarities in the work experiences (in South African mines, on Boer farms, on cattle posts) of these two groups, only those men whose fathers were farmers claimed ownership of cattle. (The fourth member of this

Profile of Western Ngwaketse Wildlife Utilization
Project Committee Members

Characteristic	INDIVIDUALS										
	1	2	3	4	5	6	7	8	9	10	11
Father was H/G	H/G	F	F	F	H/G	H/G	H/G	H/G	F	H/G	
Schooling	N	N	N			N	N	N	St 3	G 7	N
Work exp. S.Af.mines	1x	3x		4x	3x	N	N	2x	N	N	N
Boer farms	Y	Y		Y		Y	Y		Y		
cattle posts	Y	Y	Y		Y			Y		Y	Y
piecework/ drought relief		Y				Y	Y	N	Y	Y	Y
Owns: land	Y		Y		Y	Y	Y	Y	N	Y	N
cattle			3	5	14						
donkey	6	1	5	6	4		1				1
horse	1		2	1							
goats			3	4	10		4				4
sheep			3	6							
chickens		3			12				2		3
dogs	1	3		1	2		2	1			5
Previous committees?	N	N	N	N	N	N	N	N	N	N	N
Hunting: who trained mu with		F	F	F	F	F	F	F	-	-	b
witnessed kill?	Y	Y	Y	Y	Y	Y	Y	Y	N	N	Y
Has killed?	Y	Y	N	Y	prob	Y	Y	N	N	N	Y
Traps	Y			N			Y	N	N	N	Y
Spears	Y	Y	Y	N		Y	Y	N	N	N	Y
Wildlife conviction?	Y	Y									

Y= yes, N= no, F=father, MU= maternal uncle, B= brother
H/G= hunter/gatherer, F=farmer (herder)

group was unmarried and too young to make such claims). These three men also claimed ownership of more donkeys, horses, goats, sheep, chickens than other members of the committee. The status of the prior generation seems to provide the basis for the accumulation of desired assets.

None of the members had previous committee experience. They were appointed by the headman in their respective settlements after a kgotla meeting in which the purpose of the wildlife utilization project was explained. Only for Kanaku was the nature of representativeness explored. For this settlement, the two representatives were related and came from only one cluster. The two other settlement clusters were not consulted and claimed to know little or nothing about the project. Similar discrepancies probably exist for other settlements. No women are on the committee and were probably never considered for membership.

4.4.2 Summary of hunting experience of committee

With the exception of two younger men who had attended school, all committee members had been trained to hunt by a relative from the immediate earlier generation. In most cases (7 out of 9), their father was the instructor for teaching how to hunt or snare. One was taught by his maternal uncle (malume), a second by his elder brother since, in both cases, their respective fathers had died when they were quite young. Two men whose fathers were "farmers" (owners of livestock), used a rifle and muzzle-loading gun for hunting. Neither of these two men were able to recall how their fathers had been able to obtain such weapons. The possession of these weapons suggests connections which most men's fathers lacked. Both learned to pursue prey on horseback before dismounting to dispatch it. The others used dogs and dispatched their prey with spears. Most committee members (6 of 11) were familiar with setting snares and capturing smaller buck and other game. Two members had been arrested by the DWNP and subsequently prosecuted for their culling activities. One case was for killing a protected species (an antbear), the second for snaring and selling skins and duiker meat.

Although most identified their fathers as hunters, few (3) on the committee had retained a passion for hunting. Their energies were directed towards acquiring livestock, which is what others with status had achieved, or towards eking out a precarious living. One has to conclude that the circumstances for remaining as viable hunters/gatherers have irreparably changed. The wildlife, the techniques for securing it, together with the cultural meanings of the pursuit and

of the animals themselves have all diminished through time as hunting opportunities have declined and more settled life styles evolved in response to drought and other pressures.

A few in the committee expressed their concerns about their prospects of building on the past. These expectations are captured in the replies of one whose stock was invested in other "fields."

Question: "Do you see yourself as a hunter?"

Answer: "As a marksman, yes. I have yet to shoot anything."

Q: "Does a hunter have any status locally?"

A: "It has no rank in my world."

Q: "If there wasn't this project, what would you be doing?"

A: "I would be out looking after my cattle and farming. I value this project more than staying at home because I have been seeing that a lot of money can be made from the sales."

