An analysis of the livelihoods of communities of the upper Selati catchment, South Africa

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September 2005

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International Institute for Environment and Development

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DFID Department for International Development

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Citation:
Dippenaar, S., N. Moilwa, S. Olorunju and A. E. Visser (2005) *An analysis of the livelihoods of communities of the upper Selati catchment, South Africa.* Center for Scientific and Industrial Research (CSIR), Pretoria, South Africa and International Institute for Environment and Development, London, UK.

Developing markets for watershed protection services and improved livelihoods

Based on evidence from a range of field sites, the IIED project 'Developing markets for watershed services and improved livelihoods' is generating debate on the potential role of markets for watershed services. Under this subset of markets for environmental services, downstream users of water compensate upstream land managers for activities that influence the quantity and quality of downstream water. The project purpose is to increase understanding of the potential role of market mechanisms in promoting the provision of watershed services for improving livelihoods in developing countries.

The project is funded by the UK Department for International Development (DFID).

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Acronyms and abbreviations

CSIR	Center for Scientific and Industrial Research
DFID	Department for International Development (UK)
DLA	Department of Land Affairs
DME	Department of Minerals and Energy
DWAF	Department of Water Affairs and Forestry
GDP	Gross Domestic Product
ICID	International Commission on Irrigation and Drainage
IIED	International Institute for Environment and Development
NWRS	National Water Resources Strategy (South Africa)
PES	Payments for Environmental Services
SL	Sustainable Livelihoods
UNDP	United Nations Development Programme
VIP	Ventilated Improved Pit Latrine
WMA	Water Management Area

Executive summary

This analysis of the livelihoods of communities of the upper Selati catchment forms part of a broader project that examines the use of market-based mechanisms for watershed (catchment) management globally. The project is funded by the United Kingdom Department for International Development (DFID) through the International Institute for Environment and Development (IIED). The broader project is being conducted in a number of developing countries at different scales and four countries (or regions) in particular are being highlighted as action learning sites. These are India, Indonesia, South Africa and the Caribbean.

More specifically, the broader project aims to understand the implications and opportunities for market-based mechanisms to improve livelihoods. In other words, the project explores the opportunities for pro-poor trade in environmental services in selected catchments, to the benefit of catchment management and the livelihoods of catchment communities.

The livelihoods of catchment communities are therefore central to the project. An understanding of the livelihoods of communities is essential to appreciate the role that market-based mechanisms could potentially play in improving these livelihoods.

The Selati and Sabie catchments were selected for action learning in South Africa; this report is a baseline study on the livelihoods of communities in the Selati catchment. The project team envisages the poor communities of the communal areas in the catchment as potential providers of improved water services for a number of reasons.

Firstly, the environmental problems experienced in the Selati catchment can be attributed, in part, to the activities of communities in the upper catchment. Secondly, most of the communities are very impoverished and need to deploy alternative options to their current livelihood strategies. Thirdly, the communities are ideally situated for the provision of water services, such as improved land management practices, due to the location of the communal area in the upper catchment.

The main objectives of this study are:

- To define the social, spatial, environmental and economic characteristics of the upper Selati catchment;
- To identify the different livelihood activities of community members and their vulnerability to external influences; and
- To analyse the potential socio-economic effects of payments for environmental services (PES) at the selected site.

An initial site visit to the Selati catchment in June 2005 comprised a meeting with commercial farmers in the catchment; visits to the Lekgalameetse Nature Reserve and an avocado plantation within the Reserve; visits to five commercial farms in the area; and a pilot study among farm workers on commercial farms. The information obtained during this visit was used to adapt the household livelihoods questionnaire to the specifications of the site.

The household livelihoods survey was conducted during a follow-up visit to the upper catchment in July 2005 when fieldworkers administered 250 questionnaires among household members in the villages of Balloon and Calais. The results from the survey are reflected in this study.

Geographically, the villages of the upper Selati catchment are within the area of the former Lebowa homeland. A functional traditional leadership system is in place in the area and the majority of villages form part of the Sekororo Tribal Area, with Chief S.S.S. Sekororo as leader of the entire Sekororo Tribal Area and various headmen as leaders of the villages within the tribal area.

The livelihood strategies and outcomes of households in these villages are very similar to those of communities in former homelands throughout South Africa. Poverty is pervasive and the isolated location of these villages limits employment opportunities to work on commercial farms in the district. Unemployment is therefore similarly pervasive. Wages on commercial farms are low and relatively large households often depend on a single wage combined with state pensions and/or child support grants for a household income. As a result, household income is seldom sufficient to cover food expenses.

Service provision in these villages is relatively good. The majority of households have access to a tap within 200 m of their plots. Provision was made for electricity to these villages but the high costs of using electricity in the home, such as installation of wiring and purchase of electrical equipment, result in the majority of households still using wood collected from the communal area for cooking and heating. Candles are generally used for lighting. Sanitation facilities are sub-standard, with rudimentary pit latrines the most common sanitation facility used. Community members do not pay for services.

Despite low household income and a high unemployment rate, few households in the villages of Balloon and Calais actively practise subsistence agriculture. Vegetable gardens are scarce and existing subsistence agriculture centres on the farming of chickens and cattle. The communal areas of the catchment are highly degraded. Cattle graze and roam freely on the communal land, contributing to environmental degradation. Commercial farmers in the upper catchment report that cattle from the community graze in the Lekgalameetse Nature Reserve and trample the sensitive marshland ecosystems of this Reserve. In the recent past, water in the upper reaches of the Selati River was “murky” for the first time as far as farmers were able to recollect; this is attributed to degradation of the marshlands in the Reserve.

Households are dependent on natural resources for wood (as a fuel source for heating and cooking), for livestock grazing, and as a source of food. Many households reportedly collect food from the veld. Respondents of the survey report that they mostly collect dry wood from the veld for firewood. However, stakeholders report large-scale tree felling by some community members in the Lekgalameetse Nature Reserve and it is therefore doubtful whether the available natural resource provides sufficient dry wood to meet the future needs of the entire population of the communal area.

It is anticipated that the South African land reform process will significantly alter the current social, economic and bio-physical context of the Selati catchment. In 2003, the first phase of the Sekororo Land Claim, submitted by the Sekororo Community, was gazetted in terms of Government Gazette No. 25622 of 2003 (DLA 2003). According to the land claim, the claimants, consisting of 895 households, have laid claim to a proportion of the current commercial farming land in the upper Selati catchment as well as the Lekgalameetse Nature Reserve, which was still state-owned in July 2005. Personal communication with officials at the Limpopo Regional Land Claims Commission in Polokwane revealed that the first phase of the claim was successful and that plans are now being developed for ‘post-settlement support’. Phase 2 of the Sekororo Land Claim comprises claims that have been laid to other areas of commercial farmland in the catchment, mostly in the Harmony Block, a productive agricultural area in the middle reaches of the Selati catchment.

The land reform process is viewed positively by a large proportion of the Sekororo Community but many individuals, mostly farm workers, are concerned about the impact that land reform might have on their livelihoods. Where households are dependent on farm workers' wages for their livelihoods, any change in the ownership structure of commercial farmland can be expected to have a negative impact upon the security of livelihoods.

The current average household income and high unemployment rate in the upper Selati catchment are clear indicators of a need for alternative livelihood strategies in the catchment. The commercial farming sector is clearly not able to provide sufficient employment opportunities to all community members to ensure a higher employment rate. Employment rates are also vulnerable to external factors, such as decreased flow in the Selati River.

The unemployed people of the upper catchment are ideally situated to provide environmental services to buyers downstream.

It is recommended that, in the establishment of a market for water services in the Selati catchment, two integral issues are considered.

A. The environmental problems of the upper catchment are largely as a result of the activities of community members. Therefore, the potential providers of environmental services (the community) also contribute to the environmental problems in the upper catchment. Any intervention should be based on both pro-active and reactive measures. For example, it will be ineffective to pay community members to plant trees while other members of the same village cut down trees in the area.

B. The land reform process will dramatically alter ownership patterns in the upper Selati catchment. The successful implementation of a market for environmental services will be dependent on a number of regulatory measures. Ownership of the Lekgalameetse Nature Reserve will be transferred to the Sekororo people in the near future. The success of a market-based mechanism for environmental services will be influenced by strict regulations and control in terms of access to natural resources in the nature reserve. It is not clear which institution will have the mandate to enforce such regulations.

