RURAL LIVELIHOODS AT DWESA/CWEBE: POVERTY, DEVELOPMENT AND NATURAL RESOURCE USE ON THE WILD COAST, SOUTH AFRICA

A thesis submitted in fulfilment of the requirements for the degree of

MASTERS IN SCIENCE, RHODES UNIVERSITY

by

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February 2004

Abstract

This thesis uses the sustainable rural livelihoods framework to investigate the livelihoods of communities residing adjacent to a remote protected area on the Wild Coast. The communities living in the area are among the poorest in South Africa and are largely dependent on migrant remittances and state welfare grants for their survival. Soon after South Africa's first democratic elections in 1994, the communities lodged a land claim against the protected area on the basis of past removals. In 2001, their land rights to the protected area were restored, opening up new avenues for the development of the area.

It is argued that livelihood systems in the area are complex, varied and dynamic, and that for development to be sustainable, it needs to be informed by a thorough understanding of the many factors that shape the context in which livelihoods are generated.

The research is based primarily on 'in-depth' micro-studies of two villages in the area - Ntubeni and Cwebe. It includes a detailed assessment of the extent and distribution of poverty and the various factors that make households vulnerable to livelihood shocks. The role of the rich and diverse natural resource base, the property rights associated with it, and the under-development of infrastructure and services in the area, are discussed in relation to livelihood prospects. A systems approach is used to examine the various ways in which livestock husbandry, cropping, natural resource use, employment and welfare dependence interact. Finally, the thesis examines in some detail the distribution of household assets, livelihood strategies and livelihood outcomes between the two villages, and between households in different income groups.

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Acknowledgments

This thesis could not have been completed without the support of a number of people. I am indebted to my supervisors, Professors Christo Fabricius and Chris de Wet for their valuable inputs and for going the distance with me. To my colleagues at the Institute of Social and Economic Research, my appreciation for the time and space you generously provided in allowing me to achieve this milestone.

I would also like to thank Professors Pat McAllister and Robin Palmer for stepping into the breach when project leaders were needed to satisfy funders, and for the trust that you placed in me. Robin Palmer's continuing interest in, and enthusiasm for, the 'Dwesa/Cwebe' case is inspirational. Derick Fay, with whom I worked between 1998 and 2000, considerably enriched my 'Dwesa/Cwebe experience'.

Thanks, too, to the people of Dwesa/Cwebe, without whose assistance this study could not have been possible. In particular I would like to thank Mr Kuzile Juza and Mr Templeton Mbola for allowing me the privilege of getting to know the people of Cwebe and Ntubeni. In addition, I would like to thank those people that assisted with the household survey: Nocawe Magibisela, Novusile Mbola, Nokwesi Mbola, Nomandla Ngalwa, Nokutula Mjekula, Eliza Madiwani, Ruth Kula, Makutweni Mangakeva, Sindiswa Qombokazi, Kholeka Mtaku, Witness Hoboloshe and Christina Mdluli.

The time and work involved in preparing this thesis has not come without sacrifice. To my friends, I apologise for not always having been able to return your gestures of friendship. I acknowledge that my 'social capital' is in deficit, and that I urgently need to 'reinvest' in our relationships.

Lastly to my family. Ingrid, your love and unwavering support during difficult times are hugely appreciated. You are truly a rock! To my daughters Lea and Anna, a big thank you for the joy that you bring to my life.

Preface

Six months after South Africa's first democratic elections, a little known nature reserve on the remote Transkei coastline shot into the national spotlight. In October 1994, communities living adjacent to the Dwesa-Cwebe Nature Reserve launched a mass protest action against the local conservation authorities. Singing freedom songs, they forcibly invaded the protected area and illegally began harvesting many of its natural resources. Overwhelmed, and vastly under-resourced, local conservation officials were powerless to prevent the destruction that was taking place. Soon images of large groups of women and children stripping the rocks of shellfish were broadcast on national television, sparking a public outcry. Was this a sign of things to come in the 'New South Africa'? Were protected areas no longer sacrosanct? Would the ANC-led government be prepared to act against the popular, but illegal, actions of the rural poor? Sensing a political crisis, the new government acted quickly to address these fears. A military contingent was dispatched in an effort to restore stability. This was followed by a series of meetings between the newly appointed provincial Minister of Environmental Affairs and the protesting communities.

It soon became apparent that the communities had potentially legitimate grievances against the conservation authorities. Interviews with local residents revealed that, prior to the creation of the nature reserve in 1975, the land and its resources had played an integral role in supporting local livelihoods and coping strategies. For instance, the highly productive coastal grasslands provided seasonal grazing and acted as a buffer during drought years when grazing within the villages became exhausted. The grasslands were also an important source of thatching grass. The forests provided poles for house construction and fencing, and medicinal plants for the treatment of both human and livestock illnesses. Wild edible resources, such as fruits, nuts, vegetables, wild animals and marine resources could be relied on in times of food scarcity. Furthermore, the landscape was endowed with cultural and historical value, the forebears of many of the current residents having first settled in the area at least 1000 years ago (Cronin, 1982). What people were protesting about was that, with the establishment of the nature reserve and the introduction of wild animals, all access to the land for subsistence purposes had effectively come to an end (Fay *et al.*, 2002b).

It also became clear that a number of families had been living on the land earlier in the 20th century and that they had been moved to make way for its original demarcation as a forest reserve (Department of Land Affairs, 1996a; 1996b). In 1995, land claims were lodged against the state for the ownership of the protected area. One of the first claims to arise against a protected area in South Africa, the Dwesa-Cwebe Land Claim soon became a test case of the Land Restitution Act of 1994 (Mayende, pers. comm., 1996). Following protracted negotiations and research, the land

comprising the nature reserve was eventually transferred to the claimant communities in 2001, with the proviso that it remains a protected area (Department of Land Affairs, 2001a). This drastically changed the socio-political landscape at Dwesa/Cwebe, as there was now an official mandate for livelihood considerations to become integrated with conservation planning. The shift required new solutions and policies, and created the need for the research documented in this thesis.

Chapter 1 Introduction

1.1 Introduction

Due to high levels of poverty and economic underdevelopment, the Transkei[1] Wild Coast has become a priority area for development aid in the post-apartheid period (Ntshona and Lahiff, 2001). Current and ongoing initiatives include the creation of a 'spatial development corridor' along the coast (Nicholson *et al.*, 1996), an EU programme to promote 'community-based' tourism ventures (Ntshona and Lahiff, 2003), and various conservation and development initiatives, including a proposal for a new coastal National Park (Gerardy, 2001). The 'spatial development corridor' is to be achieved through the Wild Coast Spatial Development Initiative (WCSDI), a national government programme intended to unlock the region's inherent economic potential (Futter, 1998). As part of this programme, the government plans to market the area to foreign investors in sectors such as agriculture, eco-tourism, forestry and mining (Mahlati, 2000; Kepe, 2000). Development planning in the region received a further boost following the expansion of municipalities to include rural areas in 2001, and the requirement for them to compile 5 yearly Integrated Development Plans (IDPs) (Sidukwana, 2003).

In addition to some of these broader initiatives, there are a number of development planning initiatives underway in the Dwesa/Cwebe area itself. For example, consultants are currently in the process of designing a development plan for the area (Amatole District Municipality, 2003), and conservation authorities have undertaken to, in conjunction with the communities, develop a new management plan for the nature reserves (Department of Economic Affairs, Environment and Tourism, 2003a). Furthermore, poverty-alleviation funds are being channelled into the area in the form of labour intensive public works programmes, such as road building, clearance of exotic vegetation, and training of tourist guides (Department of Economic Affairs, Environment and Tourism, 2003b).

All these interventions (planned or in progress) aim to alleviate poverty and improve livelihoods without undermining the natural resource base. However, while they are supposed to benefit people, planning often takes place in isolation of an understanding of the everyday realities that people living in the area face. Experience has shown that, in the absence of an understanding of these realities, interventions have a high probability of being unsuccessful or even damaging

[1] For convenience, reference throughout this thesis is made to Transkei, rather than 'the former Transkei'. The former homeland is now part of the Eastern Cape Province.

(Chambers, 1983; Anderson and Grove, 1987; Chambers, 1987; Goodwin *et al*., 1998; Shepherd, 1998; World Bank, 2002). This gives rise to the research problem shaping this thesis, which is: How can development organisations intervene appropriately, in a way that is compatible with local livelihood strategies, and that supports, rather than undermines, local coping mechanisms? This thesis attempts to address the research problem by documenting the results of an in-depth case study of livelihoods at Dwesa/Cwebe that took place between 1995 and 1998.

The sustainable livelihoods approach (Chambers and Conway, 1992; Carney, 1998; Scoones, 1998; McDowell, 2002) was chosen as the theoretical method to guide the research. The sustainable livelihoods approach was considered appropriate as it provided a conceptual model for the integration of environmental issues into a holistic rural development framework (Carney, 1998). Thus, it allowed for the incorporation into the analysis of natural resource-based activities (such as agriculture and the use of 'wild' natural resources). It was also specifically designed for application to research problems in developing country contexts, where, as in the study area, high levels of rural poverty, population density, underdevelopment, and natural resource use are often the norm (Carney, 1998; McDowell, 2002). Furthermore, it had the potential to guide local development planning - by systematically 'unpacking' the various elements making up livelihoods, it allowed for the identification of areas in which investments to promote sustainable livelihoods could best be focused (McDowell, 2002). These characteristics of the sustainable livelihoods approach were considered to be particularly relevant in the context of the research problem described above.

Research questions, were, therefore, informed by, and structured around, the theory of the sustainable rural livelihoods approach. Before introducing the research questions (Section 1.3), it is necessary to first explain the theoretical framework in more detail.

1.2 Theoretical framework

1.2.1 Sustainable rural livelihoods analysis

According to McDowell (2002) the sustainable rural livelihoods (SRL) approach emerged in part as a reaction to "the post-Rio consensus", which was the view that community management of natural resources was necessary to achieve sustainable development. Proponents of the SRL approach felt that this consensus was based on the incorrect assumption that rural areas of developing countries were made up of homogenous communities. It was further based on the assumption that, given the authority to do so, communities could successfully regulate the relationship between themselves and the environment in a way that achieved the objectives of sustainable development (McDowell, 2002). The assumptions of homogenous communities and

their ability to self-regulate social-ecological systems became increasingly criticized as community-managed development projects faltered (Shackleton, *et al.*, 2002). Sustainable livelihoods theory proposes an alternative view that stresses the importance of understanding processes of rural change by focusing on the heterogeneity of interests and power among different social groups within communities, with a consistent focus on marginalized groupings (Chambers and Conway, 1992; Carney, 1998; Scoones, 1998; McDowell, 2002). However, this in itself is not very different from the studies of inter and intra-community differentiation that characterised rural research in the 1980s and 90's (e.g. Murray, 1981; Spiegel, 1995). Perhaps the main distinguishing feature of the approach is its attempt to understand poverty and marginalisation in terms of access to (or exclusion from) livelihood assets, and in the role played by institutions in favouring some groups over others (Carney, 1998). Another feature of the approach is that individuals and/or households are viewed as acting rationally and creatively in pursuing a variety of livelihood goals that are of importance to them (Department for International Development, 1997).

Chambers and Conway (1992) define a livelihood as comprising the capabilities, assets and activities required for a means of living. Capabilities, in this context refer to a person's, or household's ability to cope with stresses and shocks, and the ability to find and make use of livelihood opportunities (*ibid.*). Assets refer to the basic material and social resources that people have in their possession (Scoones, 1998). Activities refer to the ways in which capabilities and assets are combined to achieve livelihood outcomes. A livelihood is considered sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, both now and in the future, while not undermining the natural resource base (Chambers and Conway, 1992; Carney, 1998; Scoones, 1998).

Scoones (1998) developed a conceptual framework to guide research into sustainable livelihoods. A slightly modified version was put forward by Carney (1998) to guide development aid policy, while McDowell (2002) proposed an adapted version of the model for use in resettlement policy. The framework (Figure 1) is based on the understanding that livelihoods result from the complex interaction of a dynamic set of factors that influence people's livelihood choices. Particular attention is placed on the physical, socio-political, economic, institutional, and historical context in which livelihoods occur. Key elements of the model are: the vulnerability context, the stores of livelihood 'capital' that are available to people (alternatively referred to as assets), the institutional processes and organisational structures that influence access to these resources, the livelihood strategies that people adopt, and the livelihood outcomes resulting from these strategies. These elements are thought to be related in a variety of ways (as indicated by the arrows in Figure 1), all of which are highly dynamic. None of the arrows imply direct causality, although all imply a

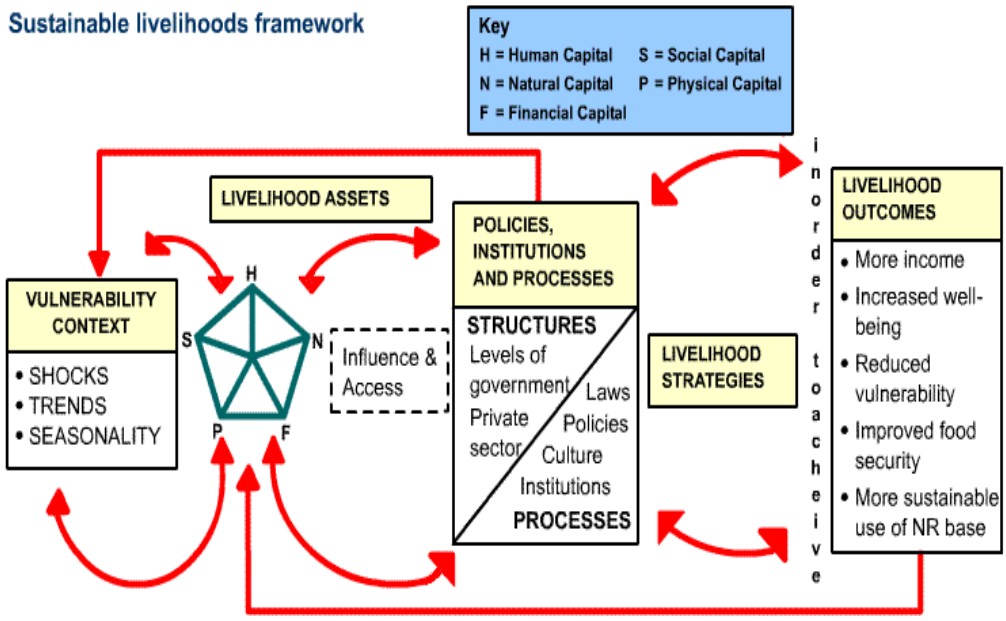

Figure 1 - The sustainable livelihoods framework (Carney 1998, Scoones 1998)

certain level of influence (Department for International Development, 1997). A brief summary of the various components of the Sustainable Livelihoods Framework is provided in Box 1 overleaf.

A strength of the framework, in the context of this study, is that it places a strong focus on natural resources as productive assets in supporting rural livelihoods. A growing body of research shows that poor rural households often derive a significant share of their incomes from natural resource-based activities such as livestock husbandry, cultivation and the utilisation of 'wild' natural resources (Cavendish, 1999; Shackleton *et al.*, 2001; World Bank, 2002). Unfortunately, conventional socio-economic surveys often tend to omit the contribution of natural resources to livelihoods (Cavendish, 2002). This, according to McAllister (1999) is, in part, due to the methodological difficulties inherent in accurately recording this kind of data. Inter-disciplinary studies that combine conventional social survey methods with natural resource valuation methods are, therefore, important in providing a more realistic picture of total household production activities. The sustainable livelihoods approach encourages the use of multiple methods and provides an appropriate framework to facilitate such integration.

Box 1 - Brief Summary of the Sustainable Livelihoods Framework

The Sustainable Livelihoods Framework (SLF) is a normative model based on a developing theoretical understanding of how livelihoods work. Essentially deconstructive in nature, it seeks to present a graphic representation of the main factors that underpin, and/or influence, the creation of livelihoods. It is also 'systems-orientated' in that it attempts to make explicit the nature of the relationships, and inter-relationships, between different factors. The SLF can be used both as a conceptual tool for improving scholastic understanding of livelihoods, or as a more applied tool to aid the identification of appropriate entry points for support of livelihoods.

Five distinct, yet inter-connected, groupings of factors make up the SLF. These are:

i) The Vulnerability Context,
ii) Livelihood Assets,
iii) Transforming Structures and Processes,
iv) Livelihood Strategies, and
v) Livelihood Outcomes.