Committee members had spent eleven months with the project, built the drying shed, cleared the yard, built the fence, participated in courses, gone on hunts, killed game, butchered, dried and sold meat. They had received training in use of rifles and target practice, biltong manufacture and book keeping. As with other skills, those used in hunting demand continual practice and adaptation to changing circumstances. Their lack of skill and expertise was no where more apparent than from the results of their hunts.

4.5 Wildlife utilization and hunting practices

4.5.1 Background

The original design of the wildlife utilization project called for 2-3 trained hunters each operating out of their respective settlements. They were to be supplied with horses for transport and for pursuing wildlife and with donkeys and carts for transporting equipment, carcass and skins. Hunters would camp for 1-3 days in the proximity of their settlements. Mabutsane was to be the main headquarters of the unit and for marketing and distribution. Properly processed skins were to be sold to the local tannery. One firearm was to be rotationally allocated for use among the five participating settlements. Personnel were to be trained in all aspects of hunting, the care and preparation of skins and trophies and in the processing of meat and other products. Women were to be encouraged to participate in village crafts and veld products as well as in game harvesting activities.

During the previous five years, there has been a local ban on hunting imposed by the Sub-District Council. RADs were allowed to continue their subsistence hunting under provisions of the Special Game Licenses.

Two aerial counts of local area wildlife were made by DWNP in 1987 and 1989. These results supposedly were the basis for allocating the project's harvest quota. This quota included 300 steinbok, 60 hartebeest, 250 springbok, 25 kudu and 160 duiker.

This project was initiated in April 1990 under the auspices of funding by EPF/RAD programme with a grant of P. 77,100. CORDE supplied the game extension officer as project manager, a vehicle was purchased and physical structures were erected on a site in Mobutsane. DWNP offered a four day course in August 1990 to wildlife committee members on the appropriate use of modern firearms and the preparation of trophy skins. Prior to the team's initial visit in February 1991, three hunts had been conducted and 23 animals harvested. All of these hunts were based in Mabutsane and utilized the area west of that town.

4.5.2 Observations

The original concept of hunting from each settlement was impractical because of the paucity of game around the settlements and due to insufficient water supplies at settlements for game processing activities.

Committee members were aware of their need for further training and supervision.

Two hunts on consecutive days were observed. Hunting methods were identical on both days. The hunting party travelled and shot from the back of the vehicle which confined itself to the road and well-travelled tracks. Results from these hunts are presented in the table below.

Basic information on project hunts for March 20/21, 1991

Mammals killed and bullet placement

HUNT 1 2 springbok (1m1f).
 average range 150 m.
 bullet placement male - lungshot with
 1 bullet.
 female - back leg severed 1 bullet.

 1 m hartebeest range 150 m.

bullet placement - angled through top of abdomen, clipping top of lung.

HUNT 2 6 springbok (4m 2f)
average range 140 m.
bullet placement - no shots hit vital areas (heart, lungs, spine, brain) when animal first hit.
24 rounds fired, 13 clear misses.

1 springbok f. was wounded and not recovered.

Numbers and groups of game observed.

	Springbok	Hartebeest	Steinbok	Ostrich
HUNT 1	+83 (4)	3 (2)	1	5
HUNT 2	+265 (6)	1	1	20

Distance travelled and time spent searching

HUNT 1	82 km.	3.0 hours
HUNT 2	120 km.	4.5 hours

Although animals had their throats cut, no provisions were made to shade the carcass from the sun while on the vehicles nor to prevent damage to skins or horns while being transported. In all cases, carcass were bloated upon arrival at the butchery in Mabutsane. The saleable value of skins was diminished through poor placement and poor skinning techniques. No use is made of skulls as a saleable item.

Carcases were butchered under reasonably hygienic conditions. All meat was sold fresh within a day of kill.

4.5.3 Findings

The present operation of the Game Harvesting Unit is in part illegal (shooting from vehicles) and mostly inefficient in terms of game harvesting, care and preparation of trophies. Inefficiencies include the following aspects:

- The poor standard of marksmanship leads to a high incidence of meat wastage by poorly placed shots and causes unnecessary damage to skins.
- Inattention to care of skins and horns in transport and in skinning results in the loss of

potential income through the down grading of products.

- Poor returns for rounds of ammunition expended and distances travelled.
- Confining the search to roads results in a coverage of less than 5% of the wildlife management area.
- The repeated shooting at animals from a vehicle during daylight hours in time will preclude this method of operation because animals will become shy of vehicles.

There has been no financial reward for participation in the project. Participants benefit only from free offal. Settlements have yet to materially benefit in any noticeable way.