Ultimately, the success of market-based mechanisms for catchment management in the Selati will depend on a number of interdependent variables. The complexity of social relations in the catchment, historical factors (such as dispossession of land), and current policies and processes will all play a role in determining the success of a market for catchment services.

1. Introduction

This analysis of the livelihoods of communities living in the upper Selati catchment is part of a larger project aimed at investigating the use of market-based mechanisms for catchment management globally.

These (payment) schemes are considered to be flexible, direct mechanisms that encourage both suppliers of improved water services and demanders of these services to engage in active participatory exchanges. By doing so, the availability or quality of the water resources downstream is improved. (Claassen et al. 2004).

The larger project aims to understand the implications and opportunities for market-based mechanisms to improve livelihoods. An understanding of the livelihoods of suppliers and demanders of water services at any selected site is crucial to meet these specific aims.

The Selati catchment was selected as the first site of the South African case study for the larger DFID-funded project. For the purposes of the study, the communities of the upper catchment were selected as proposed suppliers of improved water services in the catchment, while commercial farmers and mines further downstream were seen as the potential demanders of these services. Exchanges would not necessarily be in monetary terms; for example, commercial farmers could offer training in exchange for improved water resources downstream.

This study is a summary of the livelihoods of the proposed suppliers of improved water services in the Selati catchment, mainly the people of the Sekororo Tribal Area who occupy large areas of the upper catchment. The analysis discusses the nature of the livelihoods of these communities and the vulnerability of their livelihoods to external factors.

2. Characteristics of the study area

The Selati catchment is situated within South Africa's northern most province, Limpopo, which is bordered by the countries of Botswana, Zimbabwe and Mozambique.

The South African National Water Resource Strategy (NWRS) notes that South Africa is located in a predominantly semi-arid part of the world (DWAF 2004a). The country has an average rainfall of 450 mm per year in comparison with the world average of 860 mm per year (DWAF 2004a). Evaporation throughout most of South Africa is very high, and the loss by evaporation from open water surfaces exceeds by far the average rainfall, ranging from 2,500 mm in the dry west to 1,500 mm in the more humid temperate regions (ICID n. d.). The NWRS describes South Africa's water resources as 'scarce and extremely limited' in global terms (DWAF 2004a).

South Africa has been divided into 19 catchment-based water management areas (WMAs) to facilitate the management of the country's water resources (DWAF 2004a). Illustrative of water scarcity in South Africa, the Department of Water Affairs and Forestry (DWAF) reported that 10 of the 19 WMAs were facing a water deficit in 2000 (DWAF 2004a).

The Olifants Water Management Area

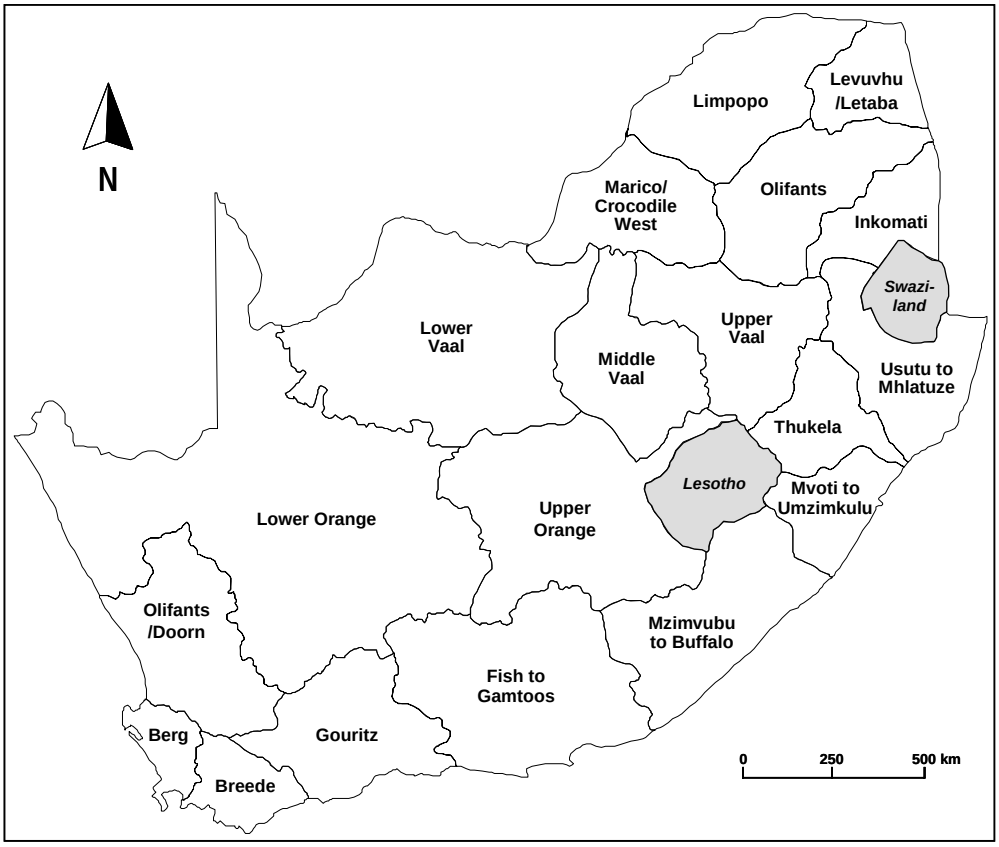


Figure 1: The 19 Water Management Areas of South Africa (DWAF 2004a)

The Olifants WMA is situated in the north-eastern part of South Africa (Figure 1) and extends across the boundaries of three provinces: Limpopo, Mpumalanga and Gauteng. The Olifants River originates in the highveld of Mpumalanga from where it flows in a north-easterly direction towards the Kruger National Park and Mozambique (DWAF 2004b). The WMA has

been divided into 4 sub-areas for strategic purposes: the Upper Olifants, Middle Olifants, Steelpoort, and Lower Olifants Sub-Areas.

The Selati catchment

The Selati River is a tributary of the Olifants River and originates in the Drakensberg Mountains from where it flows through the Lowveld region before it joins the Olifants River at Phalaborwa, a short distance to the west of the Kruger National Park. The Selati River falls within the Lower Olifants Sub-Area of the Olifants WMA.

The extreme upper watershed falls within a protected area, the Lekgalameetse Nature Reserve, in the foothills of the Drakensberg Mountain Range.