The Vulnerability Context

Work by Sen (1981) and others has shown that vulnerability is often a key component of poverty. With this in mind, the vulnerability context seeks to depict the dynamic 'macro-environment' influencing livelihoods. Understanding of the vulnerability context provides an insight into the kinds of factors that have the potential to negatively impact on people's livelihoods. It draws attention to the fact that for many people, reducing vulnerability may be a key livelihood objective, in turn influencing their choice of livelihood strategy. Diversification of livelihood activities is thought to be one way in which people reduce their vulnerability (Ellis, 2000b). The vulnerability context also identifies arenas in which development agencies can assist in reducing vulnerability – by addressing the factors causing vulnerability, or by assisting people in strengthening their resilience to these factors.

Vulnerability events ('disturbances') may be characterised into trends, shocks and seasonal events. Trends are slow-moving, often benign, changes in the macro-environment, the trajectory of which may be tracked with relative accuracy. These might include broader population trends, natural resource trends and/or national and international economic trends. Shocks, on the other hand, are typically impacts that are sudden, unpredictable, and traumatic (Chambers and Conway, 1992). Examples of shocks include: droughts, fires, epidemics, conflicts and/or sudden changes in the economy. Some disturbances may be seasonal in nature. For example, it is not uncommon for communities practicing subsistence-type agriculture to experience a 'lean period' between harvests, when food stocks are depleted and hunger increases. Seasonality may also relate to commodity prices, production capabilities, access to natural resources and employment opportunities.

Livelihood Assets

Livelihood assets are the basic building blocks from which livelihoods are generated. The existence of, and degree of access to, livelihood assets is therefore important in influencing the livelihood options that people may, or may not, have. Although there is some debate concerning the categorisation of livelihood assets, the SLF portrays assets in terms of the following five forms of capitals.

Human Capital

Human capital refers to ability of people to work in terms of their education, health and skills. When using the household as a unit of analysis, human capital refers also to the size and quality of the 'household labour pool'.

Box 1 continued

Natural Capital

Natural capital refers essentially to the resources found in the natural environment. These include land, water, soils, grasses, animals, trees, etc. as well as the biophysical processes that are needed to sustain them.

Financial Capital

Financial capital refers to the stocks and inflows of money people use to achieve their livelihood objectives. This might include savings and access to credit, and/or income earned directly, e.g. through employment, or indirectly, e.g. through welfare grants or remittances.

Physical Capital

Physical capital refers to basic infrastructure, services and equipment that are needed to support livelihoods.

Social Capital

Social capital refers to the social resources that people draw on in pursuit of livelihood objectives. These may include family and kinship networks, other forms of inter-household co-operation, membership of formalised groups, and the quality of leadership and the degree of cooperation within communities.

Transforming Structures and Processes

Transforming structures and processes refer to systems of local administration and socio-economic organisation as mediated through institutions, governance, policies, culture and legislation. They are considered important because they determine access to the various types of capital, to livelihood strategies and to decision-making bodies and sources of influence.

Livelihood Strategies

Livelihood strategies refer to the range and combination of activities that people undertake in order to achieve their livelihood objectives. The types of livelihood options that are available to people are thought to be influenced by the vulnerability context, the extent of livelihood assets and the nature of transforming structures and processes.

Livelihood Outcomes

Livelihood outcomes refer to the outcomes of people's livelihood strategies. Five potential outcomes are identified in the SLF. These are increased income, increased well-being, reduced vulnerability, improved food security and more sustainable use of the natural resource base. Ideally, outcomes need to be informed by an understanding of livelihood objectives that in turn requires the use of Participatory Rural Appraisal (PRA) techniques (Chambers, 1983).

1.3 Research questions

The Wild Coast is one of the poorest and most remote regions in South Africa (CIET International, 1998). Apart from a few isolated case-studies (Andrew, 1992; Kepe, 1997; 2002b; Ntshona and Lahiff, 2003; Scoones and Wolmer, 2003), it is relatively poorly understood from a livelihoods perspective. By adopting the livelihoods approach, the study provided the opportunity for the sustainable livelihoods approach to be tested and put into practice (Department for International Development: Natural Resources Research Department, 1998). Key research questions informing the study were as follows:

- What were the key factors shaping the vulnerability context of people living in the study area?
- In which ways did physical and natural capital contribute to poverty and vulnerability?
- How were livelihoods structured, and what were the key factors underpinning them?
- To what degree did differences in spatial location and/or income affect the livelihood circumstances of different households?

It was anticipated that the knowledge gained would contribute to broader livelihoods debates, while at the same time providing an information base for those concerned with local development at Dwesa/Cwebe.

1.4 Thesis structure

The thesis is structured as follows:

Chapter 1 introduces the case study, the research problem, the theoretical orientation of the thesis, and the key research questions.

Chapter 2 provides a general introduction to the study area. The greater Dwesa/Cwebe area, including the two study villages (Ntubeni and Cwebe), is described in terms of its physical and administrative location, systems of administration, political context, natural environment and human environment.

Chapter 3 describes the range of research methods that were used in conducting the study. The use of multiple methods, a feature of the livelihoods approach, was necessary to try and capture the

multi-dimensional nature of livelihood systems (Department for International Development, 1997; Scoones, 1998). Chapter 3 also describes the methods that were used in analysing the data presented in the core chapters (e.g. map-work, statistical methods, calculation of the in-kind values of crop production and livestock husbandry, etc.). Throughout the thesis cross-references are provided back to the relevant methods section where required.

Chapter 4, the first of the five 'core' chapters, provides a detailed account and assessment of natural capital in the study area. The chapter is divided into two parts. It begins with a description of the land, water, forest, grassland, and marine resources, focusing on the quality and extent of these resources. Natural capital, however, is of little use to rural people if it cannot be accessed for livelihood purposes (Department for International Development, 1997). With this in mind, the second part of the chapter is devoted to an assessment of the property rights and legislation influencing people's access to these forms of natural capital found in the study area.

Chapter 5 focuses on a number of items of physical capital that characterise the study area. Many participatory poverty assessments have found that a lack of particular types of infrastructure is considered to be a core dimension of poverty (Department for International Development, 1997). The Wild Coast is renowned for the appalling state of its rural infrastructure, and this chapter describes the extent to which inadequate infrastructure and services at Dwesa/Cwebe affect prospects for generating viable livelihoods.

Having described the natural and physical conditions prevailing in the study area, Chapter 6 proceeds to describe the poverty and vulnerability dimensions of the 'human capital' at Dwesa/Cwebe. In addition to quantifying the extent and spatial distribution of poverty in the area, the chapter also describes broader factors that influence the vulnerability context of local livelihoods. These include: population trends, shocks resulting from climatic events, health-related disturbances, the poor performance of the macro-economy, and various inefficiencies in governance.

Chapter 7 introduces the reader to the dominant form of livelihood system in the study area and explores the ways in which cropping, livestock husbandry, non-farm income-generating activities, and natural resource use interact. As the chapter reveals, a characteristic of the system is its complexity, as evidenced by a high degree of integration between different livelihood components across livelihood sectors. The chapter is also concerned with identifying key determinants (those factors which are strongly correlated with livelihood outputs), within the overall system (Ellis, 2000a).

Informed by the over-arching livelihood system described in Chapter 7, Chapter 8 focuses on the household assets that households have ownership of, the livelihood strategies that they adopt to survive, and the relative economic worth of their outcomes. Household asset holdings, livelihood strategies, and outcomes are compared across the two study villages, as well as between households in different income groups. Analytical aids that are used include a livelihood typology, income portfolios and diversity indices.

In Chapter 9, the concluding chapter, the results of the various core chapters are revisited and discussed in terms of their implications for livelihoods research and policy development, and in terms of their implications for local development in the study area.

Chapter 2 Study area

2.1 Introduction

This chapter serves as a general introduction to the study area. It comprises a description of Dwesa/Cwebe's location, the system of local administration, a brief history of the area's political context, an overview of poverty and livelihoods, and a description of the biophysical environment.

Dwesa/Cwebe is located on the south-eastern coast of South Africa in what was previously the homeland of Transkei (Figure 2). Situated between the Nqabara River (32° 12′ S; 28° 58′ E) and the Ntlonyana River (32° 20′ S; 28° 48′ E) it comprises a mix of communal land and state land, and is roughly 235 km^2 in size. While Dwesa and Cwebe were historically administered separately as part of Willowvale and Elliotdale districts, since the passing of the Local Government: Municipal Demarcation Act (Act No. 27 of 1998) and the Local Government: Municipal Structures Act (Act No. 117 of 1998), both areas fall under the administration of the Mbashe Municipality, based in Idutywa. The Mbashe Municipality in turn falls within the jurisdiction of the Amatole District Municipality situated in East London. The closest towns to Dwesa are Willlowvale and Idutywa, 50 and 75 km inland respectively, while the closest towns to Cwebe are Elliotdale and Umtata, 50 and 100 km away respectively.

'Dwesa/Cwebe' is not an administrative unit in its own right. Rather this is the name used to collectively refer to a coastal strip of land that has been managed as a state protected area since the early nineteen hundreds (Vermaak and Peckham, 1996), and the four communal areas that occur inland, and adjacent to it. A distinctive topographical feature of the study area and one that has contributed to its administrative separation is the large Mbashe River system (see Plate 1). 'Dwesa', located to the south-west of the Mbashe River, is the generic name for the southern portions of Mendu and Msendo Administrative Areas, part of Willowvale district. 'Cwebe' which is located north-east of the Mbashe River, refers to the administrative areas of Hobeni and Cwebe, part of Elliotdale district.

Sometimes referred to as separate entities, sometimes as one entity, the Dwesa-Cwebe Nature Reserve, is a provincial nature reserve, comprising two state forest reserves and a national marine reserve. Although the exact boundaries of the reserve are unclear, it is thought to measure approximately 57 km^2 (Department of Economic Affairs, Environment and Tourism, 1999). 80% of the Dwesa component of the reserve, estimated at 35 km^2, comprises indigenous forest, the remainder comprising coastal grassland and other habitat types. The ratio between forest and

grassland in the Cwebe component (± 22 km^2) is roughly 50:50[2] (*ibid.*). The forests generally occur in the inland areas of the reserves, while the grasslands occur along a strip parallel to the coastline. The marine component of the reserve, which includes the inter-tidal zone, estuarine environments, and the off-shore marine environment, extends for 6 nautical miles seawards and measures roughly 180 km^2. The nature reserve, which is situated along the coastal foothills and extends in a narrow band parallel to the coastline, is approximately 14 km long and 1-2 km wide, and is incised by a number of smaller river valleys. Tourism infrastructure at Dwesa comprises a state run camping area and self-catering bungalow accommodation, situated in the nature reserve, and ± 5 privately owned holiday cottages situated at Nqabara Mouth (Figure 3). Tourism infrastructure is more developed at Cwebe, where there is a privately operated hotel (The Haven), ± 30 privately owned cottages, and hikers' huts, all located in the nature reserve (Plates 2 and 3).

Seven 'villages'[3] occur immediately inland of the nature reserve (Plate 4). These are (from north to south) Cwebe, Hobeni, Mendwane, Ntlangano, Ngoma, Mpume and Ntubeni. At the time of the study, the number of households in these villages ranged from 81 (Ntlangano) to 612 (Hobeni). Together they comprised approximately 2 270 households, accommodating 14 700 people (Department of Land Affairs, 1998a). The people that live in these villages share the same language (isiXhosa), and are referred to generally as Cape Nguni (Sansom, 1974). Ethnically, the villages to the north-east of the Mbashe River comprise mostly *amaBomvana* groups, while those to the south-west comprise a mix of *amaMfengo* and *amaGcaleka* groups (Fay *et al.*, 2002a).

Apart from residential settlements, a few educational facilities, trading stores, private holiday cottages and the small hotel, this remote part of the coastline is largely undeveloped. This is partly due to access problems as, until recently, roads linking the area to the interior were extremely bad (Chapter 5, Section 5.2.1). The lack of development is also an outcome of the region's particular history as a black homeland and labour reserve (Section 2.2).

While the general boundaries of the study area corresponded with the broader Dwesa/Cwebe area, much of the data collected for this thesis took place in two villages situated in the extreme north-east and south-west of the study area. These are the villages of Cwebe and Ntubeni respectively.

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[2] However, the results of the GIS map-work, listed in Chapter 4, Section 4.2.5, suggest that the extent of forest in the Cwebe portion of the nature reserve is much greater.

[3] The term village has been placed in inverted commas to indicate that it is being used as general term to describe the communities that reside adjacent to the protected area. Technically speaking, Cwebe and Hobeni are administrative areas, each with their own Headman, while Mendwane, Ntlangano and Ngoma are sub-localities of Mendu Administrative Area. Likewise, Mpume and Ntubeni are sub-localities of Msendo Administrative Area.

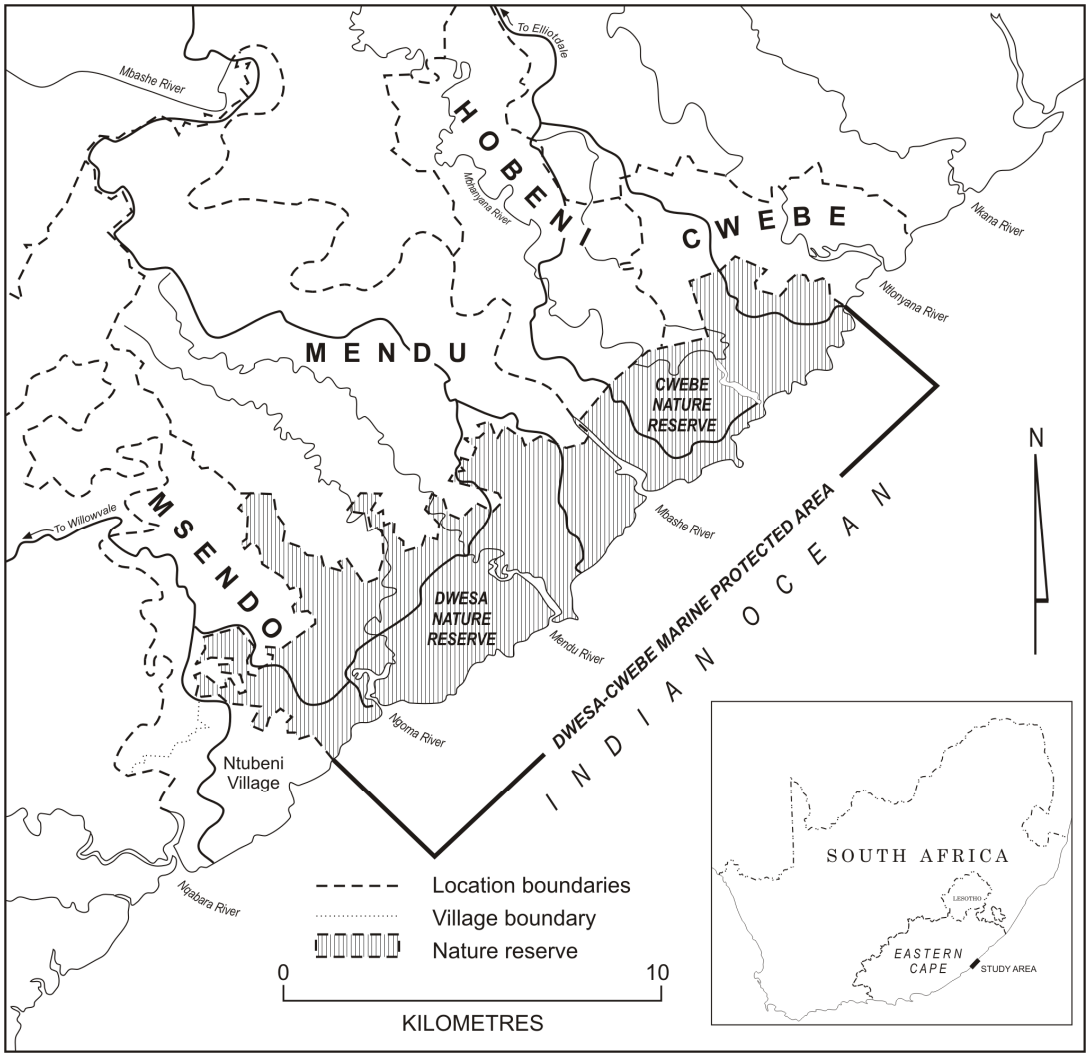

Figure 2 - Location of the study area

Cwebe abuts the north-western boundary of the protected area and spans the Ntlonyana River[4]. Ntubeni lies between the south-western boundary of the nature reserve and the Nqabara River. Both villages border the coastline (Figures 2, 3 and 4).