5. Wildlife surveys

5.1 Methodology

Aerial counts by the DWNP are conducted with a team comprising a pilot, a recorder and two observers. Streamers are placed on the wing struts of the aircraft to delimit the count strip for the observers. All game and domestic stock are counted within the countstrip on each side of the plane and numbers recorded. The recorder also records height and distance flown every three nautical miles.

In the case of CHA 40 the transects flown were identical to those of 1987 and 1989. A total of ten transects were flown (five transects on two consecutive mornings), the transects were 10.1 km. apart, running from north to south with an average length of 76 km. The normal height flown was 300 ft and the strip widths calibrated at 203 m. and 197 m. for the left and right observers respectively.

The data is collated and computer analysed as per the Jolly Method No.2. The total area of CHA 40 is 7,676 square km. and the sampling intensity constitutes 3,92% of the area.

5.2 Aerial survey (23-24 April 1991) and comparisons

Before comparisons of counts can be made the following should be noted:

Ideally aerial counts should be flown twice a year for each area, in winter and in summer, in order to account for seasonal movements of game in and out of the area.

The disadvantages of aerial surveys can be:

- a. vegetation - in the summer months trees are in full leaf and grasses are long, making

observations difficult.

Comparisons of aerial censuses for CHA 40, estimated numbers.

SPECIES	Date of Survey		
	March 1987	November 1989	April 1991
Duiker	960	715	204
Gemsbok	-	19	128
Hartebeest	600	1,179	1,915
Kudu	160	116	-
Ostrich	-	2,416	715
Springbok	3,180	6,340	3,804
Steinbok	260	754	587
Wildebeest	-	19	255
Cattle	28,400	22,325	24,305
Donkey	480	1,198	1,277
Horses	1,500	1,024	1,328
Shoats	7,780	11,095	11,770

- b. social behavior - large herds are easier to detect than single animals.
- c. inexperienced observers - have difficulty in spotting some smaller species and those with cryptic coloration.
- d. sun angle can influence spotting of game. Oblique sunrays are ideal for game spotting.
- e. wind - gusts of wind affect the plane and thus the width of the counting strip in a manner which is difficult to quantify.
- f. herd animals - some species of herd animals are particularly sedentary in habit and remain in defined areas, eg. springbok, and may not be accounted for on aerial transects.

In the case of the comparison of the three sets of data for 1987, 1989 and 1991, it is thought more reliable to compare the more recent surveys of 1989 and 1991. On the two most recent counts the methodology was identical and the same pilot was used. The methodology used on the 1987 count is not known. The coefficient of variation of the 1991 data ranges between 46% for cattle and 193% for gemsbok and wildebeest. These variations relate directly to the numbers of animals observed. The results of these counts for domestic stock suggest a fair degree of repeatability in the method used. Basing comparisons of wildlife numbers on this premise the following observations can be made:

- Differences between counts for kudu, duiker and steenbok can be partly attributed to observer training, as these species are notoriously difficult for the untrained eye to spot.
- Differences between hartebeest and wildebeest could be attributed to seasonal movement. The 1989 survey was conducted in the summer and the one for 1991 was done at the onset of winter.
- Differences between ostrich and gemsbok numbers may reflect real differences in populations, ie. a decline in both species.
- The large difference between springbok numbers between the two periods is a reflection of the species itself and that it is the least likely to achieve a good count using this method of survey (see comment f. above).
- An assumption that could be made about animal numbers in the area, but which is not reflected in the results of the counts, is that numbers should have increased since 1987 because:
 - a. A hunting ban was introduced in the area in 1985 and has continued, with the exception of Special Licenses for RADs and the quota to the Game Harvesting Unit issued in 1990.
 - b. The drought ended in 1989 and climatic conditions have since been "normal".
 - c. There is no evidence of large predators in the area.

5.3. Recommendations

It is recommended that in future aerial surveys should be conducted on a twice yearly basis, in the following manner:

- a. Survey to be confined to the WMA and not CHA 40.
- b. The aerial surveys should be conducted in two phases.
 - 1. Non-random transects of the WMA, doubling the transect intensity previously flown in CHA 40 and using the same methodology.

combined with:

- 2. more intensive counts in blocks/areas where prior knowledge indicates higher concentrations of springbok. This method of stratification will ensure greater efficiency in terms of precision in counts of springbok.