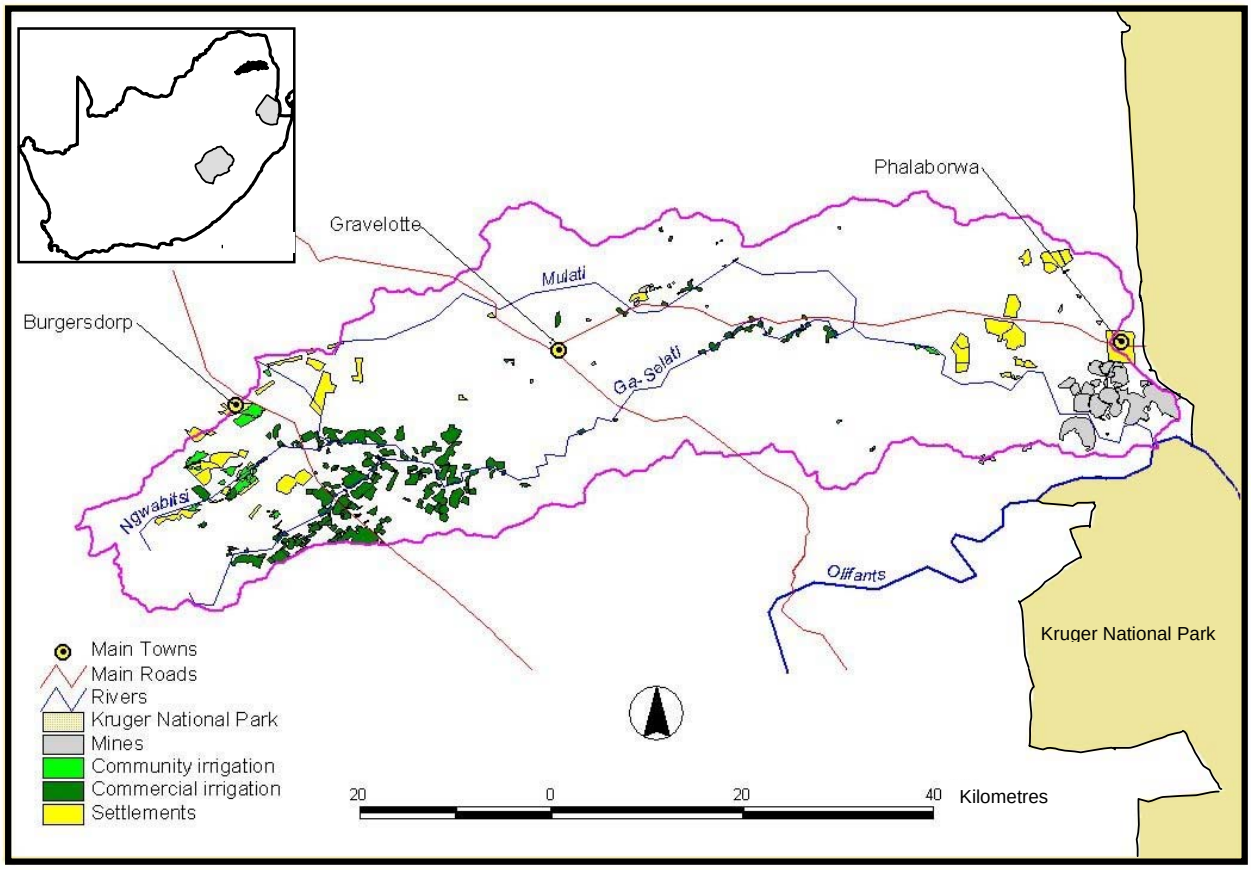


Figure 2: The Ga-Selati catchment, showing community settlements in the upper catchment. Insert shows the position of the catchment in South Africa

From its upper reaches, the Selati River meanders through commercial farmland owned mostly by white commercial farmers, then through the Selati Game Reserve before joining the Olifants River.

The people of the upper catchment

The inhabitants of the upper catchment are mostly the Sekororo people, the communities of the former Lebowa homeland. Under colonial rule, the baPedi (or Northern Sotho) were placed in a number of official reserves of which Sekhukhuneland was the largest and most

important. In the 1960s, Sekhukhuneland and a number of other reserves were incorporated into a homeland for the Northern Sotho people. The homeland, then known as Lebowa, is now part of the Limpopo Province. Currently, land in the upper catchment is under a communal ownership regime with Chief (Inkosi) S.S.S. Sekororo as the Supreme Chief of the Sekororo, and with a number of indunas or headmen in charge of villages that are situated within the Sekororo Tribal Area.

The Sekororo are baPedi (or North Sotho) people and speak SePedi, otherwise known as Northern Sotho (Figure 3). The Sotho people inhabit the interior of southern Africa and comprise about 30 % of the Bantu-speaking language group in southern Africa (SAHistory 2005). SeSotho (Southern Sotho), Tswana (or SeTswana or Western Sotho) and SePedi (Northern Sotho) all belong to the Bantu group of languages (SAHistory 2005). Traditionally, the Sotho people give allegiance to a paramount chief and are controlled by a hereditary district chief assisted by community headmen (SAHistory 2005).

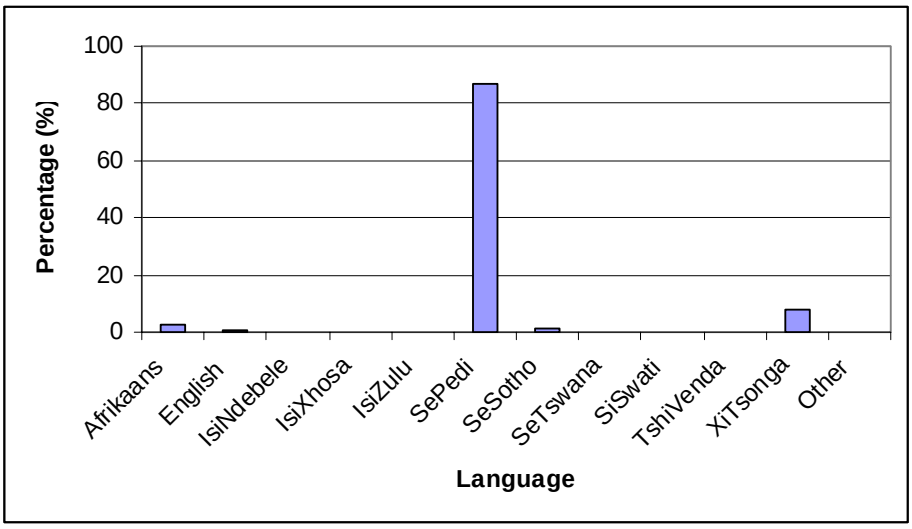


Figure 3: The predominant languages spoken in the upper Selati catchment (Stat SA 2001)

2.1 Physical and environmental description

The Selati River (or Ga-Selati as it is officially recorded) is situated in a summer rainfall area and has a length of approximately 140 kilometres from its source to the point where it joins the Olifants River, east of the town of Phalaborwa. The Selati River has two main tributaries in its upper reaches, the Ngwabitsi and the Mutali rivers (Figure 2).

The river has its source in the eastern slopes of the Wolkberg Mountains, which form an outcropping of the Northern Drakensberg. The local relief changes eastwards to the flat or undulating terrain of the dry Lowveld regions where the topography is characterized by gently sloping valleys and isolated outcrops of granitic rocks. The altitude at the river's source varies between 1,500 m to 2,050 m above mean sea level and drops to approximately 360 m above mean sea level around the town of Phalaborwa, where it joins the Olifants River. The mean annual precipitation in the upper reaches varies from 800 mm to 1,200 mm, dropping to between 400 mm and 800 mm as it progresses towards the east. The lowland eastern regions have significantly higher temperatures than the western regions, with mean daily temperatures averaging from 20 to 22 ºC.

Close to its source the Selati River is perennial, but upstream abstractions, combined with little or no inflows from seasonal tributary streams in its middle and lower reaches, cause flow to cease during winter in the lower sections of the river.

2.1.1 Geology

In the source area, the catchment is underlain by rocks of the Transvaal Sequence, which form the major portion of the Drakensberg Mountain range. The dolomite outcrops from this sequence, in particular, are important sources of good quality water in the upper catchment and contribute water throughout the year (Ashton et al. 2001).

Further to the east and south, rocks of the Gravelotte Group (part of the Murchison Sequence) and Rainwater Complex outcrop in the vicinity of Gravelotte. The greenstone formations associated with this geology contain important deposits of antimony and gold, with minor deposits of mercury and zinc. An extensive deposit of heavy mineral sands is located near the town of Gravelotte (Ashton et al. 2001).

The felsites and gabbros of the Rooiwater Complex of the middle reaches of the river are easily eroded and contribute increased levels of sediments in the valley depressions and river channels. Accelerated rates of sediment production occur in this region, with large amounts of coarse and fine sediments accumulating in river channels.

The Phalaborwa area, in the lower catchment, is underlain by harder crystalline granite and gneiss rocks of the Basement Complex (Ashton et al. 2001).

2.1.2 Soils and agriculture

The upper regions of the catchment are characterised by small areas of shallow, sandy or gravelly soils. These areas contain some plantation forestry.

The foot of the escarpment is dominated by sandy colluvial soils which grade into red apedal soils in the western part of the catchment. Shallow, brownish to greyish brown sandy soils overlie the coarsely weathered rock in the eastern portion of the catchment, and transported alluvial deposits of coarse- to fine-grained sands and silts appear along drainage lines (Ashton et al. 2001).

The agricultural activities of the middle reaches of the Selati catchment are concentrated around citrus and sub-tropical fruit cultivation. Several weirs provide irrigation water for large-scale commercial irrigation farms. The river also provides an important source of water for game farms as well as some livestock rearing farms (Figure 4).