With respect to local governance, the prevailing administrative structure at Dwesa/Cwebe is relatively new. Apart from the municipality based in Idutywa, it also comprises ward councillors, and ward committees. These officials have taken over many of the administrative functions traditionally handled by headmen and chiefs (although some uncertainty remains concerning their

[4] To avoid confusion, use of the term Cwebe village in this thesis refers to Cwebe Administrative Area, and not to Cwebe and Hobeni Administrative Areas combined. The latter is implied when making use of the term Dwesa/Cwebe.

respective responsibilities). Since 2000, the Dwesa/Cwebe area has, in addition, become part of a local land holding trust, following the successful land claim against the nature reserve. Trustees consist of elected representatives from the seven villages, and their role is to oversee local conservation and development initiatives (Department of Land Affairs, 1998b). The superimposition of these three institutions - the municipality (and its local representatives), traditional leaders and the trust - is not without its problems, not least of which is the confusion regarding respective roles and responsibilities, not to mention a good deal of competition for status and resources (Palmer, 2003).

Figure 3 – Aerial view of Ntubeni. The Nqabara River is the south-western boundary of the Dwesa-Cwebe area.

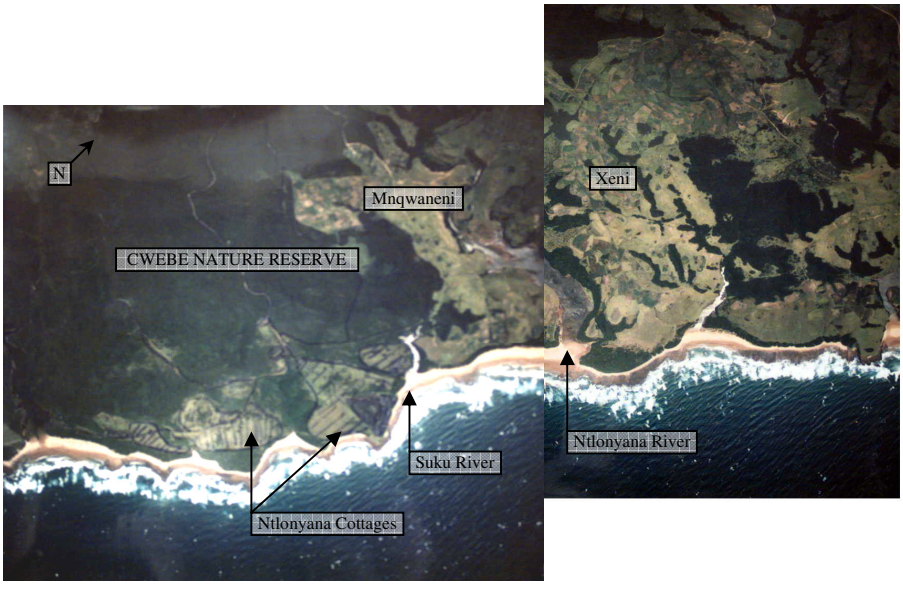

Figure 4 – Aerial view of a portion of Cwebe Administrative Area. The Suku River is the north-eastern boundary of the nature reserve.

Plate 1 – Aerial view of the mouth of the Mbashe River as it exits the protected area.

Plate 2 – The Haven hotel situated in the Cwebe portion of the nature reserve.

Plate 3 – Privately owned holiday cottages in the Cwebe portion of the nature reserve.

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Plate 15 – The store at Ntubeni.

Plate 16 – A ploughing team at work.

2.2 A brief history of betterment, land appropriation and politics

For many years the Transkei functioned as both a labour reserve and a homeland for Africans in terms of racially-based policies of separate development (Southall, 1983; Bekker *et al.*, 1992). Forced removals of blacks from 'white' South Africa into the Transkei, eviction of resident white traders and landowners, weak governance and economic neglect, all contributed to the high levels of underdevelopment, over-population, poverty and unemployment in the homeland (Rural Monitor, 1984; Andrew, 1992).

The Transkei is associated with the Cape Nguni, a heterogeneous, broadly defined cultural/linguistic group that are believed to have migrated down the east coast of southern Africa (Mostert, 1992). There is no recorded evidence of when they arrived in the area, but archaeological evidence suggests that they arrived in three stages between 700 and 1500 (Cronin, 1982). Initially they confined themselves to the fertile river valleys of the coastal forelands, but later they expanded into the interior (Feely, 1987). Prior to, and overlapping with, their arrival, the area was frequented by the nomadic Khoi and the San, who would migrate to the coastal areas in winter in search of shellfish and grazing (Derricourt, 1977; Palmer and Fay, 2002).

Contact with Western societies ensued after the colonization of the Cape by Dutch and British settlers in the seventeenth century (Mostert, 1992). The expansionist tendencies of both societies resulted in a century of sporadic frontier warfare, with the 'Transkeian Territories' eventually being formally annexed to the Cape Colony between 1879 and 1894 (Jackson, 1975). The territory was subsequently carved up into districts and administered by white magistrates with the assistance of headmen and chiefs (Hammond-Tooke, 1975). A system of modified communal tenure was put in place, according to which each married man was entitled to lease a residential plot (later to include a garden), a field for each wife, to make use of the communal grazing, and to wood from the forests (Hendricks, 1990). Land ostensibly reverted for reallocation on the death of the holder but was typically inherited by wives and/or eldest sons (Palmer and Fay, 2002). Allotments were held in terms of certificates of occupation and holders were required to pay a 'hut tax', and later a cattle tax (see Section 4.3.1 for more on land tenure).

In 1976, the Transkei was granted a form of independence with its own elected government system, national anthem, national flag, etc. (Southall, 1983). Following the unbanning of the liberation movements, and the onset of democracy in South Africa in 1994, the Transkei lost its status as an independent Republic and was reincorporated into South Africa (*ibid.*).

As in many parts of the Transkei (and elsewhere), the residents of Dwesa and Cwebe were, through the years, subjected to various unpopular state interventions (Beinart and Bundy, 1987). Many of these interventions related to land-use and conservation. For instance, as early as 1894 the fledgling forestry department reportedly removed households from the coastal grasslands in the protected area at Dwesa/Cwebe (Vermaak and Peckham, 1996), with removals continuing up until the 1930's (Faleni *et al.*, 1996; Fay *et al.*, 2002a). Compulsory dipping was introduced in 1912 following the outbreak of East Coast Fever (Beinart and Bundy, 1987), and restrictions were imposed on the movement of livestock. Various forestry regulations arose which outlawed certain activities and prescribed conditions under which others could be undertaken (Vermaak and Peckham, 1996).

Removals and land appropriation took place again at Dwesa/Cwebe in the 1970s and 1980s (Faleni *et al.*, 1996; Institute of Social and Economic Research, 1996; Fay *et al.*, 2002b). This was done under the auspices of soil conservation and resettlement policies known as 'betterment planning' (Moll, 1988). Designed *inter alia* to place African agriculture on a more scientific footing (Fay *et al.*, 2002b), a central component of the programme was the spatial reorganisation of the traditional scattered settlement pattern into one of nucleated residential areas, consolidated arable areas and communal grazing (de Wet, 1983). At Dwesa/Cwebe it also involved the removal of households immediately adjacent to the nature reserve to sites further inland, in an attempt to establish a buffer zone between the people and the reserve (Fay 2001, Fay *et al,*. 2002b). Other households lost land when the nature reserve was fenced during the late 1970s and early 1980s. Having to accommodate more people, sites in the new residential areas were considerably smaller than had previously been the case, sometimes with no room for a garden (Fay, 2003). Betterment planning was implemented in a top-down manner that involved very little, if any, community consultation (Spiegel, 1992). Owing to the disruptions that it caused to local livelihoods, people on the ground resented betterment planning, viewing it as unnecessary state interference (Institute of Social and Economic Research, 1996; Fay 2002).

In addition, betterment compromised local headmen's authority in relation to land allocation. Being on the state's payroll, headmen and chiefs were forced to act as go-betweens in implementing these unpopular policies, putting them in a very difficult position. Some of them sought to exploit the situation to their own advantage by, for instance, ensuring that they got the best and largest fields, or by taking bribes before allocating land under the betterment regulations (Spiegel, 1992). As a result, many traditional leaders lost the respect of their subjects and came to be seen as part and parcel of the oppressive state machinery (Ntsebeza, 1999).

Apart from betterment-type removals, the creation of the nature reserve in 1976 resulted in an additional disruption to local livelihoods. This took the form of a prohibition on all forms of

harvesting of natural resources from the reserve, and it was only in 1995 that the resources in the reserve were again made available to people again (Fay *et al.*, 2002a; 2002b). As the bulk of the area's natural assets were located in the nature reserve, the prohibition on resource use impacted negatively on the natural and physical capital that people could access (Chapters 4 and 5).

It is against this background of loss of access to land and resources that the protest action against the protected area, in late 1994, took place. Expectations were high that things would change after the democratic elections that took place earlier in the year but, while striking political changes were taking place at the national level, change was slow to filter down to the ground (Fay *et al.*, 2002b). Today, despite the change in dispensation, many people still harbour a deep mistrust of the government as a result of their past negative experiences (Bank, 2001).

2.3 The biophysical environment

The study area is generally characterised by a wet summer season followed by a dry winter season (Figure 5). Mean annual rainfall at Dwesa/Cwebe between 1976 and 2001 was 1201 mm, with a 90% confidence range between 1118 mm and 1285 mm. A notable feature of the terrain at Dwesa/Cwebe is its 'hilliness', with the landscape being incised by a number of rivers and streams. Settlements are generally scattered along ridges and higher lying ground, but in some areas they are fairly concentrated (Fox, 1997). A linear settlement pattern occurs alongside the two main arterial routes into the area, i.e. the roads from Idutywa and Elliotdale to the coast. The landscape is dominated by houses, gardens, and extensive grasslands, interspersed with woodland and forest patches (Timmermans, 2002). A number of estuaries and wetland systems, some of which contain

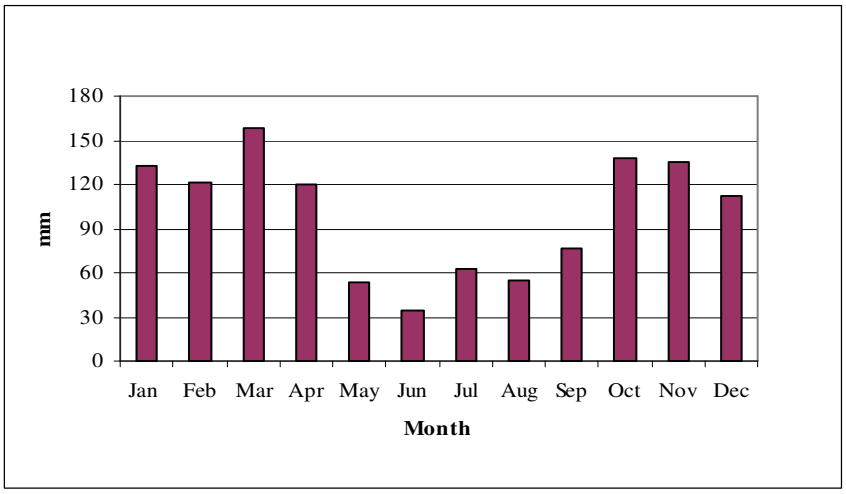

Figure 5 - Mean monthly rainfall at Dwesa/Cwebe (1976-2001)

rare mangrove forests, occur closer to the coast. Both the marine and terrestrial environments are considered highly productive and contain high levels of biodiversity (Department of Economic Affairs, Environment and Tourism, 1999). This is attributed to the relatively high rainfall (+1000 mm per annum), the sub-tropical climate, and the area's location in a bio-climatic and maritime transitional zone (*ibid.*).

The vegetation in the area is classified as Coastal Forest and Thornveld (Acocks, 1975), and forms part of the Tongaland-Pondoland Regional Mosaic (Moll and White, 1978). Vegetation types representative of four of South Africa's seven biomes are found in the study area. These are the Forest Biome, the Thicket Biome, the Savanna Biome and the Grassland Biome (Low and Rebelo, 1996). Veld types found in the area include Coastal Forest, Dune Thicket, Coastal Grassland, Valley Thicket and Eastern Cape Thornveld (*ibid.*).

Forest cover is highest in the two forest/nature reserves and in the riparian zones of the rivers and streams. The protected area further comprises coastal grasslands, numerous wetlands and estuaries, and sandy and rocky shores.

The area supports a variety of wildlife. Some of the species, such as wildebeest (*Connochaetes taurinus*), rhinoceros (*Ceratotherium simum*), zebra (*Equus burchellii*), eland (*Taurotragus oryx*), and blesbok (*Damaliscus dorcus phillipsi*) were introduced into the nature reserve in the late 70s and early 80s, while others, such as blue duiker (*Cephalophus monticola*), bush buck (*Tragelaphus scriptus sylvaticus*) and bushpig (*Potamochoerus porcus koiropotamus*) occur naturally (Skead, 1987). At least 209 species of birds are known to occur in the nature reserve (Siegfried, 1977). Two hundred and seventy two tree species have been recorded (Moll, 1974), of which 126 are used by local residents (Lieberman, 1997). Thirty-five marine species have been recorded in the inter-tidal zone (Siegfried, 1977).

Generally speaking, the natural environment at Dwesa/Cwebe is a complex mosaic of biomes and vegetation types, containing ecosystems that are considered rare and of high conservation importance (Amatole District Municipality, 2003).

2.4 Poverty and livelihoods

According to a report by Statistics South Africa, the districts of Willowvale and Elliotdale are the two poorest districts in the country (Stats SA, 2000). In 2000, mean monthly expenditure among

households in Elliotdale was estimated at R746 per month and at Willowvale, R792 per month[5]. A more localised study conducted by the Agriculture and Rural Development Research Institute (ARDRI) (2001), found that 93% of households in rural Elliotdale and 91% of households in rural Willowvale had incomes below a poverty line set at R533.01 per adult equivalent per month. Between 70% and 77% of the households were classified as 'ultra-poor'.

Apart from poverty, the area is further characterised by high levels of temporary urban migration, and reliance on remittances and state welfare grants. Despite the absence of many adults, the majority of households continue to pursue an agrarian orientated lifestyle based on livestock husbandry, cropping and the use of 'wild' natural resources (ARDRI, 2001). Poverty and livelihoods, central themes of this thesis, are discussed and analysed in detail in Chapters 6-8.

2.5 Conclusion

From the above it can be seen that the study area is highly differentiated, or complex, from both a biological and social perspective. Biologically the area is located within a number of vegetation and maritime ecotones, resulting in high levels of biodiversity. This facilitated the continuance of a natural resource-based existence by the majority of the area's people, although not in exclusion of other sources of income. The area's rich natural environment also lead to the demarcation of the two state forest reserves (later to become a provincial nature reserve), the national marine reserve, and to the limited development of tourism. Socially, the area's history of conquest, colonisation, annexation, self-governance, and later reincorporation, *inter alia*, resulted in a legacy of underdevelopment, a rural populace wary of state interference, a complex web of administrative structures, land and resource dispossession, and superimposed institutions of local governance. These are some of the factors making up the institutional and biological milieu that shape the context for livelihood generation in the study area.

[5] 1US$ was worth R6.50 at the time of writing.

Chapter 3 Methods

3.1 Introduction

This research draws primarily on material collected as part of a broader research programme conducted by researchers from Rhodes University between 1995 and 1998. The broader research programme involved an interdisciplinary team of specialists (including the author) who investigated a diverse range of subjects relevant to the theme of rural development and nature conservation. The results of the broader research programme are contained in two reports, *viz.* i*) Indigenous Knowledge, Conservation Reform, Natural Resource Management and Rural Development in the Dwesa and Cwebe Nature Reserves and Neighbouring Village Settlements* (Palmer and Timmermans, 1997), and ii) *From Conflict to Negotiation. Nature-based Development on South Africa's Wild Coast* (Palmer *et al.*, 2002).

Given its all-encompassing nature, the sustainable livelihoods framework required a 'hybrid' methodological approach that combined conventional survey tools with appropriate qualitative methodologies (Scoones, 1998). Thus, the research incorporated a mix of socio-economic household surveys, semi-structured interviews, focus group discussions, participant observation, map-work and archival research. In addition, a number of secondary research sources were drawn upon. Each of these methods is elaborated on below.