The combination of counting methods in a smaller area than previously sampled, should ensure a more realistic coefficient of variation for all species, from which more

accurate quotas can be assessed.

c. Complement aerial surveys with :

1. Vehicle transects of WMAs on a regular basis.
2. Institute a programme of recording species, numbers and animal locations by members of the Game Harvesting Unit and members of the community involved in the project.
3. DWNP staff who patrol the area should also record similar details throughout the year and provide these counts to the project.

6. Conclusions

1. The nature of the project as it has emerged reflects certain decisions which were made within the perceived constraints of the region. The use of vehicles and road shooting is a common occurrence, even if it is illegal. A vehicle does however assist in catch/unit time and in the timely delivery of carcasses back to butchery and market. Constraints include the lack of a continuous water supply in RAD settlements, the dispersal of wildlife, insufficient training in use of high-powered rifles, discontinuity of hunting skills, and lack of attention to social, economic, technical, and spatial aspects in project design and implementation.
2. To channel the project into more acceptable and sustainable directions will take decided and persistent efforts on the part of CORDE and DWNP acting together.
3. Current hunting practices are inefficient from the standpoint of their coverage of the Wildlife Management Area, the wildlife itself, and the culling technology used.
4. The current project appears to contribute to the continuing marginalization of rural people, particularly the RADs involved. They have experienced loss of freedom and economic return by attempts to maximize community returns rather than individual ones. Committee members have not been paid for eleven months.
5. The economic rate of return calculated by DWNP for the initial project design is based upon values which are unsubstantiated for the area. The original project was based on values from a professional cropping operation in Zimbabwe whose values do not apply either to the wildlife numbers present or to the abilities of local hunters. With new values and assumptions more comparable to the situation surrounding Mobutsane, the project viability is greatly reduced.

VARIABLE COSTS AND EXPENDITURE AT FULL PRODUCTION

	ORIGINAL P.	ACTUAL P.
Biltong Distribution	2,420	4,168
Ammunition	1,439	7,139
Supplies & Packaging	5,998	7,880
Transport	2,620	31,204
Variable Costs		
Pula/LSU	13.07	58.39
Pula/Hectare	0.03	0.12

6. There has been no attempt to involve women in the wildlife utilization project. In addition, there is neither a craft production nor plant gathering/processing component in the current project.
7. The current project is inappropriately linked to Mabutsane and to the RAD settlements. Meat is sold cheaply (at half cost of beef) to relatively affluent individuals thus effectively providing them with a hidden subsidy.
8. There have been no community benefits.
9. The utilization project was based upon the reports and recommendations of the Environmental Services (1988) and the Cumming and Taylor (1989) consultancies. Few aspects of the project design and implementation followed the guidelines of these reports. There has been no monitoring or research on the ecological and social sustainability of the project either in the short or long run. Moreover, project management has had little/no supervision and backup.
10. Given the reassessment team's information on the life and hunting histories of RAD men associated with the project, the observed inefficient and ineffective hunting results could well have been predicted. Traditional hunting forms are not likely to yield a product, either in quantity or quality, upon which to build a project.
11. The assumption that RADs will favour pursuing wildlife over the possession of cattle is seriously questioned. Given the choice, RADs in the project area will diversify from natural resource utilization to livestock possession.

12. The current composition of Kanaku settlement may not represent a "normal" assemblage of people for the area. A test of this assertion will come from surveys in other project settlements.
13. Many of the assumptions made implicitly in the project about people (the nature and choices of RADs in particular), about client skills (hunting, caring for horses), about settlements (their homogeneity), about wildlife (its abundance and distribution) and about economics (the utility of proposed activities and returns) are found to be inappropriate. Many of the project's problems identified by the DWNP/NRMP team seem anchored in these false assumptions.

7 Recommendations

1. The project is salvable, but not in any cost effective way. The costs in human and financial resources will be disproportionate to expected outcomes. Given that the DWNP policy is to demonstrate the economic viability of wildlife utilization it would be counter productive to provide further support to this project as the present findings indicate that the result would be long term subsidisation leading to further dependency and a failure to demonstrate economic sustainability. The NRMP/DWNP is not in a position to determine the future course of the project and here only seeks to recommend that the conclusions as set out above be seriously considered when making final recommendations.
2. That this review represents a learning process whose lessons can be considered to have applicability for future projects. In particular that:
 - i DWNP brings district and community authorities together early to encourage an appropriate dialogue about project activities before proposals are submitted and expectations raised.
 - ii That appropriate socio-economic and other baseline studies be undertaken with community participation, BEFORE any project is proposed for funding.
 - iii That the appropriate rights to land and resources within WMAs be allocated to the "community" participating in the project, paying attention to the existing rights of other users.
 - iv That enquiries into local resource management regimes be made prior to the inception of a project, that case studies be assembled regarding their effectiveness and enforcement, and an assessment be made relative to the possibilities of incorporating or building upon these traditions.