Figure 4: Cattle with maize fields in the background on a commercial farm, Harmony Block, Selati catchment

2.1.3 Vegetation

The vegetation of the upper reaches of the catchment consists mainly of grasslands with patches of Afromontane forest on the steep escarpment slopes. The lower reaches of the catchment are typical Lowveld bushland and Mopane bushveld. In the upper portion of the catchment alien species include; Lantana (*Lantana camara*), Wild tobacco (*Nicotiana glauca*), common cocklebur (*Xanthium strumarium*), black wattle (*Acacia mearnsii*) and castor oil bush (*Ricinus communis*).

According to the Water Research Commission (2001), the Selati River is generally in a fair state, though the status of fish and riparian vegetation is poor. It is hoped that the above-mentioned conservancy will help to improve the ecological status of the Selati River as a whole. Private land owners have formed a conservancy and have set aside more than 33,000 ha of land (from Gravelotte to Phalaborwa) to be managed as the Selati Game Reserve. The change in land use is expected to improve river health conditions in this area as well as further downstream.

2.1.4 Water management

Lepelle Northern Water Board provides almost all of the water required for industry and domestic use from the Phalaborwa Barrage, located on the Olifants River. When water levels in the Phalaborwa Barrage drop, releases of additional water are requested from the Blydepoort Dam, located on the Blyde River.

Other towns in the Selati catchment rely on water from small water supply impoundments, bore holes, wells, or run-of-river abstraction points. In the case of the town of Gravelotte though, water is transferred into the catchment from the Letaba catchment area to the north.

Lepelle Northern Water Board is responsible for the aspects of water supply to, and effluent discharge from, the town of Phalaborwa. Small irrigation boards control the allocation of water for commercial irrigation in the upper reaches of the Selati River (Ashton et al. 2001).

2.1.5 Main environmental problems

Sediment from various land-use activities, including overgrazing and industrial and mining activities, accumulates in the Phalaborwa Barrage.

Several mines, of which the Palabora Mining Company and Foskor are the largest, are situated in the Selati catchment area. Concentrations of heavy metals and chlorides from industrial and mining origin in the Phalaborwa area may reach unacceptable levels in the Selati River during low flow periods.

Figure 5: Cattle in the Sekororo Tribal Area

Even though the Palabora Mine has received the Environmental Management Award for environmental practice in the past from DME, the mine has been in the news a number of times regarding spillages of toxic substances into the river. In terms of the National Water

Act, process water from Foskor, which is situated close to the Palabora Mine, may not be released into the Selati River. Foskor has thus allocated R306 million to the Foskor Water Management Project, which makes it one of the biggest projects in South Africa addressing a single environmental impact (Nienaber 2005).

According to Ashton et al. (2001), the water quality in the Selati River immediately upstream of the town of Phalaborwa is already poor, probably as a result of agricultural return flows and other effluent discharges upstream. After receiving the effluents from Phalaborwa, the concentrations of a few constituents increase, but there is no overall improvement or dramatic worsening of the water quality in the Selati River. The water quality in the Phalaborwa Barrage is comparatively good, but when mixed with water from the Selati River, there is a marked deterioration in water quality.

Sediments derived from upstream areas in the Olifants catchment, (originating from plantations located close to the river, as well as from overgrazing, and industrial and mining activities along the lower reaches), accumulate in the Phalaborwa Barrage. When the barrage is flushed out from time to time, large quantities of sediment are released. According to the Water Research Commission (2001), this causes severe damage to in-stream habitats and biota in the downstream part of the Olifants River, below the junction of the Selati River and the Olifants River.

Water abstraction close to the source of the Selati River, and used to irrigate avocado plantations located within the Lekgalameetse Nature Reserve (Figure 6), results in low stream flow directly downstream from the nature reserve. Cattle grazing in the nature reserve also trample sensitive marshland vegetation. These cattle belong to communities living in villages close to the nature reserve, for example Calais.

Figure 6: The avocado plantation in the Lekgalameetse Nature Reserve, Selati catchment

2.2 Socio-economic characteristics

2.2.1 Land ownership

Land ownership patterns in the upper Selati catchment are diverse due to the intermingled locations of communal villages, conservation areas and commercial farms. In the near future, ownership patterns here will change considerably, as ownership of the previously state-owned Lekgalameetse Nature Reserve will be transferred to the Sekororo people as per an approved land claim.

In the upper sections of the catchment, but downstream from the Lekgalameetse Nature Reserve, some of the areas of the former Lebowa homeland are under a communal land

tenure regime with an active tribal authority system in place. Areas of commercial farmland in the upper catchment, privately owned mostly by white commercial farmers, will be transferred to the Sekororo people as part of the land reform process.

Most of the middle section of the catchment consists of agricultural land, privately owned predominantly by white commercial farmers. The majority of commercial farms in the catchment are situated in the Harmony Block (Figure 2) where agricultural activities concentrate on cultivation of citrus and sub-tropical fruit. The Sekororo people of the upper catchment have also lodged land restitution claims on this land. Processing of these claims is still in process (August 2005).

The privately-owned Selati Game Reserve is situated downstream from the Harmony Block. Large areas of land located further downstream from the Selati Game Reserve are owned by mines located in, or close, to the town of Phalaborwa. These areas of land are being evaluated for their mineral potential.

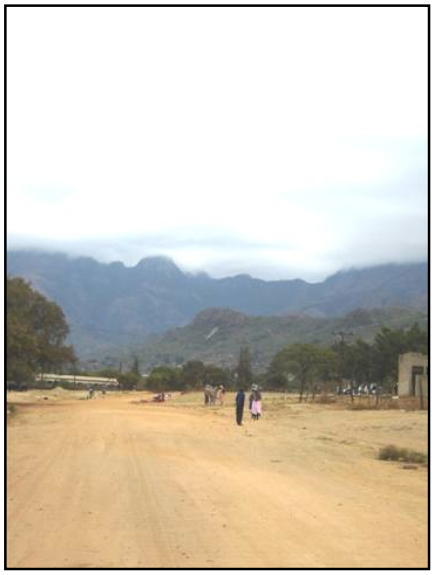


Figure 7: The Sekororo Tribal Area with the Drakensberg Mountains in the background

2.2.2 Institutional information

The Selati catchment falls under the jurisdiction of three local municipalities: Maruleng Local Municipality (part of the Botshabelo Cross Boundary District Municipality), the Greater Tzaneen Local Municipality, and the Ba-Phalaborwa Local Municipality (both part of the Mopani District Municipality). The communal land in the upper catchment falls mainly under the jurisdiction of the Maruleng Municipality and the Greater Tzaneen Municipality. For the purposes of this study, the household livelihoods survey was conducted within the villages of Balloon and Calais, both situated within the municipal boundaries of Maruleng. Balloon is situated in an adjacent catchment, close to the border with the Selati catchment. Many residents of Balloon, however, make use of natural resources in the Selati catchment for their livelihood. For example, the majority of workers in the avocado plantation in the Lekgalameetse Nature Reserve are from Balloon.

Phalaborwa and Hoedspruit are the largest towns in the catchment. Small, scattered villages are typical of the communal areas of the upper catchment. Villages of the Sekororo area include: Balloon, Bismark, Banareng Ba Sekororo, Calais, Enable, Finale, Ga-Sekororo, Lorraine, Madeira, Makgaung, Mametja and Metz.

2.2.3 Demographic information

The population of the upper catchment consists mostly of SePedi-speaking African people, as illustrated in Figure 8. The female population outnumber the male population in the catchment by approximately 8 % (Figure 9), largely because many of the men are migrant labourers who work in cities or mines elsewhere in South Africa.