3.2 Research methods used

3.2.1 Socio-economic household survey

A socio-economic household survey, which involved the administration of a questionnaire schedule, took place between March and May 1998. It was the intention to interview at least 10% of the households in Cwebe and Ntubeni, based on the rationale that this would provide a representative sample of these villages as well as of the overall area. However, as the total number of households in each village was not known at the time of the survey, the decision concerning the size of the sample required a certain amount of guesswork. In addition, it was necessary to ensure that the household survey was manageable in terms of the project's budget and staff compliment. In the end, it was decided to conduct a pilot survey of 40 households (20 in each village) and a main survey of 80 households (40 in each village). Assuming that the pilot and main questionnaires could be combined, then this would equate to 65 households surveyed in each village, a reasonably sized sample. As it turned out, significant changes between question formats in the pilot and main questionnaire schedules, meant that the results from the two research instruments could not be

combined for analysis purposes. The analysis in this thesis, therefore, is based on the main survey that incorporated a randomly selected, stratified sample of 79 households - 40 at Ntubeni and 39[6] at Cwebe. A subsequent census undertaken as part of a land tenure research project revealed that there were 193 households at Ntubeni and 413 households at Cwebe (Department of Land Affairs, 1998a). Thus, the 79 households surveyed represented 21% of the households at Ntubeni and 9% of the households at Cwebe. Data derived from the questionnaire is therefore likely to provide a more accurate picture of the general situation prevailing at Ntubeni than at Cwebe. An attempt was made to survey each of the village sections[7] in a stratified manner, i.e. sample sizes of village sections were based on estimations of the number of homesteads in the respective sections. This was done using a combination of aerial photographs, visual observation and local knowledge. One village section at Cwebe, i.e. Xeni, was excluded from the survey as a result of difficulties experienced in accessing it. Table 1 displays the names of the village sections and the number of households surveyed in each section. Figures 6 and 7 provide a graphic representation of the surveyed homesteads in relation to village sections.

Table 1 - Distribution of the Sample among the Village Sections.

	No. of households surveyed
Ntubeni	
Gume	13
Mkuhlu	17
Ngomane	10
Total	*40*
Cwebe	
Xeni	0
Mnqwaneni	6
Dungashe	10
Matshaweni	5
Kubhula	6
Nyandeni	12
Total	*39*

[6] Forty households were surveyed at Cwebe, but one of the questionnaire schedules was unfortunately lost during the fieldwork stage.

[7] Following McAllister (1999) the term 'village section' is used to describe a sub-section of a ward in which the homesteads are typically (but not necessarily) spatially separated from other sub-sections. Village sections are normally organised under a 'sub-headman' (*ibhodi* or *nozithetyana*) who is typically a senior male of a dominant clan. Although smaller neighbourhood groupings may occur, the village section is normally the first level of social and spatial organisation above that of the homestead (see Chapter 8, Section 8.2.3.3)

A team of locally recruited matriculants were trained and employed to administer the household questionnaire schedule. The schedule was written and administered in the local vernacular (isiXhosa). Each completed questionnaire was checked by an experienced supervisor and any inconsistencies identified were followed up with the administrators and, if necessary, with the households concerned. The survey was completed by household heads, where they were available, and where not, by a household member familiar with the income and expenditure patterns of the household. Income and expenditure were recorded for the twelve-month period preceding the survey.

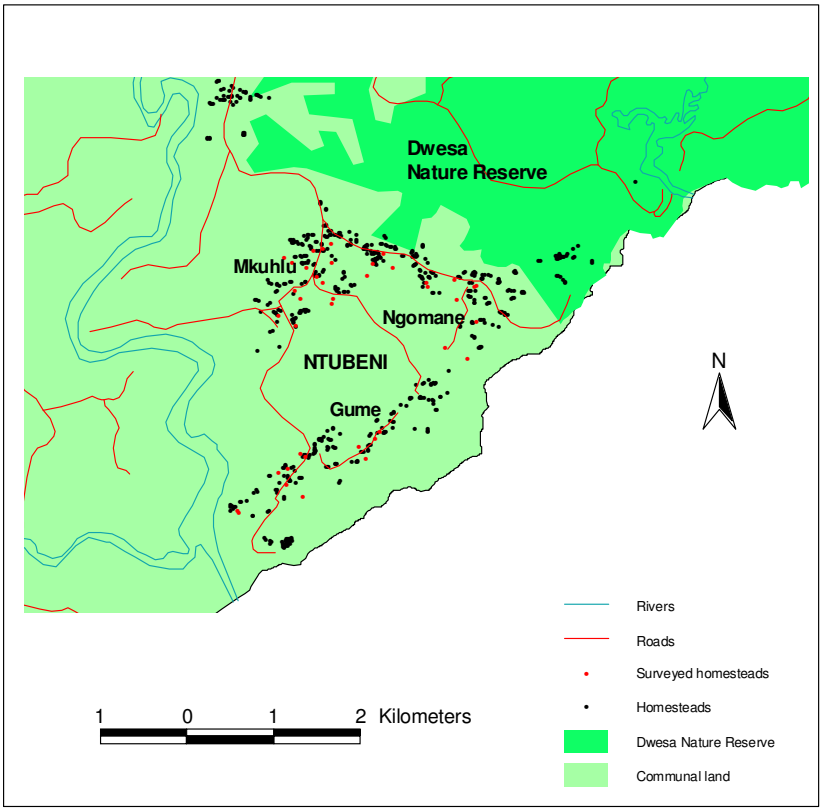

Figure 6 – Map of Ntubeni showing the distribution of the surveyed homesteads

The questionnaire schedule - a copy of which is included as Appendix 1 - covered the following ground:

- Personal information about the respondent and household head (e.g. age, gender, place of birth)
- Household data (e.g. history of settlement of the household, composition of the household, education and employment status of household members, number of welfare beneficiaries in the household)
- Access to services

- Assets, income and expenditure
- Accessibility of water and collection patterns
- Access to, and utilisation of, land (residential plots, gardens, fields and grazing)
- Cultivation of crops (types of crops grown, estimated yields, use of inputs, cultivation problems experienced)
- Livestock ownership and turnover
- Wood use (materials used for fencing, sources of wood, seasonal trends in collection, problems experienced with wood collection)
- Fuel use
- Utilisation of marine resources (patterns of collection of shellfish and fishing)
- Other natural resources (e.g. grass for thatching, medicinal plants, etc.)
- Perceptions of tourism (knowledge of tourism and previous participation in tourism-related employment).

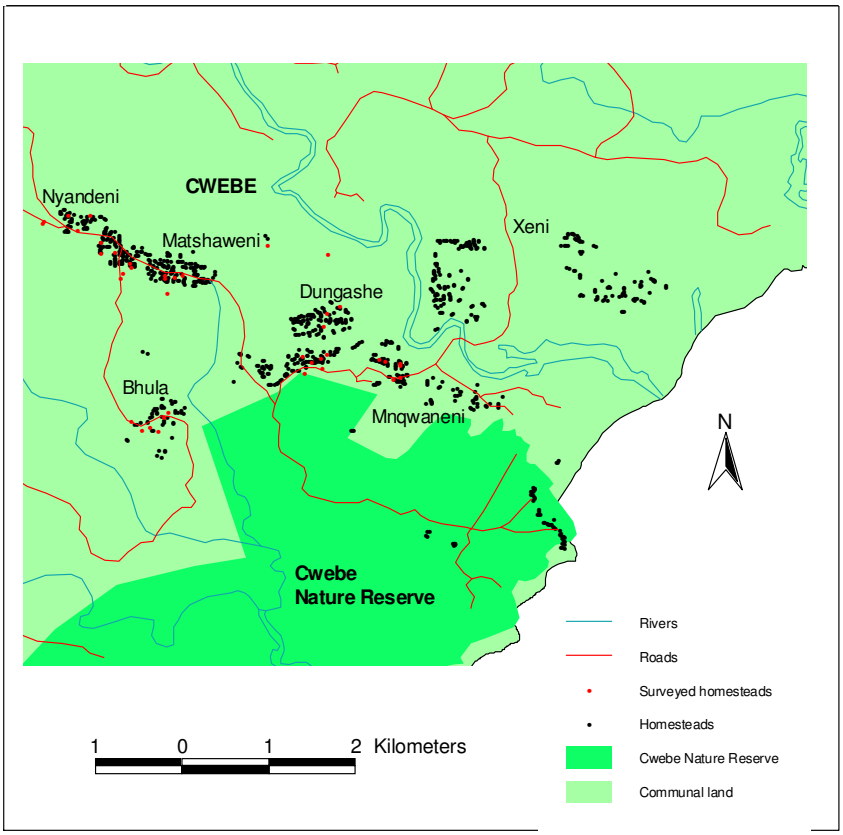

Figure 7 – Map of Cwebe showing the distribution of the surveyed homesteads

3.2.2 Semi-structured interviews

Semi-structured interviews are interviews in which the researcher uses a set of predetermined questions to guide the interviewing process. This is opposed to an open interview process in which no schedule is used (Kvale, 1996). The author conducted twenty-six semi-structured interviews with a cross-section of the local population during October/November 1998. The interviews took place to collect information for a case study commissioned by the International Institute for Environment and Development (IIED) on community-based wildlife management. The case study was orientated towards better understanding differing perceptions between local stakeholders with respect to trends in natural resources stocks, and how these affected relations of power (see Timmermans, 1999; Roe and Jack, 2001). Where relevant, the results of these interviews have been drawn on in this thesis.

Respondents included 16 men and 10 women of varying ages. They comprised: three sub-headmen, three businessmen, four conservation officials, three members of the local conservation committees[8], two teachers, two agricultural extension officers, and one hospital matron. The interview schedule comprised 19 open-ended questions and was geared at documenting people's perceptions of trends in population growth and natural resources, and their views regarding management and development issues. The interviews were conducted by the researcher and an interpreter was used in cases where the respondents did not speak English. The interviews were recorded on tape, and later transcribed into English.

3.2.3 Focus-group discussions

As part of the larger project, focus group discussions were held in the villages of Ntubeni, Mendwana, Hobeni and Cwebe. Focus groups are a form of group interview that capitalises on communication between research participants in order to generate data (Krueger and Casey, 2000). The number of people attending focus group discussions ranged from eight to over forty. Participants were generally representative of various age-groups, sexes and interest groups within the communities. In line with the aims of the larger project, discussions concerned issues of resource utilisation, with particular emphasis on resources needed from the nature reserve. The focus groups were also used to establish the local trading prices of livestock and crops. This was done by facilitating consensus among the members of a focus group. The researcher, with the

[8] Conservation committees were the forerunners of the Dwesa-Cwebe Land Trust, which was not yet established at the time of the household survey.

assistance of an interpreter, facilitated the focus groups. Outcomes of the focus groups were recorded.

3.2.4 Participant observation

Participant observation involves watching and recording behaviours within a clearly defined area. The researcher plays the role of passive observer and is, therefore, outside the actions being observed and recorded (Spradley, 1980).

Since 1995, the researcher attended and observed numerous workshops and meetings between stakeholders involved in resolving the dispute over access to the protected area (including many of the meetings associated with the land claim process). In some of these the researcher was called upon to play an active facilitation role (e.g. facilitating the constitution of a 'joint reserve management committee'), while in others he was an invited observer. Most of these workshops and meetings took place at various locations in the study area. Some were held in Umtata or in the offices of the Land Claims Commission in East London. Observations were recorded in the form of field notes and, where possible, minutes of these events were kept as part of the research record. Data derived from the attendance of these meetings and workshops assisted the researcher in better understanding the history of dispossession and the primacy of land and natural resources in the livelihoods of the local communities.

3.2.5 Archival research

In May 1999, the researcher spent a week at the State Archives in Cape Town. The focus was on uncovering historical material that dealt with forestry and agricultural issues pertaining to the study area, as part of the broader study. Relevant material included forestry annual reports, various items of correspondence between the Forestry Department and the magistrates, agricultural reports, and forest working plans. This research provided important background to understanding the historical context of livelihoods in the study area.

3.2.6 Secondary sources

Secondary sources include various specialist research reports commissioned as part of the broader Dwesa/Cwebe research project (e.g. Vermaak and Peckham, 1996; Fox, 1997; Hughes *et al.*, 1997; Kralo, 1997; Lieberman, 1997; van Harmelen, 1997), research reports compiled or commissioned by the Department of Land Affairs (e.g. Department of Land Affairs, 1996a; 1996b; Department of Land Affairs, 1998a; 1998b; Department of Land Affairs, 2001a; 2001b), reports of the Eastern

Cape Department of Economic Affairs, Environment and Tourism (1996; 1999; 2002), research on forestry and marine resources conducted by the University of Transkei (e.g. Lasiak, 1993; Dye, 1994; Cawe, 1995), various regional development reports commissioned by the former Transkei government (e.g. Hawkins Associates, 1980; Transkei Government, 1991), macro-statistical reviews (e.g. SALDRU, 1994; May, 1998; Stats SA, 1998a; 1998b; 1999; 2000; 2002), and academic literature concerning the history, development and politics of the Transkei (e.g. Southall 1983; Southall *et al.*, 1992; Beinart, 1984; 1987; 1992; Peires, 1989; 1992).

Data on cattle numbers and general livestock health (Chapter 5, Section 5.2.7, Chapter 6, Sections 6.2.2.2 and 6.2.2.3) was sourced from the Department of Agriculture offices in Elliotdale, Willowvale and Idutywa. Climate data was provided by the Institute of Climate Research in Pretoria. Rainfall data (Chapter 2, Section 2.3, Chapter 6, Section 6.2.2.2) is from the 'DwessaBos' rainfall station located in the study area (Lat. 32.2833; Long. 28.7833).

A great deal of research has taken place at Shixini Administrative Area, which lies to the immediate south of the study area (e.g. Andrew, 1992; Heron, 1990; Heron and Cloete, 1991; McAllister, 1981; 1992; 1999; 2000; 2001). This research formed an important source of information for general data relating to broad livelihood patterns, as well as for comparative purposes. Other important sources of secondary data include two research projects undertaken by the Agricultural and Rural Development Research Institute (ARDRI) at the University of Fort Hare. The first of these (ARDRI, 1989) documented agricultural practices in the coastal wards between the Mbashe and Mtata Rivers. The second entailed a rural livelihoods survey of the new Mbashe Municipal Area (ARDRI, 2001). In addition, the author has drawn on a draft development planning report for the Dwesa/Cwebe area compiled by the Amatole District Municipality (2003).

3.2.7 Geographical Information Systems

Geographic Information Systems (GIS) coverages and aerial photographs were obtained from the Human Sciences Research Council, the National Directorate of Surveys and Mapping and from the Rhodes University Geography Department. A digitised aerial photograph, dated 1999, was obtained from the Department of Water Affairs and Forestry for the Cwebe area. Unfortunately the equivalent photograph for Dwesa was corrupted making it necessary to rely on data captured by the Human Sciences Research Council using scanned 1995 aerial photos. The programme ArcView GIS 3.2 (Environmental Systems Research Institute, 1992) was used to view and analyse this data.

The following is a breakdown of the data sources used for specific aspects of the map-work:

3.2.7.1 Calculation of land surface areas

Surface areas were calculated from GIS covers developed by Fox (1997), based on primary data collection using a combination of local informants and 1:50 000 topographical maps (3228BB and 3228BD of 1982). The size of Cwebe Nature Reserve was calculated by tracing the fence-line and shoreline on the digitised aerial photograph supplied by the Department of Water Affairs and Forestry (TELKOM Image 3228BBd).

3.2.7.2 Calculation of forest areas

Forest areas were calculated from land-use covers developed by the Human Sciences Research Council GIS Unit as part of the broader research project (Palmer *et al.*, 2002). These were digitised from ortho-rectified aerial photographs dated 1995. Digitised copies of 1:50 000 topographical maps (3228BB, 1982, second edition and 3228BD, 1982, first edition) were used for the ortho-rectification process. The accuracy of these covers was verified by overlaying a portion onto the 1999 digitised aerial photograph. The land-use covers were limited to the Cwebe ward, Ntubeni sub-ward and the nature reserves. Absolute forest cover in the remaining portions of the greater study area could not be ascertained, but the names and sizes of a number of state forests and woodlots were obtained from the National Indigenous Forest Inventory and from the Eastern Cape Woodlot Survey (Keet and Mbelani, 2001).

3.2.7.3 Homesteads

Data concerning the number and spatial distribution of homesteads was derived from the Human Sciences Research Council who mapped the homesteads as point data from the 1995 aerial photographs. The location of *surveyed* homesteads was obtained by recording the position of each homestead using a Global Positioning System during the course of the survey (Figures 6 and 7). Aerial photographs for the epochs 1942, 1961 and 1995 were analysed to establish population trends at Ntubeni and Cwebe (Chapter 6, Section 6.2.2.1). Making use of a stereoscope, the number of homesteads and dwellings in each sub-locality was counted for each epoch. Homesteads were identifiable as a cluster of dwellings, normally situated in a semi-circle around a cattle kraal. In this thesis, the terms ‘dwelling’ and ‘housing unit’ are used interchangeably to refer to the individual houses within homesteads.