- v That careful attention be given to the crafting of projects to fit the local situation ensuring that support is provided to cultural enterprises identified in feasibility studies.
3. That a wildlife stock survey methodology be developed for community projects which is capable of providing appropriate figures for the issuance of quotas. The methodology will ideally be capable of district level management which will provide local accountability for the setting of quotas whilst supporting nationally based census needs by providing selected high intensity survey data.

Appendix 1.

FINANCIAL AND ECONOMIC ANALYSIS.

The tables presented below are reworked assumptions on the original model presented by J.Barnes, DWNP 1989, for the project.

The assumptions are based on information gathered from two site visits during February and March 1991. Changes to the original analysis are as a result of these field trips, they are as follows;

FIXED CAPITAL

1) Buildings - the cost of P 25,000 for storerooms in the original analysis has been maintained as the present structure (biltong drying shed) is unfinished at a cost of P 19,000.

2) Water System - water tanks purchased for the project are included under the sub-heading 'reservoir' at a cost of P 300. Piping to the project site has cost P 700. No payment for labour has been made.

3) Fencing - materials for the perimeter fence at the project site have cost P 3,641. The cost of P 410 for firebreaks has been added as they are thought necessary.

MOVABLE CAPITAL

a) Vehicles - prices have been updated to reflect present day costs of two Donkey Carts yet to be purchased and the price of the Land Cruiser to include additional equipment already purchased.

b) Equipment - prices have been altered for already purchased tools, office/camp equipment, hunting equipment and saddles and packgear.

c) Stock - prices have been changed for already purchased horses(8) and updated to present day prices for Donkeys(4).

TABLE Gb2. STOCK COMPOSITION BY SPECIES AT FULL PRODUCTION.

This table is unchanged, and is based on the most recent aerial survey of Western Ngwaketse, DWNP November 1989.

TABLE Gb3. SALES AT FULL PRODUCTION. (SAFARI HUNTING)

This table allows for a Safari Hunting offtake of only the more common species in the area, the remaining species on the quota have been transferred to the Game Harvesting Unit.

Also included in this analysis are 10 three day hunts @P. 500 per day representing an income of P. 5000 to the project.

TABLE Gb3. SALES AT FULL PRODUCTION. (GAME HARVESTING)

This table has been altered to include the sale of fresh meat to local residents at a rate of 25% of cold dressed mass. The sale price of P.4.40 reflects the present sale price of steak in Mabutsane. Remaining meat is to be processed as biltong, for sale at P10 per Kg wholesale.

TABLE gb4. VARIABLE EXPENDITURE AT FULL PRODUCTION.

This table has been changed to reflect the following;

- 1) Fodder and Supplements - prices have been increased to allow for the provision of water for project stock (horses and donkeys) at the present fees charged by borehole owners (P. 2.40 per month).
- 2) Veterinary and medicine costs - these are not included as the costs are unknown.
- 3) Marketing Costs - reflect the costs of advertising Safari Hunting trips and the advertising and transport costs of biltong sold by the project.
- 4) Safari Hunting Costs - transport and accomodation costs for ten, 3 day safari hunts have been included.
- 5) Cropping Costs - ammunition used in game harvesting has been an average of 6 rounds per kill as opposed to the original models assumed 1.6 rounds. Transport costs per animal killed are also increased from the 2.7 km assumed in the original model, to 22km as the average distance travelled per kill, by the project vehicle on hunts.

TABLE Gb5 OPERATING OVERHEAD EXPENDITURE AT FULL PRODUCTION

overhead expenditure is slightly increased by higher maintenance, repair and insurance costs which raises expenditure from the P 22501 in the original model to P 23161.

TABLE Gb6 STATIC FINANCIAL MODEL AT FULL PRODUCTION

The total capital requirement is increased from P 158,721 in the original model to P 189,475.

Gross income is increased from P 101,939 by P 30,093 to P 132,032 in this analysis.

Variable costs increase considerably from the original analysis, from P 0.03 per ha. to P 0.12 per ha., which represents the increase in hunting costs - ammunition and distance travelled per kill.

Gross margin is consequently reduced from P 0.12 per ha, a total of P 83,994, to P0.07 per ha. representing a total of P 51,833.