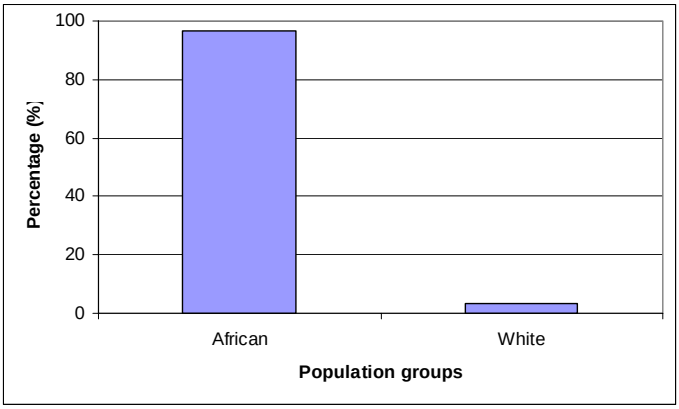
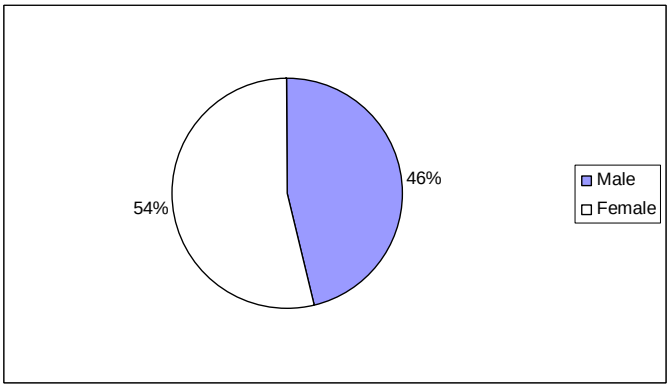


Figure 8: Population groups in the Maruleng Municipality (Stat SA 2001)

Figure 9: Gender distribution in the Maruleng Municipality (StatSA 2001)



The age distribution of the people living in communities in the upper catchment is typical for a developing country. The population is relatively young, with the majority of the population (75 %) under the age of 34 (Figure 10). The above-65 age group represents a very small proportion of the population (5 %), indicating high population growth within the population as well as a relatively low life expectancy.

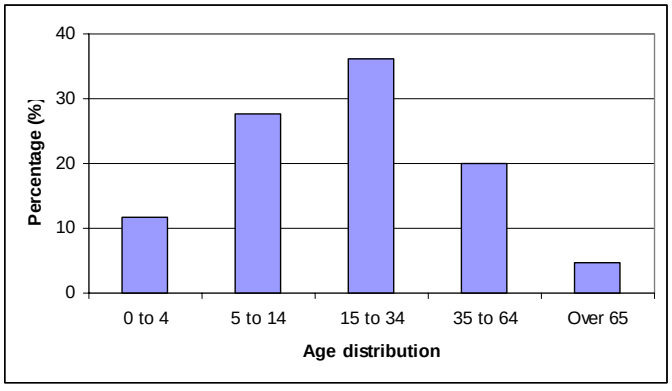


Figure 10: The age distribution of people in communities in the upper Selati catchment (StatSA 2001)

The formal education levels of people living in the upper catchment are relatively low (Figure 11). Of the population over 20 years of age, 37 % did not attend school while 25 % attended secondary school but did not complete Grade 12. Employment opportunities in the formal economy are therefore limited for the majority of community members.

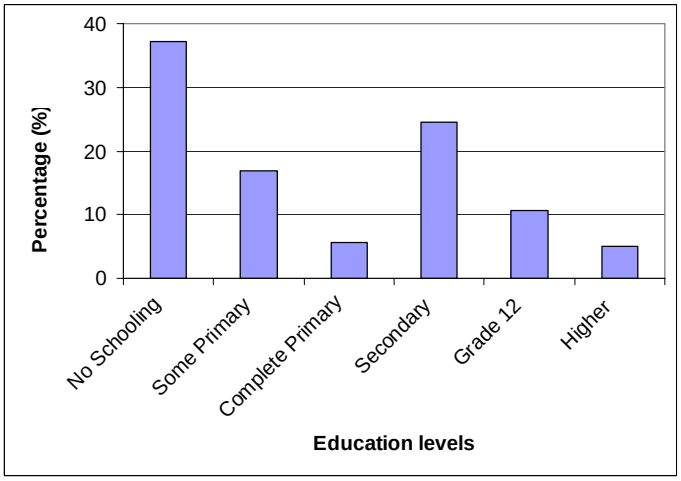


Figure 11: Highest education levels attained by the population of the upper Selati catchment over 20 years of age (StatSA 2001)

2.2.4 Employment within the Selati catchment

Employment opportunities for the population of the communal areas are mostly offered by commercial farming enterprises, and comprise both temporary and permanent employment. Informal conversations with residents of the upper catchment reveal that migration to urban areas for employment purposes is a common occurrence. Job seekers from the Selati catchment often migrate to the metropolitan areas of Gauteng Province, such as Johannesburg.

Figure 12 illustrates the central role that commercial farming plays in employment patterns within the catchment. Most of the employed labour force living within the boundaries of the Maruleng Municipality works in the agricultural sector. Therefore, any impact upon productivity due to land reform processes can be expected to affect the livelihoods of those households that rely on the agricultural sector for their main source of income.

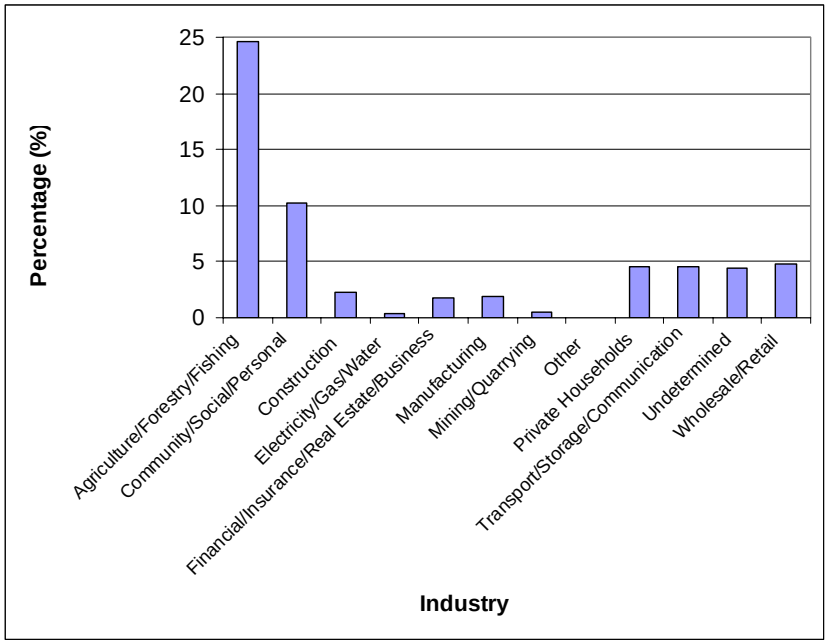


Figure 12: Percentage of employed labour force in each industry type in the Maruleng Municipality (StatSA 2001)

2.2.5 Household income

There is fairly widespread (19 %) unemployment within the potentially active labour force and this contributes to the low average household income of communities in the Selati catchment. In addition, a large proportion (53 %) of the people potentially able to enter labour force (age category 15 to 65 years) are not economically active, indicating that they are either full-time scholars and students, full-time homemakers, retired, or are unable (disabled) or unwilling to work (Figure 13).

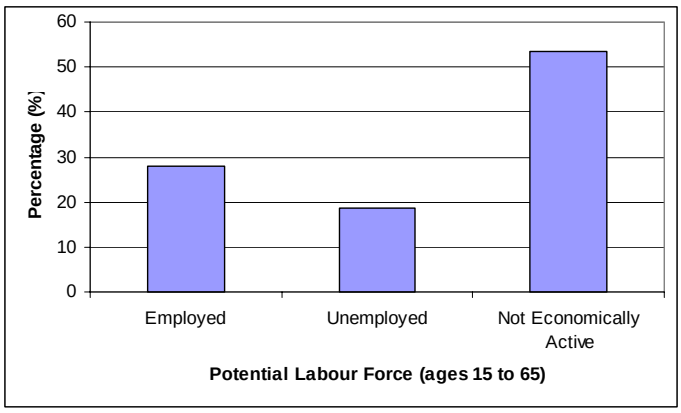


Figure 13: Percentage of employed, unemployed and economically inactive members of the potential labour force in the Maruleng Municipality (StatSA 2001)

Low employment levels, coupled with a very large proportion of the labour force that does not actively participate in the formal economy, results in low household income levels. This is reflected by Census 2001 data (StatSA 2001) as well as a survey conducted within the villages of Balloon and Calais during this study. Figure 15 illustrates the situation regarding household income within the Maruleng Municipality. Where households report receiving no income, they often rely on support from family and friends for necessities. Many households receive state subsidies, such as the Child Support Grant, and this money is used to buy necessities. Low-income households are often malnourished and “pap” (ground maize) is the staple ingredient of their diets.