3.2.7.4 Rivers and Roads

Rivers and roads were mapped by the Human Sciences Research Council using a combination of 1995 aerial photographs and 1:50 000 topographical maps.

3.2.7.5 Cwebe betterment map

The original hand-drawn map was sourced from the Department of Agriculture, Elliotdale and was digitised using ArcView (Chapter 4, Figure 8). The map is essentially a replica of the original. The map was undated but is thought to originate in the mid-1970's. An equivalent map for Ntubeni could, unfortunately, not be located.

3.2.7.6 Colour aerial photographs:

The colour aerial photographs used in Figures 3 and 4 were sourced from the Council for Industrial and Scientific Research and are dated 1995.

3.3 Approach to the analysis

3.3.1 Unit of Measurement

The survey was designed to capture data at the household level, in turn making the household the logical primary unit of measurement and analysis. The household was defined as those individuals - resident and non-resident - that were listed by the respondent (who in most cases was the real or acting household head) as belonging to that household. Ardington and Lund (1996) have argued that, despite critical literature on the household as the unit of measurement (Murray, 1981; Guyer and Peters, 1987), the *de jure* household, i.e. including resident migrant members, is the most appropriate unit of measurement in rural livelihood studies. This is because of the high level of economic cooperation that takes place between local and non-local household members.

3.3.2 Calculation of household income

Household income was calculated by adding up the declared cash contribution of all household members to the household in the past year. This included remittances from absent migrant workers and receipt of state welfare grants. It was also calculated to include the in-kind contribution of own production activities such as livestock husbandry and cropping (see Sections 3.3.5 and 3.3.7 below for a description of the methods used). All household income data was converted to Rands per Adult Equivalent based on the number of individuals that were residing in the household at the time of the survey. The use of adult equivalents recognises that children cost less to support than adults, and that certain economies of scale operate as households increase in size (Deaton, 1997). The formula used for calculating adult equivalent units, i.e. $AEU = (A+0.5K)^{0.9}$, is increasingly used in contemporary poverty studies (SALDRU, 1994; May, 1998; Branch *et al.*, 2002), where 'A' equals the number of adults in the household, and 'K' equals the number of children in the household younger than 15. The coefficient 0.9 is used to account for household economies of scale. Adult

equivalence income, therefore, equals total household income divided by the number of adult equivalent units:

$$\text{Adult equivalent income} = \frac{\text{Total household income}}{\text{Adult equivalent units}}$$

3.3.3 Key variables used

In attempting to describe livelihoods in the greater Dwesa/Cwebe area, the data from the surveys at Ntubeni and Cwebe were analysed in different ways. First, the data set was combined on the assumption that this would provide a reasonably representative picture of the broader study area. This assumption was based on the observation that Ntubeni appeared to be the most prosperous, and Cwebe the least prosperous, village in the area. Thus, it was expected that the combined data would provide a mean measure of conditions prevailing in the general area.

Second, the data was disaggregated to capture the potential differences between social groupings. This approach is promoted in sustainable livelihoods research, where communities are not assumed to be homogenous and where the researcher needs to display sensitivity to marginalized social groups (Carney, 1998; Kepe, 1998; Ellis, 2000b; McDowell, 2002). Two units of analysis were used, *viz.* site and income. With respect to site, the data was analysed separately for each sample village, allowing for the identification of inter-community differences and similarities. With respect to income, the data was analysed on the basis of income terciles. Income terciles were calculated by combining the *cash* income data of all households in the two samples and dividing the total into equal thirds. It was assumed that households within the three income ranges thus delineated would adequately represent lower-income, middle-income, and higher-income households. The terms middle and higher-income households are relative however, as mean incomes among higher-income households were low by national standards (Chapter 6, Section 6.2.1.2).

Income terciles were based on the combined set of survey data, i.e. from both villages. However, as household incomes at Ntubeni were generally higher than those at Cwebe, this resulted in an uneven distribution of households within income terciles across the two samples (Table 2). The profile is effectively inverted for the two villages, i.e. there were more households in Income Tercile I at Cwebe and more households in Income Tercile III at Ntubeni. Six questionnaire schedules (1 from the Ntubeni sample and 5 from the Cwebe sample) had incomplete income data and could therefore not be used for analyses based on income terciles.

Table 2 - Distribution of Household Income Terciles
Across the Study Villages (%)

	Ntubeni		Cwebe	
	No.	%	No.	%
Income Tercile I: 0 – R92.31	9	23.1	16	47.1
Income Tercile II: R92.32 – R170.15	14	35.9	10	29.4
Income Tercile III: R170.16 – R692.75	16	41.0	8	23.5
Total	*39*	*100.0*	*34*	*100.0*

Gender was not considered as a key variable as female-headed households[9] were found to occur in equal proportions in all three income terciles (Table 3). Female-headed households could not, therefore, be considered a coherent sub-group in terms of their income-earning potential based on income terciles (although analysis by village in Chapter 6, Section 6.2.1.4 revealed that female-headed households at Cwebe were significantly worse-off than male-headed households). However, gender is not excluded from the analysis completely, and where clear differences in the asset status of male and female-headed households were found to occur, they are discussed.

Table 3 - Distribution of Households by Income Tercile
by Gender of Household Head

	Ntubeni and Cwebe Combined	
	M	F
Income Tercile I: 0 – R92.31	16	9
Income Tercile II: R92.32 – R170.15	15	9
Income Tercile III: R170.16 – R692.75	15	9
Total	*46*	*27*

3.3.4 Statistical methods of comparison and correlation testing

Both parametric and non-parametric statistical tests were used in analysing the data. The Chi Square Test was used to test for differences in frequency data between sub-samples based on site and income terciles. The Chi Square Test was considered relevant as, according to Ebdon (1977), it

[9] Female-headed households here were taken to imply *de jure* female heads; i.e. where women had become widowed through the death or disappearance of their spouses, had become divorced, or had never married. This is in contrast to *de facto* female-headed households, i.e. households in which the male head is absent for long periods due to economic migrancy, and where wives or mothers take over the responsibility of heading the household in his absence (Kepe, 1997; IFAD, 2002).

is a very flexible test which can be applied to both two-sample (villages) and three sample (income terciles) situations. The null hypothesis in each case was that there was no difference between the number of households (based either on their location or income tercile), in terms of the particular variable being analysed, e.g. ownership of cattle, access to an income source, etc. The alternative hypothesis was that there was a difference.

The Student t Test, a two sample test, was used to test differences between sub-sample means across the two villages, and the F Ratio Test (Analysis of Variance), a test for three or more samples, was used to test differences across income terciles. In each case the null hypothesis was that the sub-samples were taken from identical, normally distributed populations. The alternative hypothesis was that the sub-samples came from populations with different distributions. Thus, where the null hypothesis could be rejected, i.e. where $p \leq 0.05$, it meant that any differences in the respective means were representative of real differences in the population from which the sub-samples were drawn. Means are presented together with their standard errors (S.E.). The standard error is very similar to the standard deviation. For any mean value, there is a 0.682 probability that the population mean lies within the limits set by one standard error of the mean either side of the sample mean; a 0.954 probability that the population mean lies within the limit set by twice the standard error, and a 0.997 probability that the population mean lies within the limits set by three times the standard error of the mean (Ebdon, 1977).

Relationships between variables were measured using Pearson's (product-moment) Correlation (Walpole, 1997). Apart from measuring the strength of a potential correlation between variables, Pearson's Correlation also tests the degree of significance of the correlation. Pearson's Correlation returns a value between –1.0 and 1.0. A value of –1.0 indicates a perfect inverse relationship between the two variables. A value of 1.0 indicates a perfect direct relationship between the two variables. 0.0 indicates a complete absence of any correlation (*ibid.*).

Tests for normality were done using the Kolmogorov-Smirnov Goodness of Fit Test. This test for normality is based on the maximum difference between the sample cumulative distribution and the hypothesized cumulative distribution (Ebdon, 1977). The null hypothesis is that the sub-sample data was drawn from a normal (Poisson) distribution.

3.3.5 Calculating the capital and in-kind value of livestock goods and services

The capital value of cattle, goats, sheep, equines and pigs were calculated in terms of local trading prices at the time of the survey ('farm-gate prices'). In 1997/98 the benchmark cost of cattle at Dwesa/Cwebe was R2 000, goats were R200, sheep were R200 and pigs were R400, although

prices varied with regard to age, sex, condition, etc. Poultry were excluded from the analysis, due to the difficulties of distinguishing between chicks and mature adults in the survey results.

In 1999, Shackleton *et al.* calculated the value of goods and services accruing to households owning cattle and goats in the Sand River Catchment in Bushbuckridge. Goods and services included in the valuation of cattle outputs were: draught power, transport, milk, manure, dung as sealant, dung for burning, slaughtering, hides, cash sales and herd growth (savings) (Shackleton *et al.*, 1999)[10]. Goods and services included in the valuation of goat outputs were: milk, meat, hides, cash sales and savings (herd growth).

In their survey, the net in-kind annual return from goods and services derived from cattle was calculated to equal 33.1% of the capital value of the household herd, and from goats, 37.9% of the herd value. These proportions were used in extrapolating in-kind values of cattle, goats and sheep at Dwesa/Cwebe. Assumptions were that the types and relative values of livestock goods and services at Dwesa/Cwebe were similar to those at Bushbuckridge, and that the goods and services derived from sheep were comparable to those of goats. The first assumption was considered justified as i) there was no comparable data for the Dwesa/Cwebe area, the Shackleton study being the only research that had valued livestock goods and services in a communal setting in South Africa, ii) the rainfall pattern between the two sites was comparable, and iii) the range of goods and services derived from livestock at Bushbuckridge was similar to those documented at various sites in the Transkei (Hawkins Associates, 1980; Kepe, 2002a; Ntsebeza, 2002; Ntshona and Turner, 2002). The assumption that outputs from goats and sheep were comparable was considered justified by i) the fact that goats and sheep are normally combined under the classification of 'small stock', the inference being that they are comparable, ii) goats were equivalent in value to sheep at Dwesa/Cwebe, and iii) the market for wool at Dwesa/Cwebe, arguably the only product not common to both animals, was practically non-existent.

The value of goods and services deriving from equines and pigs were excluded from the calculations of livestock goods and services at Dwesa/Cwebe due to a lack of comparable valuation data and because of the limited range of goods and services gained from owning them[11].

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[10] The value of cattle and goats used for brideswealth payments was not included due to the sensitivity of "asking parents what they thought their daughters were 'worth' " (Shackleton *et al.*, 1999:59).

[11] Apart from their capital value, the only real value of horses lay in their use for transportation. Horsemeat was not eaten in the study area. The value of pigs lay predominantly in their meat which could be consumed or sold. While pigs may not have a comparable range of goods and services to cattle, goats and sheep, they have been shown to be an importance source of cash (selling meat) for women, as they are the only livestock apart from poultry that women have control over (Cloete, 1988). Pig meat is also recognized currency for hiring labour (Fay, 2003).

3.3.6 Calculating stocking rates

Stocking rates at Ntubeni and Cwebe were calculated by dividing the sizes of the respective land surface areas by the total number of Large Stock Units (LSUs) in each village, and expressed in hectares per LSU. Total land surface area (excluding forests and standing water bodies, but including residential sites, fields and gardens) was used rather than the actual size of grazing lands, as the latter was difficult to determine in isolation of other land uses. This was because for at least six months of the year practically all village land, apart from that occupied by physical structures, is used for grazing. The situation changes during the summer months when crops are planted and livestock are herded away from fields and gardens. While this results in a seasonal reduction in the amount of commonage at Cwebe, the abandonment of field-based cultivation at Ntubeni (see Chapter 4, Section 4.2.1) means that there was no substantial change in the amount of land available for grazing between seasons. The stocking rates used, therefore, are those that prevailed during the winter months, with an increase in the stocking rate likely in summer at Cwebe. Sizes of the land surface areas of Ntubeni and Cwebe were calculated from Geographical Information Systems (GIS) boundary maps using ArcView (Section 3.2.7.1).

The total number of livestock in each village was calculated by extrapolating the proportion of livestock owning households in the sample, and the mean number of Large Stock Units (LSUs) owned, to the village level. The following conversion factors (provided by Dr A.R. Palmer of the Range and Forage Institute and based on Meissner (1982) were used: 1 LSU = 0.84 cattle, 1.1 equine, 5.5 goats and 6.2 sheep. Despite the potential methodological problems inherent in basing livestock numbers purely on information provided by respondents (e.g. rural people often tend to under-report the number of livestock owned for various reasons, such as fear of taxation), the extrapolated numbers were comparable with those obtained from the dipping register records by agricultural consultants working on the Dwesa/Cwebe Development Plan (Amatole District Municipality, 2003). Of course, dipping records themselves are notoriously inaccurate, as livestock owners may be equally reluctant to divulge the size of their herds to dipping officials (Ainslie, 2002a).

3.3.7 Calculating the in-kind value of crops

For each household, the in-kind value of own cultivation was calculated by multiplying crop yields (as reported by the respondent), by their local trading prices. Respondents used various units of measurement when reporting crop yields making it necessary to convert their responses to kilograms. The following conversion factors were used: 1 bag = 50 kg; 1 sledge = 100 kg; 1 basket = 50 kg; 1 basin = 25 kg; 1 bucket = 20 kg; 1 dish = 5 kg. These conversion factors were obtained

from a local businessman familiar with the types of crops grown and the customary units of measurement. When dealing with maize, the above conversions refer to maize off-the-cob which was taken to equal half the weight of maize on-the-cob (cf. McAllister, 1999).

McAllister (1999) has demonstrated the difficulties inherent in deriving accurate records of crop yields using standard questionnaire procedures. Some of these include the tendency for rural farmers to under-report yields, the need to account for crops eaten directly from the field before the main harvest, and the fact that reported yields often include seed which is not eaten. While it was not possible to address these concerns during the household survey, results were inflated by 10% in an effort to account for under-reporting (cf. Bank, 2001).

In 1997/98 the local trading prices of crops (as obtained from local shops) were as follows: maize, R2.00 per kg; beans, R7.50 per kg; potatoes, R1.70 per kg, sweet potatoes, R2 per kg, and tobacco, R8 per kg. Pumpkins and cabbages were R12 and R2 each respectively. The calculations of crop in-kind values exclude the cost of inputs such as labour, and fertiliser.

3.3.8 Calculating maize production yields from gardens

Maize production was calculated by dividing the reported maize yield off-the-cob (converted into kilograms) by the size of the garden. Garden sizes were derived from estimations of garden sizes taken at each homestead included in the survey. This involved walking down the length and breadth of the garden, counting the number of one-metre strides taken. The size of the garden was calculated as the product of its length and breadth. Few gardens were perfectly rectangular, however, making it necessary that a certain amount of speculation take place with respect to estimating garden sizes. Both gardens and fields are generally used for crop production in the Transkei, although in some areas, such as at Ntubeni (Chapter 4, Section 4.2.1 and Chapter 8, Section 8.2.1.2), there is a trend towards the former. The distinction between gardens and fields is that gardens are normally smaller, are positioned directly in front of homesteads, are fenced, and are manured (cf. Andrew, 1992). Fields, on the other hand, are large expanses of arable land, normally unfenced and located at some distance from the homestead, often in river valleys. In some cases they are fenced and manured, but generally fencing and manuring is not as intensive as with home gardens.

No attempt was made to estimate maize production in fields due to the difficulty in obtaining their sizes[12]. The calculation of garden yields (Chapter 8, Section 8.2.1.2) was based on those households that were using gardens only, as opposed to those cultivating both gardens and fields. This was because the questionnaire did not make a distinction between yields from gardens and yields from fields, i.e. it captured the total yield. For this reason it was not possible to know how much of the harvest had been grown in gardens by households that were using both kinds of arable land.

3.3.9 Methods used in developing a typology of livelihood strategies

Households were classified into seven livelihood strategies on the basis of the relative income that they derived from welfare, employment and agricultural income (Chapter 8, Section 8.2.5.1). While the range of income categories recorded could have allowed for a larger number of livelihood categories based on various combinations of income, this was avoided due to the problem of increasingly small sample sizes across categories (cf. Ellis, 2000b). Livelihood strategies were, therefore, restricted to the three main economic sectors, i.e. welfare, employment and agriculture, with income data from various sources being grouped accordingly. Thus, the category 'employment income' includes income from local wages, remittances, self-employment and craft production, and the category 'agricultural income' includes both cash and in-kind income from cropping and livestock husbandry.