OVERHEAD COSTS increase to P 51,586 from P 46,443 representing increases in operating costs, amortisation and interest, capital replacement and interest on variable and overhead working capital. Rental per LSU remains unchanged @ P 2.01.

NET CASH INCOME is reduced from P 37,551 to P 247. This represents a reduction in total benefits per P100 invested to P 1.59 as opposed to the original models P 25.40.

Likewise the NET ECONOMIC BENEFIT per P100 TOTAL CAPITAL COST is reduced from a reasonably healthy P 41.75 to P 16.75 which is not good.

ECONOMIC MODEL Gb - GROUP GAME CROPPING - WESTERN NGWAKETSE, SOUTHERN DISTRICT - BASE CASE

TABLE Gb1: CAPITAL REQUIREMENTS

ITEM	STATUS	UNIT	QUANT.	PRICE Pula	COST Pula	LIFE Years	AMORTISATION AND INTEREST (@10%)	DEPRECIATION
FIXED CAPITAL								
HOUSES								
Manager	NT		1	49000	49000	40	5758	1225
Labour	NT		20	0	0	40	0	0
BUILDINGS								
Storerooms	NT		1	25000	25000	40	2936	625
Hunter/Tourist Lodges	NT		0	68000	0	40	0	0
Hiker Camps	T		0	0	0	10	0	0
WATER SYSTEM								
Borehole	NT		0	25000	0	40	0	0
Pump/Windmill	T		0	4000	0	15	0	0
Reservoir	NT		1	300	300	40	35	8
Piping	NT	Kms	1	700	700	40	82	18
Pipe laying	NT	Kms	0	250	0	40	0	0
Pressure Valves	T		0	80	0	20	0	0
Ball Valves	T		0	30	0	6	0	0
Drinking Pans	NT		0	350	0	40	0	0
FENCING								
Perimeter	T	Kms	1	3641	3641	15	479	243
Internal	T	Kms	.00	4100	0	15	0	0
Firebreaks	NT	Kms	1	410	410	40	48	10
PENS / HANDLING FACILITIES								
Boma	T		0	2700	0	20	0	0
OTHER DEVELOPMENTS								
Hiking Trails	NT	Kms	0	60	0	40	0	0
SERVICES AND ESTABLISHMENT								
Power/Road to Site	NT		0	0	0	40	0	0
CONTINGENCIES	.05	NT	79051		3953	40	464	99
SUBTOTAL- FIXED CAPITAL					83004			
MOVABLE CAPITAL								
VEHICLES								
Land Cruiser and Two Donkey Carts	T		1	48876	48876	4	15419	12219
EQUIPMENT								
Tools, Office/Camp Equipment	T		1	5151	5151	6	1183	859
Hunting Equipment	T		1	8300	8300	6	1906	1383
Saddles and Packgear	T		8	540	4320	6	992	720
STOCK								
Capture: Small Antelope	NT		0	300	0	40	0	
: Large Antelope	NT		0	300	0	40	0	
: Ostrich	NT		0	300	0	40	0	
: Other Animals	NT		0	300	0	40	0	
Horses and Donkeys	NT		12	163	1956	40	230	
CONTINGENCIES	.10	T	68603		8860	15	902	457
SUBTOTAL- MOVABLE CAPITAL					75463			
WORKING CAPITAL								
VARIABLE	.30	T	80199		24060	3609		
OVERHEAD	.30	T	23161		6948	1042		
SUBTOTAL- WORKING CAPITAL					31008	4651		
TOTALS					189475	4651	30432	17865

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ECONOMIC MODEL Gb - GROUP GAME CROPPING - WESTERN NGWAKETSE, SOUTHERN DISTRICT - BASE CASE

TABLE Gb2: STOCK COMPOSITION BY SPECIES AT FULL PRODUCTION

ITEM	HEAD	FACTOR	LARGE STOCK UNITS (LSU)
Big Cats	0	.00	0
Eland	69	1.00	69
Gemsbok	130	.40	52
Hartebeest	1038	.25	259
Kudu	69	.40	28
Ostrich	1730	.26	450
Small Animals	0	.00	0
Springbok	4220	.08	338
Steenbok/Duiker	1038	.07	67
Wildebeest	277	.40	111
TOTAL	8570		1373