Figure 14: An informal trader sells vegetables near the Sekororo Tribal Offices, Selati catchment

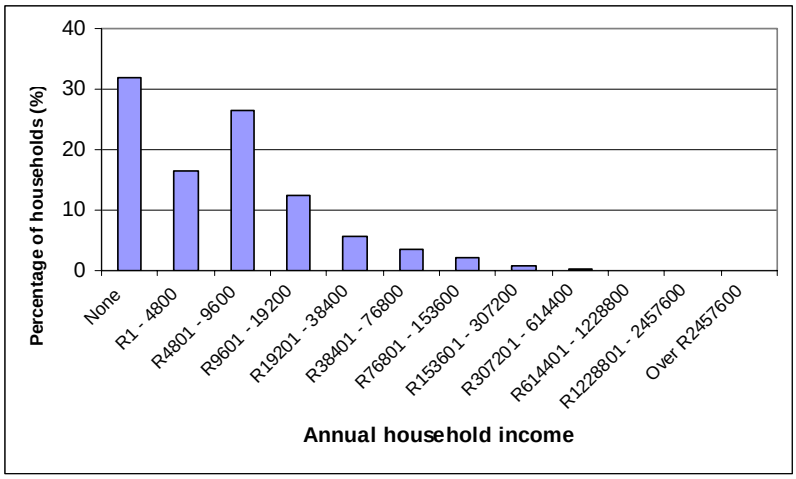


Figure 15: Average annual household income in the Maruleng Municipality (StatSA 2001)

2.3 Land reform in the upper Selati catchment

It is anticipated that the South African land reform process will significantly alter the current social, economic and bio-physical context of the Selati catchment. In 2003, the first phase of the Sekororo Land Claim, submitted by the Sekororo Community, was gazetted in terms of Government Gazette No. 25622 of 2003 (DLA 2003). According to the land claim, the claimants, consisting of 895 households, are laying claim to a proportion of the current commercial farming land in the upper Selati catchment. Personal communication with officials at the regional land claim office in Polokwane revealed that the first phase of the claim was successful and that plans were being developed for 'post-settlement support'.

According to an official responsible for planning post-settlement support to claimants, the claimants will not be allowed to relocate to the land (Mogotsi, L., personal communication, 22 July 2005). The previous owners of the land, private commercial farmers, will be encouraged to establish joint ventures with the communities in order to enable community members to learn farming practices and to ensure that the skills of commercial farmers are put to good use. Should the commercial farms in the Selati catchment fall into disuse, it will dramatically effect the contribution of the Selati catchment to the Limpopo annual GDP.

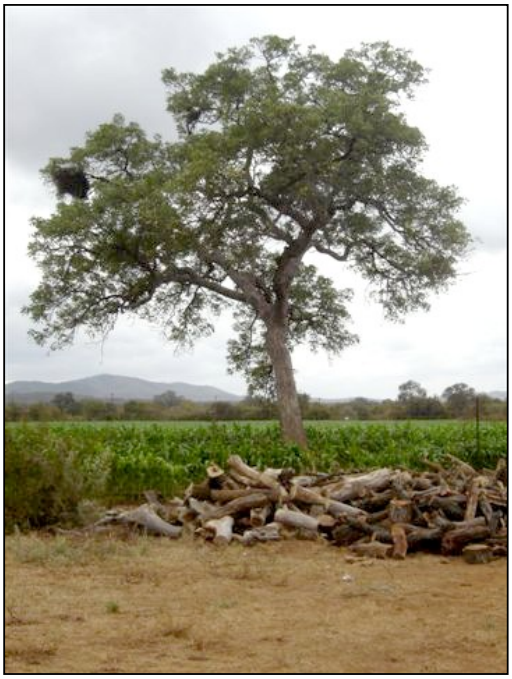


Figure 16: A marula tree with maize fields in the background, Harmony Block, Selati catchment. The Sekororo Community has laid a land restitution claim on this commercial farm

There seems to be a misunderstanding between the Department of Land Affairs (DLA) and the Sekororo Community regarding the use of the land after settlement of the land claim. Research conducted for this study shows that community members perceive the potential benefit of the land claim to them mostly in agricultural terms. Respondents of a survey conducted in the villages of Balloon and Calais look forward to receiving land for private agricultural practices,

such as livestock grazing. This misunderstanding may potentially lead to conflict between DLA and community members. It is not clear what the mandate of DLA will be to prevent the new rightful owners of the land, the Sekororo Community, from settling on their own property.

2.3.1 Background to land reform in South Africa, with specific focus on restitution

The land reform process in South Africa is aimed at ensuring equitable distribution of land within South Africa. Historically, the distribution of land was biased in favour of certain population groups, a situation worsened by the apartheid regime. In order to redress this situation, the national land reform process was established in 1994. Land reform objectives are met through three broad programmes, namely restitution, redistribution, and tenure reform. In the case of the Sekororo Land Claim, a restitution claim was lodged. According to DLA, '[restitution] was introduced in South Africa in 1994, with the focus on redressing past injustices created as a result of racially based legislation or practices' (DLA 2004).

The criteria for lodging a restitution claim are stipulated in the *Restitution of Land Rights Act* (Act No. 22 of 1994) (Republic of South Africa 1994). The aim of the Act is 'to provide for the restitution of rights in land to persons or communities dispossessed of such rights after 19 June 1913 as a result of past racial discriminatory laws or practices'. According to the Act, a restitution claim will be accepted for investigation if:

1. The claimant was dispossessed:

    a. of a right in land;
    b. after 19 June 1913;
    c. as a result of past racially discriminatory laws or practices;

2. The claimant was not paid just and equitable compensation; and

3. The claim was lodged not later than 31 December 1998.

Restitution claims are settled either through restoration of the land from which claimants were dispossessed; provision of alternative land; payment of compensation; alternative relief (including a combination of the above-mentioned); sharing of the land; budgetary assistance such as services and infrastructure development; or priority access to state resources with regard to housing and land development programmes (DLA 2004). According to DLA (2004), preference should be given to the restoration of land wherever possible.

2.3.2 Detailed information regarding the first phase of the Sekororo Land Claim

Information regarding the first phase of the Sekororo Land Claim was obtained from a memorandum submitted to the Minister of Land Affairs by the Limpopo Regional Land Claims Commission (DLA 2003) (see Appendix 1). As mentioned, this is only the first phase of the Sekororo claim; more properties have been claimed and these claims will be evaluated and settled at a later stage. By July 2005, negotiations between the land owners, claimants and DLA were underway regarding phases 2 and 3 of the Sekororo Land Claim (Verster, A., personal communication, 21 June 2005).

The first phase of the Sekororo Land Claim has since been approved by the Minister of Land Affairs. Compensation will be in the form of restoration of the original land from which the

claimants and/or their forefathers were evicted. The claimants from the Sekororo Community consist of 895 households and a total of number of 6,265 beneficiaries.

The land under claim is the remainder of Portion 25 of farm Balloon 71 KT, Portion 28 of farm Balloon 71 KT, the remainder of farm Lofdal 42 KT, Portions 3, 4, 6, 7, 10, 13, 18, 22, 23, 24, 26, 27 of farm Lofdal 42 KT, and the remainder of farm Paris 93 KT in the Bohlabela District, Maruleng Municipality of Limpopo. The total extent of the properties under claim in phase 1 is 5,016 hectares. The total cost of settlement is estimated at R 67,174,700.

According to the Memorandum, the Sekororo Community was dispossessed of their land gradually from 1937 until 1958. Appendix 1 provides more detailed information regarding the claim.