The seven livelihood strategies identified were: strategies based primarily on welfare income (welfare dependent), strategies based primarily on employment income (employment dependent), strategies based primarily on agriculture (agriculture dependent), strategies based primarily on a combination of welfare and employment income, strategies based primarily on a combination of welfare and agricultural income, strategies based primarily on a combination of employment and agricultural income, and strategies based on a combination of welfare, employment and agricultural income. Households were allocated to a livelihood category on the basis of the proportional distribution of their income between these categories.

[12] The aerial photos were unhelpful as they were taken when the fields were fallow, making it very difficult to identify field boundaries.

3.3.10 Methods used in constructing income portfolios

Income portfolios (Chapter 8, Section 8.2.5.2) were constructed by calculating the relative contribution to total household income that was made by the various income-generating activities and sources of income of a household (Ellis, 2000b). The analysis of income portfolios provided insight into the relative economic importance of any one particular sector in contributing to a household's livelihood.

Income portfolios were constructed for each village separately, for the two villages combined, and for households in the three income terciles. In each case the method involved summing the amount of income in the various income source categories. The total amount of income in each income source category was then expressed as a proportion of the total amount of income within the sample, or sub-sample, depending on the type of analysis being performed. Taken together, the proportional values of these income sources to total household income constituted the income portfolio for the sample (or sub-sample). Differences and/or similarities in the proportional contribution of the various income sources could then be analysed between the two villages, and between households in the different income terciles.

3.3.11 Using diversity indices to calculate income diversity

Income diversity was calculated using the Shannon-Weaver indices of diversity and evenness. Commonly used to measure biodiversity in ecological sciences, the Shannon-Weaver indices are based on the premise that, for a given area, diversity is the product of both the number of species present *and* the proportional representation of the species found in that area (Krebs, 1989). The Shannon-Weaver indices are not specific to ecological sciences and have been used as a measure of order (or disorder) in fields such as information systems theory (Shannon and Weaver, 1949) and animal behaviour (McCowan *et al.,* 1999). In Chapter 8 (Section 8.5.2.3), the Shannon-Weaver indices[13] are used to provide a summary statistic that combines both the number of income sources for a household with the evenness (or unevenness) in the distribution of their proportional contribution to total household income. The formula used to calculate the Shannon-Weaver Index of Diversity (*H)* is as follows:

$$H = - \Sigma p_i \ln p_i,$$

[13] For an alternative index of diversity see Chang (1997), cited in Ellis (2000:213).

where p is the proportional contribution of any one income source to total household income. Higher *H* scores indicate greater diversity in household income. The formula to calculate the Shannon-Weaver Index of Evenness (*E*) is as follows:

$$E = H / \ln(S),$$

where *S* is the number of income sources present within a household. Evenness scores range between 0 and 1, with 1 representing total evenness in the proportional spread of income derived from a household's income sources.

Shannon-Weaver indices were calculated for each household in the sample, using the entire range of income sources (including in-kind income). Means were calculated for each village and for each income group and the results compared using statistical tests of variation (see section on statistical methods used above).

Chapter 4 Natural capital

4.1 Introduction

Having provided a general introduction to the study area in Chapter 2, this chapter provides a more detailed account of the natural capital at Dwesa/Cwebe. Natural capital is defined as the natural resource stocks from which resource flows useful for livelihoods are derived (e.g. land, water, wildlife, biodiversity, environmental resources) (Department for International Development, 1997). The main categories of natural capital that are described in this chapter are land, soils, water, forest resources, grassland resources and marine resources, these being the most important natural resources for livelihoods in the study area. The livelihoods approach recognises that the existence of natural capital does not necessarily mean that people can access these resources for livelihood purposes. Rather, access is often mediated through what are termed 'transforming processes and structures', which is essentially the policy and institutional dimension (see Box 1 and Figure 1 in Chapter 1). Institutions in this context refer to both habitualised behaviour and rules and norms that govern society, as well as the more usual notion of formal institutions with memberships, constituencies and stakeholders (Adger, 2000). With this in mind, the chapter is structured into two sections. The first section describes the physical characteristics of the natural resources, i.e. their extent, distribution, usefulness for livelihoods, etc., while the second section describes the property and access rights associated with each of the main natural resource categories.

4.2 Results[14]

4.2.1 Land

The four administrative areas (two complete and two partial (Chapter 2, Section 2.1)) and the nature reserve that together made up the greater Dwesa/Cwebe area, had a land surface area of approximately 235 km^2. Ntubeni, the first of the two sample villages, was 10.59 km^2 in size. Of this 3.16 km^2 (29.8%) comprised forest and woodland. The spatial land-use pattern was one of settled areas, gardens, fields and grazing lands. Most households had abandoned field cultivation (Chapter 8, Section 8.2.1.2), and as a result many former fields were being 'invaded' by A*cacia* woodland. In some instances new residences were being established on the land previously used as fields. Despite a population density of 173 people per km^2 (Table 4), there did not appear to be a shortage

[14] Where appropriate, past tense is used as the information presented represents results of the research.

of land for new residential sites, because of the abandoned fields. While the population density figure appears high, the high rate of absentee household members (see Chapter 8, Section 8.2.3) means that the *de facto* population density was significantly lower - 107 people per km^2. In terms of the betterment plan for the village, Mkuhlu was the village section designated as a residential zone (see Figures 3 and 6). Gume, a village section in the south-west, as well as the northern side of the main access road to the nature reserve, were to be cleared of houses. The betterment plan was met with resistance and was only partially implemented; the results of the household survey revealing that only seven of the forty households surveyed (17.5%) had relocated as a result of betterment policies. Most of these households had moved between 1978 and 1987.

Table 4 - Population Density in the Study Area (1998)

	Km^2	Residents	Households	People per km^2
Ntubeni	10.59	1 836	193	173
Cwebe	17.32	2 644	413	153

Cwebe, which comprised an entire administrative area, was larger, measuring 17.32 km^2, of which approximately 4.43 km^2 (25.4% of the total surface area) was under forest. As at Ntubeni, the pattern of land-use was one of residential sites, grazing areas, gardens and fields. However, unlike at Ntubeni, field cultivation was still actively pursued at Cwebe, limiting the reestablishment of woody vegetation. Consequently, the transition between grasslands and forest patches was more clearly defined than at Ntubeni. Population density was 153 people per km^2 (*de facto* 133 people per km^2) and, because of the more intensive agricultural land-use, there was a general scarcity of land for the allocation of new residential sites. As a result, new residential areas were being established on land formerly used for grazing. Betterment planning was more pervasive at Cwebe, with just over half of the 39 households interviewed (53.8%) having relocated as a result of betterment policies. Two-thirds of those relocated did so between 1978 and 1987, while a quarter moved between 1988 and 1992. Figure 8 provides an indication of the proposed zonation plan for the ward. When compared with Figure 7 (Chapter 2), one gets a graphic impression of the extent to which the plan was implemented at Cwebe. Note the highly nucleated settlement pattern at Nyandeni, Matshaweni and Dungashe, areas zoned for residential purposes.

Local residents attributed the abandonment of field-based cultivation at Ntubeni to bushpig damage, but this was likely to be only one of a number of factors contributing to its demise (Andrew, 1992). For example, 75.0% respondents reported a decline in the fertility of their fields, suggesting that loss of productivity was also an important factor. However, there was no difference

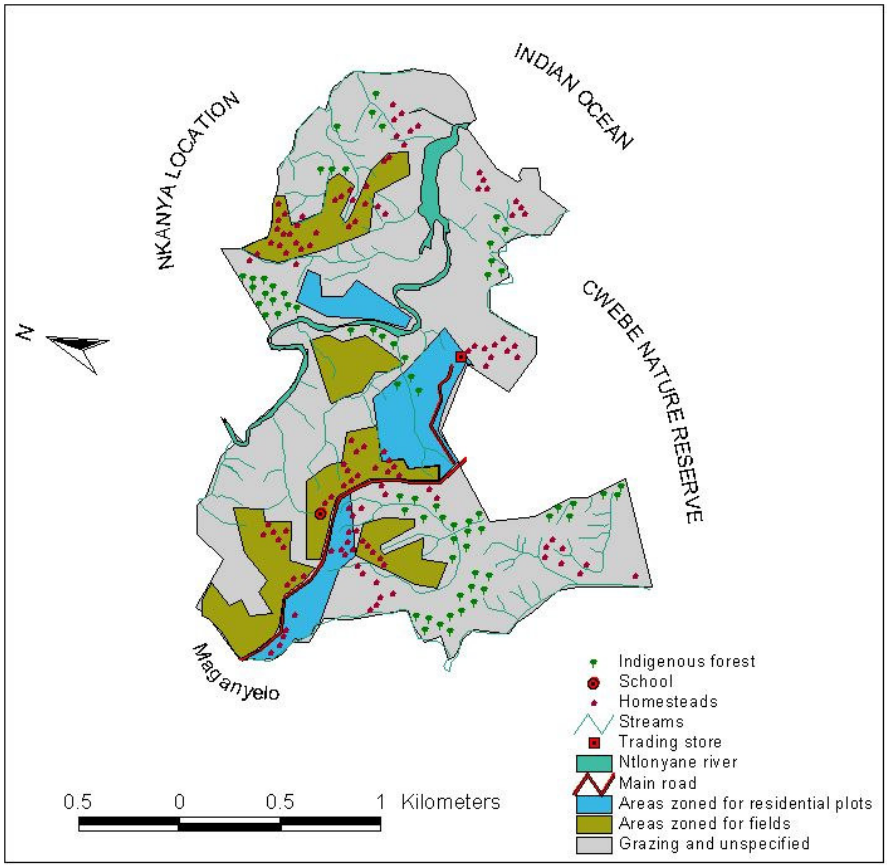


Figure 8 – A copy of the original hand-drawn betterment map for Cwebe Location. Source: Department of Agriculture Offices, Elliotdale.

in the reported rate of decline between the two villages. Thus no conclusive explanation could be found why field-based cultivation persisted at Cwebe, while it was all but abandoned at Ntubeni, but a plausible explanation may relate to differences in soil composition (Section 4.2.2 below).

4.2.2 Soils

The soils of the Transkei coastal belt are generally considered to be poor and weakly developed. A survey of the literature (Moll, 1974; McKenzie and Cowling, 1979; Hawkins Associates, 1980), as well as anecdotal accounts from local informants, indicated a large degree of heterogeneity in colour, structure and composition. The soils, which rarely exceeded a metre in depth, were generally a mix of Lithosols (shallow, immature soils, of the Glenrosa, Mayo and Mispah forms) and Duplex soils (two deck soils, usually with a relatively sandy and permeable topsoil, changing abruptly to a poorly permeable clayey subsoil, mainly of the Estcourt, Swartland and Valsrivier and Sterkspruit forms) (Amatole District Municipality, 2003).

The predominant parent rock materials in the study area were Beaufort and Ecca shales derived from the Karoo Supergroup. These shales were mineral poor and, because of their particle-sized composition, tended to give rise to fine-textured soils with restricted infiltration and permeability characteristics. As a result they were prone to water logging in wet weather and to desiccation during dry periods (Hawkins Associates, 1980; ARDRI, 1989).

In addition, the high rainfall in the study area leads to the soils becoming leached and acid. According to Burchmore (1988), the few nutrients that occur, are leached down to levels that are beyond the reach of ordinary ox-drawn ploughs. The soils are also generally deficient in phosphate and potassium (Hawkins Associates, 1980; Burchmore, 1988; Amatole District Municipality, 2003), rendering them unfavourable to cropping in the absence of fertilization. According to Andrew (1992) and the Dwesa-Cwebe Development Plan (Amatole District Municipality, 2003), the soils that occur in fields have become exhausted due to continuous cropping over time, resulting in the observed shift towards garden cultivation. This accords with local perceptions as 69.8% of the respondents included in the household survey felt that the fertility of their fields had decreased.

The Dwesa-Cwebe Development Plan (Amatole District Municipality, 2003), points out that there are limited areas of dolerite outcrops at Cwebe. Soils derived from dolerite are generally more fertile (Hawkins Associates, 1980), and this may account, in part, for the pattern of continuing field-based cultivation at Cwebe relative to Ntubeni. Overall, however, the report found that the arable potential of the soil was low with only 3% of the area holding any potential for cultivation[15]. The arable soils identified were located on the dolerite outcrops and along the banks of the Mbashe River. However, the Transkei Five Year Development Plan (Hawkins Associates, 1980) maintains that the soils along the Transkei coast are no different to those found in the coastal sugarcane belt in KwaZulu-Natal, and can sustain high crop yields with sufficient fertilisation. While the number of people using fertiliser was surprisingly high given its cost (35% of respondents reported using it either in their field or garden), it was often too thinly concentrated or incorrectly applied to make any noticeable difference (Dlambulo, pers. comm., 1998; cf. McAllister, 1999). The use of manure was much higher (72.8%), but this was largely restricted to homestead gardens.

[15] This is no doubt an extremely conservative estimate as McAllister (1999) found that maize yields from dry-land cultivation at Shixini, an area with comparable climate and soils to Dwesa/Cwebe, were not dissimilar to yields attained in the commercial maize growing areas of South Africa.

4.2.3 Water

Apart from the many rivers and streams, there were numerous freshwater springs in the study area. Each village had access to two perennial rivers, the Ntlonyana and Kubhula Rivers at Cwebe, and the Nqabara and Ngomane Rivers at Ntubeni. The Ntlonyana and Nqabara rivers were large river systems with catchment areas of 315km^2 and 402km^2 respectively (Hughes *et al.*, 1997), while the Kubhula and Ngomane rivers were more localised systems. Many of the springs dried up during the winter months leading to a greater reliance on the larger rivers during the dry season. As a result, a number of households had invested in water tanks (Chapter 8, Section 8.2.2.2). These were generally more evident among higher-income households, partly because of the greater number of zinc or tile roofs facilitating run-off among this income group. A major limitation of thatched roof houses, more common among poorer households (Chapter 8, Section 8.2.2.2), was that they could not retain run-off water.

4.2.4 Grasslands

Grasslands were the most commonly found vegetation type in the study area. While most of the vegetation cover at Cwebe consisted of grasslands, at Ntubeni, grasslands were less extensive, owing to the reestablishment of *Acacia* woodland in many of the abandoned field sites. In both villages, grasslands occurred on all land that was not forested, cultivated or resided on. There was also a substantial amount of coastal grassland within the nature reserve, located between the main forests and the sea. Outside the nature reserve, grasslands were normally associated with common grazing areas, although they could also occur on old cultivated land. Grassland resources were used for pasturage, thatching, weaving, medicines and for food.

Generally speaking, coastal grasslands in the Transkei display the characteristics of moist grasslands (rainfall > 800 mm per annum). Such grasses are sour to mixed sour in character (Shackleton, 1993). They do not provide particularly good winter grazing but are resilient and able to withstand the high stocking rates under the prevailing communal grazing regime (*ibid.*). Dominant grass species included: *Stenotaphrum secondatum*, *Dactylon australe, Tristachya leucothrix, Cymbopogon marginatus, Miscanthus capense* and various *Eragrostis* species. *Themeda trianda*, an excellent grazing grass, was found in association with dolerite soils. On the negative side, the coastal areas of the Transkei are renowned for the high incidence of ticks and tick-borne diseases (Dlambulo, pers. comm., 1998) (Chapter 6, Section 6.2.2.3).

The stocking rate of domestic animals was calculated as 0.47 hectare per Large Stock Unit at Cwebe and 0.90 hectare per Large Stock Unit at Ntubeni (see Chapter 3, Section 3.3.6 for the

method used to calculate stocking rates). The *de facto* stocking rate was likely to be higher, as calculation of the land surface areas included residential sites, gardens and fields. However, this may have been compensated for by the undulating landscape, resulting in an under-calculation of the actual land surface area using GIS. The difference in stocking densities between the two villages is attributed to a greater proportion of households at Cwebe owning livestock as opposed to Ntubeni (77% versus 73%), a higher mean number of Large Stock Units owned per household at Cwebe (8.2), than at Ntubeni (7.1), and a greater proportion of households relative to land area at Cwebe (0.23 households per hectare) relative to Ntubeni (0.18 households per hectare). The recommended stocking rates for the two villages are 2.30 hectare per Large Stock Unit at Cwebe and 2.56 hectare per Large Stock Unit at Ntubeni (Amatole District Municipality, 2003).