GAME DENSITY ON LAND: 504 HECTARES/LSU ; CONCESSION SIZE : 691790 HECTARES

TABLE Gb3: SALES AT FULL PRODUCTION

ITEM	OFFTAKE	NUMBER	VALUE Pula	INCOME Pula
SAFARI HUNTING				
Big Cats	.00%	0	0	0
Eland	.00%	0	0	0
Gemsbok	.00%	0	0	0
Hartebeest	1.20%	12	1080	12960
Kudu	.00%	0	0	0
Ostrich	.35%	6	540	3240
Small Animals	.00%	0	0	0
Springbok	.29%	12	450	5400
Steenbok/Duiker	1.20%	12	135	1620
Wildebeest	.00%	0	0	0
Safari Fees: Hunters	0	10 -Day Hunts/Year	1000 Pula/Day =	0
: Hunters	10	3 -Day Hunts/Year	500 Pula/Day =	5000
: Observers	0	10 -Day Hunts/Year	240 Pula/Day =	0
SUBTOTAL- SAFARI HUNTING	10	23		28220
LIVE SALES				
Big Cats	.00%	0	250	0
Eland	.00%	0	250	0
Gemsbok	.00%	0	250	0
Hartebeest	.00%	0	250	0
Kudu	.00%	0	250	0
Ostrich	.00%	0	250	0
Small Animals	.00%	0	250	0
Springbok	.00%	0	250	0
Steenbok/Duiker	.00%	0	250	0
Wildebeest	.00%	0	250	0
SUBTOTAL-LIVE SALES		0		0

ECONOMIC MODEL Gb - GROUP GAME CROPPING - WESTERN NGWAKETSE, SOUTHERN DISTRICT - BASE CASE

TABLE Gb3: SALES AT FULL PRODUCTION (CONTINUED)

MEAT (CROP. + SAF. HUNT.)	OFFTAKE	SAF. QUOTA	PROJECT NUMBER	COLD	FRESH BILTONG		MEAT		INCOME
				DRESSED MASS Kgs/Cse.	BILTONG Tot.Kgs	MEAT Tot.Kgs	VALUE Pula	VALUE Pula	
Big Cats	.00%	0	0	.00	.00	.00	.00	.00	0
Eland	4.00%	0	3	311.00	144.85	193.13	10.00	4.40	2298
Gemsbok	5.10%	0	7	105.00	117.22	158.30	10.00	4.40	1860
Hartebeest	6.00%	12	75	92.00	1160.01	1546.68	10.00	4.40	18405
Kudu	5.70%	0	4	115.00	76.32	101.77	10.00	4.40	1211
Ostrich	6.30%	8	115	30.00	582.36	776.48	10.00	4.40	9240
Small Animals	.00%	0	0	.00	.00	.00	10.00	4.40	0
Springbok	9.40%	12	409	13.00	897.07	1196.10	10.00	4.40	14234
Steenbok/Duiker	14.40%	12	162	7.50	204.89	273.19	10.00	4.40	3251
Wildebeest	5.10%	0	14	122.00	290.51	387.35	10.00	4.40	4609
Hides and Eggs			745				65.39		48703
SUBTOTAL-MEAT			788		3473.24				103812
TOURISM									
Hiking Trail Fees	0		4 -Day Trails/Year		50 Pula/Day =				0
GROSS INCOME									132032

TABLE Gb4: VARIABLE EXPENDITURE AT FULL PRODUCTION

ITEM	STATUS	PULA/LSU	PULA/HECTARE	PULA
Fodder and Supplements	T	.26	.00	360
Veterinary and Medicine Costs	NT	.15	.00	0
Marketing Costs: Advertising	T	.21	.00	282
: Agents Fees	T	.18	.00	250
: Live Game Distribution	T	.00	.00	0
: Biltong Distribution	T	3.03	.01	4168
Safari Hunting Costs: Accomodation	T	12.91	.03	17735
: Transport	T	6.70	.01	9200
: Licence Fees	NT	.00	.00	0
Live Sales Costs: Aerial Support	T	.00	.00	0
: Field Ops.	T	.00	.00	0
: Transport	T	.00	.00	0
: Licence Fees	NT	.00	.00	0
Cropping Costs: Ammunition	T	5.20	.01	7139
: Supplies and Packaging	T	5.74	.01	7880
: Transport	T	22.72	.05	31204
: Licence Fees	NT	.00	.00	0
Fuels, Oils and Miscellaneous Costs	T	1.44	.00	1980
TOTAL VARIABLE EXPENDITURE		58.39	.12	80199

ECONOMIC MODEL Gb - GROUP GAME CROPPING - WESTERN NGWAKETSE, SOUTHERN DISTRICT - BASE CASE

TABLE Gb7: STATIC ECONOMIC MODEL (AT FULL PRODUCTION)