2.3.3 Expected impacts on household livelihoods of the land reform process

Discussions with community members revealed that the Sekororo people do not agree on the potential impacts of the land reform process (farm labourers, Harmony Block, personal communication, 21 June 2005). Farm labourers are concerned about their future should commercial farmers leave the area. They emphasized that community members who are enthusiastic about the land claim were mostly unemployed members of the community who were not dependent on the success of commercial farms for their livelihoods. Farm labourers and their families depend on wages (paid by commercial farmers) for their primary household income. Additionally, there are no significant urban areas in the catchment where alternative employment can be sought.

When commercial farmland is handed over to the Sekororo Community, agricultural production will go though a period of transition as aspects of farm management are learned and adjustments are made to adapt to the challenging task of farming effectively and profitably in a water-scarce catchment. It is expected that current landowners will provide mentoring to the new landowners and will therefore be on the land together with community members ensuring that production continues as previously. However, the mentoring phase is only temporary and thereafter the new landowners will be expected to continue without the support of a commercial farmer. The challenge to community members will be to continue with production and continue to pay wages to farm labourers. However, with 895 households dependent on the profits of a limited number of farms it is doubtful whether the profits of farming enterprises will be sufficient to ensure an income to all.

3. Methodology of analysis

3.1 Main objective and purpose of study

The main objectives of this study are:

- To define the social, spatial, environmental and economic characteristics of the upper Selati catchment;
- To identify the different livelihood activities of community members and their vulnerability to external influences; and
- To analyse the potential socio-economic effects of payments for environmental services (PES) in the selected site.

The project team envisage the communities of the upper Selati as potential suppliers of improved water services in the catchment for a number of reasons. Firstly, the environmental problems experienced in the middle and lower reaches of the Selati catchment can be attributed, in part, to the activities of communities in the upper catchment. Secondly, these communities are generally very impoverished and in need of alternatives to current livelihood strategies. Thirdly, these communities are ideally situated for the provision of water services, such as improved land management practices, due to the location of the communal area in the upper catchment.

3.2 Background to the sustainable livelihoods approach

The sustainable livelihoods theory argues that sustainable livelihoods are constituted of five resource capitals or assets, set within a wider framework of factors such as the vulnerability context of an individual or community, as well as structures (such as levels of government) and processes (policies, laws). These factors contribute to the livelihood strategies adopted by communities and/or individuals to ensure specific livelihood outcomes. Figure 17 is a graphic representation of the United Kingdom Department for International Development (DFID) adaptation of the sustainable livelihoods theory.

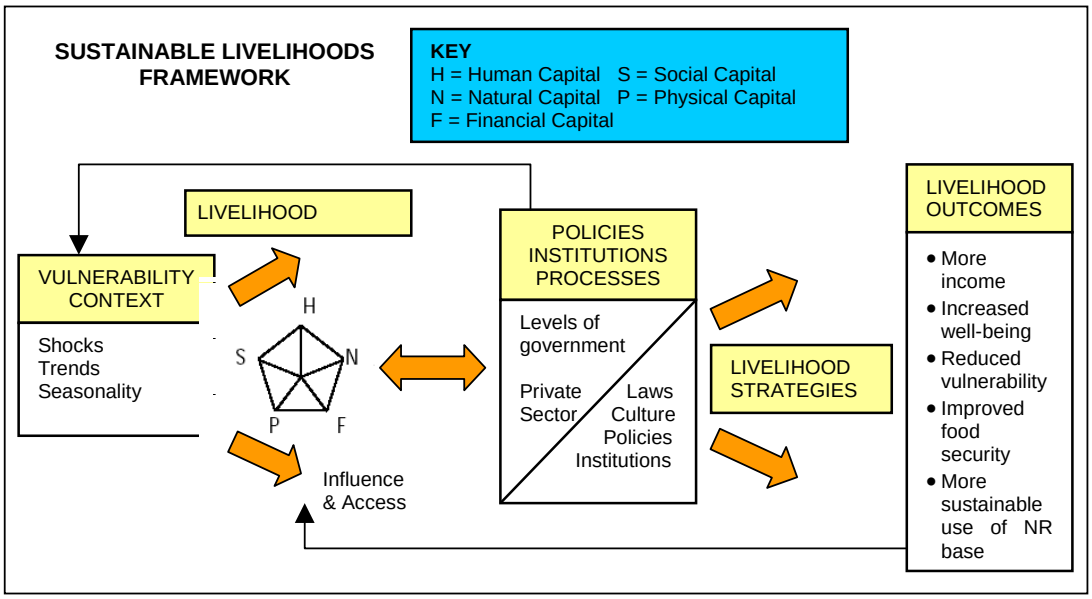


Figure 17: The DFID Sustainable Livelihoods Framework (DFID 2000)

Judged against the sustainable livelihoods (SL) framework, the sustainability of the livelihoods of the South African rural population residing in communal areas is challenged by a lack of livelihood assets and consistent vulnerability to a number of threats: skills shortages (human capital), poor infrastructure in terms of service delivery and road infrastructure (physical capital), and an absolute lack of financial means (financial capital), coupled with increased vulnerability to harsh climatic conditions (droughts) and environmental constraints (desertification) are a few examples.

Natural capital (access to communal resources such as land and veld products) and social capital (strong community structures) are the most important assets of these communities. Tenure insecurity and weak institutional structures therefore constitute a very real threat to the rural poor of South Africa. The current nature of tenure arrangements in the communal areas of South Africa, and the disturbance that colonialist and apartheid policies created in traditional land management systems, impacts specifically on the most vulnerable members of South African society, the rural poor.

3.3 Identification of stakeholders, sources of information and sample selection

In the week of 20 to 24 June 2005, an initial visit was made to the upper Selati catchment. The rationale behind this visit was for the project team to gain knowledge regarding the site and to identify key informants who are knowledgeable about the catchment. During the visit a number of key informants were interviewed. The questionnaire was administered to workers from five commercial farms in the Harmony Block and to selected workers in the avocado plantation in the Lekgalameetse Nature Reserve. During the pilot study, the questionnaire was adapted to be more context-specific for the follow-up survey.

A meeting with commercial farmers in the Harmony Block revealed that two villages in the area of the upper catchment, Calais and Balloon, were specifically relevant with regards to land management practices near the source of the Selati. The project team suspect that the cattle grazing in the Lekgalameetse Nature Reserve originate from the Calais community; a fence between the village and the nature reserve had been broken down to allow cattle to enter the reserve. The workers in the Lekgalameetse avocado plantation were mostly residents from Balloon village and therefore relied on the plantation for their household income. A worker told the project team that he had been working in the plantation for the past 30 years (personal communication, 21 June 2005). A decision was made by the household livelihoods project team to focus on the villages of Calais and Balloon for follow-up fieldwork.

During the week of 4 July to 8 July 2005, a household livelihood survey was conducted in Balloon and Calais. In total, 250 questionnaires were administered. Interviewers generally attempted to interview the main income earner of each household. The results of the survey correspond quite closely with information obtained from 2001 Census data. In addition to general questions pertaining to household livelihoods, respondents were also asked questions regarding the land reform process to establish the potential vulnerability of their livelihoods.

3.4 Data collection techniques

Key informant interviews with commercial farmers, farm managers, farm labourers and the tribal authority (Chief S.S.S. Sekororo) provided crucial background information on the site. A meeting with commercial farmers in the catchment, attended by approximately 20 farmers, proved to be very useful in terms of obtaining background information, identifying

stakeholders and the main environmental problems, and obtaining contact details for key informants.

Figure 18: Conversations around the fire: members of the project team and land reform beneficiaries in the Selati catchment

A pilot study was conducted during the first field visit to test the questionnaire. On the follow-up field visit the questionnaire was administered in Calais and Balloon villages; 250 respondents were interviewed. The data from these questionnaires form the basis of the results of the study. In the survey, more questionnaires were administered in Calais (63 % of questionnaires). Calais has a larger population than Balloon.

4. The livelihoods of the communities of the upper Selati catchment

4.1 The vulnerability context

The conditions in the upper Selati catchment are similar to those of many communities in developing countries. Generally, households are very poor – the majority surviving on less than the United Nations indicator of extreme poverty (less than $1 a day per person) (UNDP 2005). The climatic features of the catchment restrict the nature of household livelihood activities because drought has become a common occurrence in the catchment.