The high stocking rates found in the study area were not unusual in the context of the Transkei coast in general. A study by McKenzie conducted between 1975 and 1978 found that the average rate of 'over-stocking' in the coastal districts was close to 300% (McKenzie, 1982). In spite of this high stocking rate, much of this grassland contained an abundance of climax species and had a high basal cover. Acocks (1975) and McKenzie (1982) explain the preservation of the palatable climax species in terms of the heavy non-selective grazing regime associated with communal grazing areas.

4.2.5 Forest resources

The Dwesa and Cwebe Forests were by far the largest indigenous forests in the area, measuring 27.93 km^2 and 15.88 km^2 respectively (Table 5).

Table 5 – The Distribution of Indigenous Forests in the Study Area

	Land Area	Forest Area	
	Km^2	Km^2	%
Cwebe Nature Reserve	19.10	15.88	83.1
Dwesa Nature Reserve	38.67	27.93	72.2
Cwebe village	17.32	4.43	25.4
Ntubeni village	10.59	3.16	29.8

Other relatively large indigenous forest patches (>0.15km^2) located within the broader study area are listed in Table 6. These are all forests owned by the Department of Water Affairs and Forestry, having been demarcated and gazetted at various times in the past (Section 4.3.3).

Table 6 - The Distribution of Indigenous Forest Patches in the Greater Study Area

Administrative Area	Forest Name	Forest Size (km^2)
Cwebe	Lunyoti	0.36
Hobeni	Rebetshane	0.30
Mendu	Tembu	0.28
	Lurwayiso/Xegweni	0.39
	Intokozimyama	0.21
	Ntontgundu	0.20
	Ingoma	0.44
	Ngateni	0.17
Msendo	Kobole	0.37
	Mpume	0.34
	Gxalibomvu/Ntsimsini	0.27
	Magwerana	0.32
	Mkuhlu	0.61
	Ntlopa/Ntubeni	0.21
	Dikadikona	0.14
	Gume	0.29
	Mqotwana	0.19
	Gala-Gala	0.40
	Sizani	0.17

In addition to the indigenous forests, a number of plantation forests (or woodlots) were present in the study area. Gala-gala woodlot (0.5 km^2) was located in the north-western portion of Msendo Ward. Cwebe woodlot (0.3 km^2) was located adjacent to the northern boundary of the Cwebe Nature Reserve. Tembu woodlot (0.06 km^2) was located just north of the Dwesa Nature Reserve on the slopes leading down to the Mbashe River. In addition to these, smaller areas of plantation trees existed within the nature reserves. Plantation forests were planted with the objective of providing an alternative to indigenous wood for poles and fuel wood (Shone, 1985). In accordance with the afforestation policy at the time, plantations were planted along the perimeter of, or immediately adjacent to, existing indigenous forests (Cooper and Swart, 1992). Most of the woodlots in the study area were established to *Eucalyptis grandis*. A study conducted in 2001 found that, due to management neglect, the condition of the trees in the woodlots was extremely poor (Keet and Mbelani, 2001). Consequently their utility value to local livelihoods was reduced and utilisation levels were low (Timmermans, 2000; 2002).

Indigenous forests provided a range of livelihood assets for local people (Table 7). Most forest-based activities took place in the winter months, after the maize crop had been harvested and stored (Lieberman, 1997; Timmermans, 2000; 2002).

Table 7 – Selected Forest Products and their Uses

Forest product	Livelihood use
Tree trunks (<=10cm diameter)	Poles for house construction
Tree trunks (> 10cm diameter)	Split into poles for fencing; construction of sledges and yolks
Saplings	Laths in building frames for houses
Brushwood	Fencing
Lianas	Used to weave walls of cattle enclosures, maize storage bins and chicken cages; rope.
Fallen and dead wood	Fuel wood
Wild fruit	Consumption
Honey	Consumption
Wild herbs and vegetables	Consumption
Bark, roots and herbs	Health care
Wild animals	Consumption; sport

4.2.6 Marine resources

The most important marine resources at Dwesa/Cwebe, from a livelihoods perspective, were line-fish and shellfish. The study area incorporated 22 km of shoreline of which 16 km (72.7%) was rocky, and thus potentially inhabitable by shellfish (Timmermans and Naicker, 2002). Although line-fish could be caught from most points, shellfish were restricted to the inter-tidal and sub-tidal zones of the rocky shores. Except for in the south, most of the rocky shoreline was enclosed within the nature reserve, and formed part of the marine protected area.

Sand and shingle were used in local construction works, and sea-water was used as a traditional health remedy. The sea and beach were also important cultural and spiritual sites for traditional healers.

4.3 Natural capital and property rights

4.3.1 Property rights and land

Often referred to as 'communal land', most of the land in the former Bantustans is owned and administered by the state 'on behalf' of the occupants (Ntsebeza, 1999). In theory, residential plots and arable allotments are held in terms of 'certificates of occupation' (CTOs) where an individual's right to the use of residential stands and arable allotments is registered, with the approval of the Tribal Authority, by the Magistrate of the district (Transkei Government, 1991). In the study area, rights to communal grazing lands were automatically acquired by virtue of residence and through ownership of livestock. Once allocated, rights to residential sites and fields remained within the family, and, on the death of the household head, passed over to his wife (McAllister, 2001). Allotments are generally granted to married men, but were also allocated to single men of marriageable age, and to divorced women (Ntlumbini, pers. comm., 1996; Ntsebeza, 1999).

At Dwesa/Cwebe it was rare for an application for a residential site to be denied (all but one respondent in the survey had a residential site), but access to arable fields was more restricted. A residential site included space for a garden, and this could extend beyond the site as long as it did not interfere with the land rights of neighbours (Heron, 1990; Ntlumbini, pers. comm.., 1996; Fay, 2002). As discussed in Chapter 2 (Section 2.2), in the past, holders of CTOs were vulnerable to state-induced displacements arising from various state-led development schemes, such as betterment planning, irrigation schemes, or nature reserves (Ntsebeza, 1999). CTOs were also not recognised by financial institutions as collateral, and were seen as limiting investment opportunities, more productive use of land, and the prospects of getting housing loans (*ibid.*). More recently, holders of communal land have been granted greater security of land tenure under the Interim Protection of Informal Land Rights Act, 1996, but this security may still not be used as collateral. The Communal Land Rights Bill, which is due to be passed in 2004, seeks among other things, to address this issue. However, the bill, which has been six years in the making, and which is currently in its eighth draft, is proving to be highly controversial. At stake is the power of the chiefs over land administration, and the potential for private ownership to lead to increased landlessness among the rural poor (Mail and Guardian, 2003).

At the time of the study, the system of state administered land allocation, as described above, was, however, breaking down at Dwesa/Cwebe, and a number of households were relocating to their pre-betterment sites (Fay, 1998; 2003). At Ntubeni there appeared to be little institutional control over this process and confusion was setting in as people established houses in areas formerly reserved for fields (Mbola, pers. comm., 1998). Although these fields were owned (in the sense that

particular households had clearly established rights to use them), they had not been cultivated for many years. At Cwebe, where field cultivation was still being practised, access to new residential allotments was constrained by the scarcity of suitable land. As a result, new sites were being allocated in areas previously reserved for grazing.

A key piece of legislation affecting the communities at Dwesa/Cwebe is the Communal Property Association Act of 1996. This act makes provision for an accountable land-holding entity - a Communal Property Association (CPA) - as a model for group ownership. In 1997, the Department of Land Affairs (DLA) launched a tenure reform programme at Dwesa/Cwebe with the aim of transferring village land to CPAs, which they had helped establish (Department of Land Affairs, 1998b). Despite intensive preparatory groundwork, including the election of CPA committees and the surveying of CPA boundaries, the DLA had a sudden change of heart, and as a result, the formalisation of these CPAs was stalled (Hobongwana, pers. comm., 2002). At the time of writing it remained unclear whether these existing structures were to be granted any legal power, and local sub-headmen and headmen continued to allocate land.

Despite the CPAs not being registered, the CPA committees formed the institutional basis from which members of the Dwesa-Cwebe Land Trust were drawn. The Dwesa-Cwebe Land Trust was established as a legal entity in 2001, and, since the signing of the land restoration agreement in the same year, has taken over ownership of the protected area (excluding the marine reserve). However, at the time of writing, the trust had still not been granted the title deeds associated with the protected area. Thus, the CPAs and the trust are relatively new institutions that, due to various legal and administrative delays, have not yet been granted the power to carry out their mandates, i.e. management of communal land in the case of the CPAs, and the co-management of the protected area in the case of the trust.

4.3.2 Property rights and water resources

All ground and surface water in the study area technically belonged to the state, but local residents were, generally, not restricted from accessing water for domestic purposes, or for the watering of livestock. Access was, however, restricted in those instances where water sources occurred within the protected area. In this case an entrance fee was payable to the nature reserve, although, in practice, this was normally waived (Mbete, pers. comm., 1998). The presence of wild animals (including the rumoured presence of crocodile) further dissuaded people from using water sources within the nature reserve.

At a more localised level, residents generally restricted access to freshwater springs to members of the neighbourhood in which the spring was located. However, this system tended to break down during winter months, when many of the springs dried up, leading to an increase in demand for access to fewer water sources (Hughes *et al.*, 1997). This generated some conflict as those whose springs had dried up were expected to collect water from rivers, if these were not too far away. However, where the rivers were considered to be too distant, residents with spring water would generally accept the moral need to share their supply with neighbouring sections (Silo, pers. comm., 1998).

4.3.3 Property rights and forestry resources

As with the communal land, the forests essentially belonged to the state and the communities had no legal title over them. Their use and management was prescribed by a number of government rules and regulations formulated under the National Forests Act (No 84 of 1998). Between 1932 and 1998, forestry policy made provision for the cooption of headmen in managing undemarcated indigenous forests (generally speaking those less than two hectares in size) (Cooper and Swart, 1992). The transition to democracy in South Africa opened the way for a more progressive approach to forest management and provision is now made for the co-management of forests by user-communities and the state under the government's policy of Participatory Forest Management (PFM) (Horn, 2000). However, this policy change has yet to be meaningfully implemented on the ground.

Despite the communities having had their rights to the land in the protected area restored to them in 2001, their power to influence decisions concerning resource use from the nature reserve was limited. This was because it remained a strongly proclaimed protected area in terms of both national and provincial legislation. As a result, there was little that they could do when, in 2002, the conservation authorities once again decided to close the forests to all forms of harvesting. Not surprisingly the renewed prohibition on resource use from the nature reserve has become an issue of growing concern to local residents (Juza, pers. comm., 2003).

The time of the survey, however, coincided with a period during which the prohibition on resource use from the nature reserve had been lifted[16], i.e. 1995-2002. Harvesting during this period was limited to the villages that shared a border with the reserve, and the collection of materials (such as poles, kraal wood, medicinal plants, etc.) was only to be for domestic use and could not be traded

[16] However, the prohibition on shellfish collection remained in force.

(Lieberman, 1997; Timmermans, 2000). Furthermore, specific days were prescribed for the collection of different kinds of products and permits (which required the payment of forestry tariffs) were necessary. Despite these restrictions, the rates of harvesting, and the amounts harvested from the reserve were high, leading to official concerns about the degree which resource utilisation was compatible with forest conservation (Lieberman, 1997; Mbete, pers. comm., 2002). These concerns were based on intuition as, apart from the study by Lieberman, there was little scientific monitoring of the impact of harvesting on the resource base.

At the time of the survey, forestry regulations were rarely enforced outside of the nature reserve. In the past, those wishing to harvest from undemarcated forests had to obtain the permission of the headman, but since the introduction of the Forest Act in 1998 this was no longer the case. Although the Forest Act contained a schedule of protected trees, this protection was not generally recognised on the ground, and few people knew which trees required a permit to harvest (Lieberman, 1997). As described earlier, tariffs had to be paid for fuel wood and building wood collected from the nature reserve, and for *Eucalyptus* poles harvested from the woodlots. Prices of forest products were, however, heavily discounted in relation to market prices (Timmermans, 2000), but the degree of poverty in the area meant that these tariffs remained a burden for many households.

4.3.4 Property rights and grasslands

As with the land, grasslands were common pool resources, nominally owned by the state. The degree to which officialdom engaged, or intervened, in the management of grasslands through the years fluctuated in relation to varying levels of political concern for soil erosion, over-stocking, and the institutional capacity of the state to address these (Hendricks, 1989). At the time of the survey, there was very little coordinated management of the grasslands by either the state or the communities (Mvenya, pers. comm., 1998). The only visible form of management was the spatial separation - or reservation - of particular areas of land for pasturage, i.e. residential or field sites were not normally allocated in these areas, although as mentioned in Section 4.3.1, this was beginning to change. Coordinated burning of grasslands to maintain productivity was not practised in the study area (*ibid.*).

Historically the grasslands within the reserves were particularly cherished as a source of high quality winter grazing (da Sousa, 1927; Institute of Social and Economic Research, 1996). With the demarcation of the forest reserves in 1903, the grasslands in question came under the ownership and administration of the Forestry Department (Henkel, 1889). For years they were leased out to stockowners at a nominal fee, but this arrangement was terminated in 1976 when the nature reserve was created. Thereafter, domestic animals were prohibited and various species of wildlife

introduced. At the time of the survey, thatching grass, and other grasses and sedges, could be harvested from the nature reserves, but were subject to the payment of forestry tariffs.

4.3.5 Property rights and marine resources

Technically shellfish and other in-shore fish resources were owned and controlled by the state, and were managed through the Marine Living Resources Act No. 18 of 1998. The Act distinguished between commercial, recreational and subsistence users, with different rules of access for each user group (Branch, 2002). All users were required to purchase a permit in order to collect marine organisms or to catch line-fish, although few people had these and there was practically no enforcement of this policy. Size limits, bag limits and seasonal restrictions were further measures used in the effort to regulate catches. With the establishment of the Dwesa-Cwebe Marine Reserve in 1991, access to the coastline within the protected area was restricted and it became illegal to harvest shellfish there. This was despite the fact that 75% of the coastline, historically the main gathering grounds for the inland communities (Tinley, 1975), subsequently fell within the reserve. At the time of the study, access to the shellfish stocks in the nature reserve was a heated political issue in the study area. Conservation officials generally tolerated fishing in the MPA, which, apart from in two demarcated zones, was technically illegal. Ski-boat and commercial fishing were, however, prohibited.

4.4 Discussion

South Africa is generally a dry country with 65% of the country receiving less then 500mm per annum, the minimum considered necessary for dry land cultivation (Water Research Commission, 1994). As a result agricultural potential is limited. In this context, the residents of Dwesa/Cwebe were fortunate in that they occupied an area of above average rainfall and, consequently, were relatively well-endowed with this form of natural capital. Population density was high, but not as high as in many other former homelands, where population densities could reach up to 300 people per km^2 (Wilson and Ramphele, 1989). In addition the above average rainfall meant that the area could generally support a greater number of people than areas with lower rainfall.

Ironically, considering its high rainfall, water availability in the study area was a critical livelihood constraint. This was because rainfall was highly seasonal, with the amount of rainfall declining considerably during the winter months. A lack of water retention facilities meant that most households struggled to access water during the dry winter season. Furthermore, the hilly nature of the terrain limited the scope for irrigation, which according to the Dwesa-Cwebe Development Plan (Amatole District Municipality, 2003), was required to raise productivity. Even with irrigation,

however, the potential for cultivation was limited due to the leached soils, many of which had been exhausted through years of continuous cropping. An indication of this trend was the abandonment of field-based cultivation at Ntubeni, and the movement away from fields to homestead gardens that, due to their proximity to homesteads and their reduced size, could be cultivated more intensively.

While the grasslands were heavily overstocked from a 'commercial farming' perspective, it is likely that the actual levels of stocking represented a more accurate approximation of their carrying capacity. This claim is motivated by the fact that i) in a participatory grassland assessment carried out by Fay (1999), local livestock owners generally expressed satisfaction with the condition of the grasslands, ii) very little erosion due to overgrazing was evident, and iii) there was no indication that goat holdings were beginning to increase at the expense of cattle holdings (a commonly accepted indication of a reduction in forage quality and quantity (Hawkins Associates, 1980)). However, the 'sour' nature of the grasses in the study area limited livestock husbandry as animals were vulnerable to opportunistic diseases during the lean autumn and winter months. In addition, the weakness of oxen during this period foreclosed the possibility of ploughing a winter crop. It could also lead to late ploughing in spring/summer, if their condition had not improved by the time the date for ploughing arrived. Other constraints were the high incidence of ticks and tick-borne diseases as well as the bushpigs associated with the forests.