ITEM	UNITS		TOTAL
Concession Extent	Hectares		691790
Concession Stock	Large Stock Units (LSU)		1373
CAPITAL REQUIREMENTS			
	PULA/LSU	PULA/HECTARE	PULA
Domestic Component	59.21	.12	81319
Tradable Component @ Import Parity	86.62	.17	118972
Total Economic Value	145.83	.29	200291
FINANCING			
Domestic Interest Cost	5.67	.01	7793
Foreign Interest Cost @ Import Parity	.00	.00	0
ECONOMIC BENEFITS			
Gross Income @ Import Parity	105.75	.21	145235
ECONOMIC COSTS			
DOMESTIC COMPONENT			
Shadow Unskilled Citizen Wages	.00	.00	0
Other Citizen Wages	6.55	.01	9000
Citizen Services	4.61	.01	6332
Electricity	.00	.00	0
Maintenance and Repairs	3.52	.01	4829
Other Domestic Economic Costs	.00	.00	0
SUBTOTAL DOMESTIC COMPONENT	14.68	.03	20161
TRADABLE COMPONENT (@ IMPORT PARITY)			
Feed and Raw Material Costs	.29	.00	396
Foreign Remuneration	2.40	.00	3300
Foreign Services	.43	.00	585
Fuels and Oils	33.95	.07	46623
Foreign Interest	.00	.00	0
Foreign Lease Payments	.00	.00	0
Foreign Rentals	.00	.00	0
Foreign Net Income	.00	.00	0
Other Tradable Economic Costs	29.57	.06	40614
SUBTOTAL TRADABLE COMPONENT	66.64	.13	91519
TOTAL ECONOMIC COSTS	81.32	.16	111680
NET ECONOMIC BENEFIT (GROSS VALUE ADDED)	24.43	.05	33555
DOMESTIC RESOURCE COST RATIO =	.52		
NET ECONOMIC BENEFIT/P100 TOTAL CAPITAL COST =	16.75		
CAPITAL COST/EMPLOYMENT OPPORTUNITY CREATED =	9538		
NUMBER OF EMPLOYMENT OPPORTUNITIES/1000 HECTARES =	.03		

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ECONOMIC MODEL Gb - GROUP GAME CROPPING - WESTERN NGWAKETSE, SOUTHERN DISTRICT - BASE CASE

TABLE Gb3: SALES AT FULL PRODUCTION (CONTINUED)

MEAT (CROP. + SAF. HUNT.)	OFFTAXE	SAF. QUOTA	PROJECT NUMBER	COLD DRESSED MASS Kgs/Cse.	BILTONG Tot.Kgs	FRESH BILTONG MEAT Tot.Kgs	BILTONG VALUE Pula	MEAT VALUE Pula	INCOME Pula
Big Cats	.00%	0	0	.00	.00	.00	.00	.00	0
Eland	4.00%	0	3	311.00	144.85	193.13	10.00	4.40	2298
Gemsbok	5.10%	0	7	105.00	117.22	156.30	10.00	4.40	1860
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Ostrich	6.30%	6	115	30.00	582.36	776.48	10.00	4.40	9240
Small Animals	.00%	0	0	.00	.00	.00	10.00	4.40	0
Springbok	9.40%	12	409	13.00	897.07	1196.10	10.00	4.40	14234
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TOURISM									
Hiking Trail Fees	0	4 -Day Trails/Year			50 Pula/Day =				0
GROSS INCOME									132032

TABLE Gb4: VARIABLE EXPENDITURE AT FULL PRODUCTION

ITEM	STATUS	PULA/LSU	PULA/HECTARE	PULA
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Safari Hunting Costs: Accomodation	T	12.91	.03	17735
: Transport	T	6.70	.01	9200
: Licence Fees	NT	.00	.00	0
Live Sales Costs: Aerial Support	T	.00	.00	0
: Field Ops.	T	.00	.00	0
: Transport	T	.00	.00	0
: Licence Fees	NT	.00	.00	0
Cropping Costs: Ammunition	T	5.20	.01	7139
: Supplies and Packaging	T	5.74	.01	7880
: Transport	T	22.72	.05	31204
: Licence Fees	NT	.00	.00	0
Fuels, Oils and Miscellaneous Costs	T	1.44	.00	1980
TOTAL VARIABLE EXPENDITURE		58.39	.12	80199

Appendix 1.

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