4.1.1 Nature of subsistence agriculture

Despite their generally low income levels, the people from Balloon and Calais are not actively involved in agriculture. Surprisingly, even households with extremely low income levels do not seem interested in subsistence agriculture. The household livelihood survey conducted for the purposes of this study revealed that only 11 % of households cultivate vegetables. Keeping chickens seems to be more prevalent; approximately 40% of households keep chickens. Cattle farming is also limited; 14 % of households have cattle that graze on the communal land.

4.1.2 Employment opportunities in the catchment

The Sekororo Tribal Area is located in a rural environment, far from any large urban areas. Employment is offered mainly on nearby commercial farms where wages are generally low. The survey revealed that temporary workers may receive as little as R450 per month for 20 working days (around R22.0 per day).

Sectoral Determination 8 (Farm Worker Sector) of the *Basic Conditions of Employment Act* (Act No. 75 of 1997) determines that employers should pay workers who work more than 27 hours a week a monthly wage as stipulated in Table 1. Workers who work less than 27 hours a week should be paid a minimum hourly rate. For the purposes of this legislation, 'farm workers' include domestic workers and security guards on farms. This has resulted in many farmers cutting down on the number of permanent employees and giving preference to employing workers on a temporary basis. In the Selati catchment, many farm workers' wages do not meet minimum wage standards.

Table 1: Minimum rates of wages for farm workers as stipulated in the *Basic Conditions of Employment Act* (Act No. 75 of 1997)

Area B (area excluding Western Cape)					
Minimum rate for the period 1 March 2003 to 29 February 2004		Minimum rate for the period 1 March 2004 to 28 February 2005		Minimum rate for the period 1 March 2005 to 28 February 2006	
Hourly rate (R)	3.33	Hourly rate (R)	3.66	Hourly rate (R)	4.03
Monthly rate (R)	650.00	Monthly rate (R)	713.65	Monthly rate (R)	785.79

4.1.3 Vulnerability of households to environmental factors

The livelihoods of the Sekororo people are vulnerable to climatic and other environmental factors. Continuing droughts and decreased stream flow in the Selati catchment have prompted commercial farmers to cut down on production. Less production results in less capital to pay wages and has resulted in farmers employing fewer permanent and temporary workers.

4.1.4 Perspectives on the land reform process

Many community members perceive the land reform process as a threat to their livelihoods while others view it as a positive change that will improve the quality of their lives. Community members are generally aware of the land claim process (see Table 2) but there is uncertainty regarding the benefits that the land claim process will bring to each household and to the community (Table 3).

Table 2: Respondents' awareness of land claims in the upper catchment

Are you aware of any land claims in this area?	(%)
Yes	75
No	14
Don't know	11

Table 3: Respondents' perceived benefit from the land claim

Do you think you will benefit from the land claim?	(%)
Yes	54
No	25
Don't know	18
I hope so	3

The Department of Land Affairs envisages that the land will be managed as commercial farming enterprises with the community benefiting indirectly from these enterprises. Money from the farming enterprises will probably be held in a community trust and will therefore not be paid out directly to community members but will rather benefit the community through improved school facilities, for example. Community members employed in these farming enterprises will receive monthly wages.

The survey revealed that community members are not aware of the proposed post-settlement plan. At least 53 % of community members believe that they will benefit from the land claim and expect to use the land for agriculture. Others are looking forward to monetary compensation, ownership of the land, and housing provided on the land.

Respondents who were negative about their prospects of benefiting from the land reform process mentioned various reasons for their point of view. Reasons cited for not benefiting varied:

- "I am satisfied with the current land"
- "We might lose our jobs"
- "Only the older people will benefit"
- "We don't have skills"
- "We will not benefit due to bad management"
- "Personally, I don't have a claim"
- "Land claims are very tedious"

4.2 Living conditions in the Sekororo villages

Most residents from the upper catchment have lived in the area, or in neighbouring areas, for many years. Most respondents were either born in the area or originally come from an area inhabited by the bePedi close to the Sekororo tribal area (such as Ga-Modjadji).

The Sekororo Tribal Area consists of villages scattered across the upper catchment. Generally, the communal land in the catchment is highly degraded. The rural villages of the Sekororo are not densely populated and most households have a reasonably-sized plot of land on which they reside. More than one house on a plot is common, and extended families often live together. The Sekororo people mostly live in formal housing, such as rondavels built from brick (75 % of respondents live in brick structures).

Figure 19: Women in a Sekororo village with typical housing in the background

4.2.1 Service delivery

Service delivery in the area is of an average standard in South African terms, though sanitation does not meet the basic minimum standard for sanitation as prescribed by DWAF (DWAF 2001) (see Table 4). The DWAF prescribed standard is at least a Ventilated Improved Pit Latrine (VIP) (DWAF 2001).

Table 4: Household toilet facilities in Calais and Balloon

Type of toilet facility in dwelling (Calais and Balloon)	(%)
Ventilated Improved Pit Latrine (VIP)	17
Basic pit latrine	68
None	15

Even though provision was made for bulk supply of electricity to the Sekororo villages, most households are not connected. One possible reason for this is the connection fee that has to be paid before electricity can be connected. Electricity also has other cost implications, such as the cost of installing wiring in the dwelling and purchasing electrical equipment. The majority of households in Calais and Balloon do not have electricity (Table 5).

Table 5: Electricity in Balloon and Calais

Households with electricity	(%)
Yes	25
No	75

The lack of electricity forces people to use alternative energy sources for cooking, lighting and heating (Table 6). The most common source of energy used is wood, most of which is collected from the communal land. Eighty percent of respondents reported gathering dry wood from the veld. It can be assumed that some tree felling takes place for the purposes of obtaining firewood although traditional rules in the community stipulate that only “dead” wood should be used. Due to these traditional rules, it is doubtful whether community members will readily admit that they cut down trees for firewood. Commercial farmers in the upper catchment express concern about large-scale tree felling by community members in the Lekgalameetse Nature Reserve (personal communication, 04 August 2005).

Table 6: Energy sources for cooking, heating and lighting purposes: Calais and Balloon

Type of energy used for:	Electricity	Wood	Paraffin	Candles	Other
Cooking (%)	1	99			
Heating (%)	<1	96			3
Lighting (%)	2		16	82	<1

The majority of the community (98 %) have access to clean, potable water although most households do not have access to water inside their yard or dwelling (Table 7). Community members do not pay for water.

Table 7: Household access to water in Calais and Balloon

Sources of piped water in Balloon and Calais	(%)
No access to piped (tap) water	1
Piped (tap) water on community stand: distance 200m or further from dwelling	27
Piped (tap) water on community stand: distance 200m or further from dwelling	29
Piped (tap) water inside yard	40
Piped (tap) water inside dwelling	2
Other	<1

4.3 Employment and household income in Balloon and Calais

4.3.1 Employment

The survey results show a 78 % unemployment rate (amongst the population older than 15 years) in the villages of Calais and Balloon. However many of those people who are employed generally seem to have permanent positions because 69 % reported that they had been working continuously for at least a year.

The largest proportion of employed household members is active in the agricultural sector (34 %). Otherwise, community members are mostly employed in the private sector, by private people (gardening, etc.), and by government (local, provincial or national).

The fact that a large proportion of the labour force (ages 15 to 65) are not economically active can be attributed to the reasons, listed in Table 8. The unemployed people seem to do temporary work every once in a while, often in the informal economy (Table 9).

Table 8: Reasons for unemployment among household members

Reasons for not working (population older than 15)	(%)
Scholar/student	44
Unable to find employment	39
Pensioner/retired	7
Due to illness	3
Mentally disabled	3
Physically disabled	2
Independent income	1
He/she is too old	1
Homemaker/child rearing	-

Table 9: Period worked in last year by unemployed household members

Period worked in last year (unemployed only)	(%)
Less than 1 month	36
Between 1 and 4 months	13
Between 4 and 6 months	6
Between 6 and 9 months	7
Between 9 and 12 months	9
Whole Year	29

4.3.2 Household income

In Balloon and Calais, the average number of individuals per household is relatively high (Table 10). It can be assumed that this is related to the high unemployment rate in the catchment; employed household members often provide for the extended family (parents, adult children, siblings, nieces, nephews). Young single mothers tend to live with their relatives who provide the basic necessities; fathers of infants are often absent. According to