Types of property regimes that shaped access to the natural resource base differed with respect to different types of resources. While there were no *de facto* restrictions on access to water and grasslands, access to forest and marine resources were restricted by conservation legislation. The main livelihood constraints posed by these restrictions were i) a shortage of building material for fencing and house construction, ii) the inability to access supplementary food sources (e.g. bush meat, seafood, etc.), and iii) the forgone opportunity of developing a local trade in forest and/or marine resources. Conservation legislation and land-use did however hold some benefits for local people. The existence of the protected area provided a number of local people with job opportunities, and attracted tourists (albeit a limited number), presenting opportunities for craft sales. The existence of the privately owned holiday cottages also provided some local job opportunities and a limited market for seafood.

While the natural capital at Dwesa/Cwebe (represented by a diverse and spectacular array of landscapes and ecosystems) was a potential tourism attraction, tourism remained under-developed in the area (Palmer and Viljoen, 2002). For example, the Haven hotel had relatively low occupancy

rates[17] considering its prime location inside a nature reserve (the only hotel within a protected area on the Wild Coast). Palmer and Viljoen (2002) attribute the low occupancy rates (and hence the hotel's lack of profitability), to declining road conditions, a lack of electricity provision (diesel generators are used), shorter seasons, and the Transkei's dangerous reputation. Based on observations, occupancy rates of the Dwesa bungalows and camp-site were also low. Occupation of the ±30 private holiday cottages situated inside the Cwebe Nature Reserve and the ±5 situated at Nqabara Mouth was almost purely seasonal.

Lastly, the lack of clear ownership rights under communal tenure meant that prospects for the commercialisation of natural resource-based activities were slim. Because communities did not have clear ownership of natural resources, they required special permission from the state if they wished to develop their natural resources for economic gain. While there were signs that changes in natural resource-based policies were aiming to create a more enabling developmental framework, the host of disabling conservation-oriented legislation, unclear land tenure, as well as the anti-commercialisation orientation of government officials, remained a constraint.

4.5 Conclusion

This chapter has detailed some of the characteristics of natural capital found at Dwesa/Cwebe that are pertinent to understanding the livelihood context of the local communities. On the basis of the evidence presented it is concluded that, from a livelihoods perspective, the role of natural capital in the study area was intermediate, i.e. it was neither a strength, nor a limitation. While the communities at Dwesa/Cwebe might have enjoyed a comparative advantage with respect to certain aspects of natural capital, e.g. above average rainfall, diverse and productive ecosystems (including extensive grasslands, forests and a marine and coastal environment), the value of these assets to livelihoods was mediated by various environmental factors (such as poor soils, 'sourness' of the grasses, prevalence of ticks and bushpigs), and institutional factors (such as restrictive conservation policies). In addition, while the potential to use natural capital to develop tourism - an alternative livelihood sector - was high, it remained largely underdeveloped.

[17] While annualised data does not exist, occupancy levels outside of the main Christmas holiday period are unlikely to be greater than 36%, which was the occupancy rate during the Easter weekend in 1997 (Palmer and Viljoen, 2002).

Chapter 5 Physical capital

5.1 Introduction

In the sustainable livelihoods framework, physical capital comprises the basic infrastructure and services needed to support livelihoods (Department for International Development, 1997). Various participatory poverty assessments have found that a lack of infrastructure is often considered by people to be a core dimension of poverty (World Bank, 1995; May, 1998; Nayaran, 2000). For example, without access to services such as water and energy, human health deteriorates and longer periods are spent in non-productive activities, such as the collection of water and fuel wood. Physical capital has also been found to decrease with increasing levels of distance from urban centres (Nayaran, 2000). In areas like the Transkei, where the rural periphery is economically under-developed, linkages with urban areas are critical for creating opportunities for livelihood diversification. Without access to urban markets, the scope for selling agricultural and other locally produced products, and for gaining access to employment, is heavily restricted (Ellis, 2000b; ARDRI, 2001; Shackleton *et al.*, 2001). Remoteness is also a factor with respect to the introduction of new ideas and technologies, new concepts being less likely to filter through to remote areas.

This chapter investigates the condition of infrastructure and services in the study area from a sustainable livelihoods perspective. Categories of physical capital that are dealt with include: transportation, housing, sanitation, energy, communications, education facilities, extension services, health services, agricultural infrastructure, agricultural markets, and stores. As the level of infrastructure development was comparable across the study area, the description of physical capital that follows generally applies to the broader Dwesa/Cwebe area. However, some important differences existed with respect to certain aspects of physical capital between the two sample villages, and these differences are highlighted where appropriate.

5.2 Results

5.2.1 Transportation

Transportation in the study area encompassed i) local transport of goods, ii) public transport to district centres and towns, and ii) long-distance public transport to cities. With respect to local transportation, ox-drawn sledges were commonly used for ferrying a diverse array of items. These included, for example, transportation of fertiliser and equipment to distant fields, transportation of harvested crops to the homestead, transportation of kraal wood and poles, transportation of building

sand, and transportation of food items, such as maize, sugar and flour, purchased from local trading stores. With respect to the transportation of food, most local stores offered a free delivery service (using a tractor and trailer), but, for various reasons (such as a lack of access roads to homesteads, a dispersed settlement pattern in some areas, the size of the area to be serviced, etc.), this could involve considerable delays. Thus, those with access to oxen were advantaged in the sense that they were not dependent on the store for delivering their goods.

No reliable public transportation system existed. Buses between Idutywa and Ntubeni ran on an irregular basis and there were long periods when this service had not been operating. At the time of the study, buses were not operating at all in Elliotdale as the militant taxi operators in the district had conspired to keep them out. In both villages, privately-owned taxis ran on a daily basis. These were more expensive than the buses (the taxi fare from Ntubeni to Idutywa cost R15 one way in 1998, as opposed to R7.50 for the bus). Taxis, which tended to shuttle between the study area and the towns in the early morning, and return late in the late afternoon, were important in allowing people to make use of urban-based services and facilities. The condition of the roads was extremely poor, however, and many of them become impassable in the rainy season. A combination of high rainfall and absence of regular maintenance meant that the rate of deterioration of the roads was particularly high. In addition, the many low-level bridges in the area were prone to periodic flooding, effectively cutting off all communication.

The poor condition of the roads had a number of implications for local livelihoods. For instance, in order to retain their profit margins, business people, such as shopkeepers and taxi operators inflated their prices to compensate for high vehicle maintenance costs. The bad roads also resulted in interruptions to essential government services such as pension payments and mobile health clinics. Bread deliveries, to shops and to schools, could also be disrupted. Poor access also reduced the scope for accessing urban markets for the sale of crafts and agricultural produce (see section on Markets below). Transportation constraints also had a negative impact on the management of conservation and forestry areas, and served to dissuade potential tourists from visiting the area.

With respect to long-distance travel, at the time of the study the Blue Line Bus Company operated a bus service from Dwesa to Cape Town twice a week (R150 one way). This service was well-used as it enabled people to commute relatively easily back and forth. As a result, many households at Ntubeni were effectively able to straddle the rural-urban divide, having homes in both the village and in Cape Town. This resulted, *inter alia*, in a fairly high degree of movement of household members between the village and Cape Town, with a large proportion of both the male and female population being absent at any one time (Chapter 8, Section 8.2.3). No equivalent bus service

operated at Cwebe making long-distance travel more difficult. As a result, both the rate, and pattern of migration were lower than at Ntubeni. (Chapter 8, Section 8.2.3).

With the exception of the long-distance bus service at Ntubeni, the poor roads at Dwesa/Cwebe served to entrench the region's isolation and remoteness, cutting its people off not only from essential services and markets, but also from exposure to 'modern' life. For example, it was not uncommon to come across older people (normally women) who had never been further than the neighbouring village. The lack of exposure associated with this isolation meant that people were generally conservative (more so at Cwebe than at Ntubeni), and that change took place very slowly. For instance, while British currency in South Africa was terminated in 1961, many older people still referred to currency as 'pounds' and 'shillings'.

5.2.2 Housing

There were no government built houses in the study area, houses having been built either by local people themselves, or by local artisans. There was a distinct difference in the housing styles on the eastern and western sides of the Mbashe River. 'Traditional' rondavels (single roomed, round huts with conical thatched roofs) were the predominant housing style at Cwebe, while a mix of modern and 'traditional' styles occurred at Ntubeni. This was thought to relate to ethnic differences between people on either side of the river. The *amaBomvana* at Cwebe were more conservative, up-holding traditional values and thus traditional housing styles, while the *amaMfengu* and *amaGcaleka* at Dwesa were more prepared to adopt Western influences (Palmer and Fay, 2002). The difference was unlikely to be related to economics as even rich households at Cwebe would build in the traditional style (see Chapter 7, Section 7.2, and Chapter 8, Section 8.2.2.2 for a more detailed examination of the relationships between housing and income).

5.2.3 Sanitation

Few households had toilets and defecation generally took place in the veld, or in small riverine forest patches. Free ranging domestic pigs tended to assist with 'removing the night soil', but this did not prevent ground and surface water sources from becoming polluted (Hughes *et al.*. 1997) and posing a severe health risk. Seventy-five percent of households surveyed in a recent water survey had members suffering from skin irritations resulting from drinking polluted water (Amatole District Municipality, 2002). In the absence of potable water, cattle dips were often located on riverbanks so as to be close to a water source. As a result, there was a risk that the water in the rivers (an important source of drinking water for many households) could become contaminated.

5.2.4 Energy

Dwesa/Cwebe was not electrified and the majority of households relied on fuel wood (97.4% of households listed this as their primary source of fuel) and, to a lesser extent, paraffin for their energy requirements. Much of the fuel wood was sourced from the nature reserves and smaller pocket forests (Timmermans, 2002). Cattle dung, an inferior fuel, was not generally used, although some households reported having used it during the period that the nature reserves were closed (1976-1995 and after 2001). Locally purchased paraffin was nearly twice as expensive as paraffin purchased in urban areas (Amatole District Municipality, 2003). Wood could be gathered for free in the smaller pocket forests but was subject to a tariff if collected from the nature reserve (10c a head load in 1996).

5.2.5 Communications

At the time of the survey there were no telephones in the study area. The only communication link to the outside world was through a radiophone situated at the Haven hotel. Since then the area has received cell phone coverage, but reception is intermittent and few can afford this service. The area was serviced by FM radio coverage, and radio was the primary form of media access. There were no newspapers available locally. A small number of households had television sets that were run off motorcar batteries.

5.2.6 Education facilities

Both Ntubeni and Cwebe had senior primary schools while the closest high schools were situated in administrative areas further inland. At the time of the study, schools were poorly resourced and, at Cwebe, most school buildings were in a state of disrepair. In some cases, villagers had built these buildings (normally a cluster of rondavels), after none were forthcoming from previous governments. Since 2000, a number of new school buildings have been built (Chapter 9, Section 9.4). At the time of the study, local schools benefited from the government's school feeding scheme, although this had been interrupted on many occasions due to bureaucratic inefficiency, administrative problems and problems with physical access. School textbooks and teachers were supplied by the government, but textbooks did not always arrive on time, and the rate of teacher absenteeism was high (van Harmelen, 1997). Many families could not afford the costs associated with education and a number of children did not attend school for this reason (*ibid.*). Other reasons for not attending school were distance, illness and the need to assist in farm work. Teachers complained that it was not uncommon for families with more than one child of school going age to alternate their school attendance, i.e. one child would be sent to school one week, while the other

would be kept home to assist with household chores; they would then switch duties the following week.

Important differences emerged with respect to the history of education infrastructure in the two sample villages. Many of the first education facilities to be constructed in the Transkei came about as a result of missionary work (Deliwe, 1992). Due partly to its proximity to the Cape Colony, missionary work was more concentrated at Willowvale, than at Elliotdale. As a result of the missionary influence, mission schools had been a feature of the landscape in Willowvale since the 1880s (Hammond-Tooke, 1957). Their relative absence in Elliotdale District, however, meant that it was not until the 1960s, when the first government schools were built, that people at Cwebe gained access to education (Fay *et al.*, 2002a; Fay and Palmer, 2002).

5.2.7 Health services

At the time of the survey, there were few health facilities in the study area. The closest clinic for Ntubeni residents was in the neighbouring village of Mpume, but this clinic was vastly under-resourced, both in terms of staff and medicines (Kralo, 1997; van Harmelen, 1997). The closest clinics to Cwebe were in Nkanya and Manganyela. The clinic at Nkanya could only be reached on foot (± 3 hours walk), while a taxi was needed to travel to Manganyela. The closest hospitals were at Willowvale (50 km away) and Madwaleni (35 km away) respectively, and ambulance services did not exist. Nurses were placed at Cwebe in the early 1990s, but they left under protest against their poor living conditions (Matabese, pers. comm., 1997). At the time of the study, a private doctor used to visit Cwebe once a week. Consultation costs at Madwaleni, the private doctor and the clinic at Manganyela cost R80, R50 and R5 respectively. The poor health infrastructure in the study area meant that there was virtually no health care in the study area. Home visits and school campaigns concerning diseases such as polio, tuberculosis and HIV/AIDS were non-existent. As a result, many people relied on indigenous knowledge and traditional healers as their primary means of health care.

5.2.8 Agricultural extension services

Villagers reported a decline in the quality and quantity of agricultural extension since the 1980s. According to officials of the Department of Agriculture, the reason why the study area rarely received agricultural extension was as a result of a combination of logistical and human resource constraints (Madikane, pers. comm., 1998). As a result villagers had to travel to district centres when they required assistance. Apart from the supply of dipping compounds and the occasional allocations of fencing material, there was normally little that these district centres could offer, other

than advice. While annual programmes for veterinary inoculation had extended to the study area in the past, at the time of the survey this service was no longer offered on a regular basis (Mbola, pers. comm., 1998).

5.2.9 Agricultural infrastructure

While Ntubeni had its own dipping tank, livestock owners at Cwebe had to make use of the dipping facility at neighbouring Hobeni. Dipping tanks were administered by locally recruited 'dipping foremen' and dipping took place once a fortnight in summer months and once a month during winter. The job of the dipping foreman was to collect dipping chemicals from the district agricultural offices, to administer the dip, and to keep records of livestock ownership. Wire fencing could be purchased from local trading stores, but few could afford it. Occasionally the conservation authorities would provide subsidised fencing that was no longer needed by the nature reserves.

The cost associated with fencing materials was a constraint on field production and, as a result, only 27.4% of fields recorded in the survey were fenced. Gardens, which were smaller, were cheaper to fence, and the majority of them (84.5%) were fenced (Chapter 8, Section 8.2.1.2). Ownership of agricultural equipment was surprisingly low, considering the high number of households engaging in cultivation (Chapter 8, Section 8.2.2.1).

A minority of households (<40%) had granaries for storing maize. These were either cylindrical structures built with wooden laths, or commercially purchased rainwater tanks. Households without granaries would store maize in the roofs of their houses. Cracking of maize kernels, rats and weevils were reported as problems affecting maize storage. The use of a locally available insecticide (Blue Death) was widespread. Manure was available to those who owned livestock, while fertiliser could be purchased from the local trading stores. A 50 kg bag of fertiliser cost R69 a bag at Ntubeni in 1998. Most households selected maize seed from the harvest for the following year's planting, but some would resort to eating this during lean years (cf. McAllister; 1999). Most vegetable seeds had to be bought. Ploughing was predominantly by animal traction and households without sufficient oxen had to rely on co-operative ploughing arrangements (cf. Heron, 1990; Bank, 2001), or had to hire oxen. Some households had mechanical planters but the majority sowed by hand. Ploughs and planters were the most expensive forms of agricultural infrastructure, costing R899 and R1 129 respectively from local stores in 1998.

5.2.10 Agricultural markets

As in much of rural Transkei, few opportunities existed for households to market their surplus production beyond a limited amount of inter-household trade (Chapter 8, Section 8.2.1.2). This was largely an outcome of the limited nature of communications, infrastructural facilities and marketing networks.

A review of the literature revealed that marketing networks were not always as poorly developed as they were at the time of the study, and that local producers had in the past responded positively to markets when these were available to them. For instance, as early as 1835, maize and sorghum grown in the Transkei was being purchased for consumption within the Cape Colony (Peires, 1981). From the turn of the twentieth century white traders in rural Transkei played a key role as middle-men in the sale and distribution of agricultural products, and missionaries encouraged market-orientated farming (Hawkins Associates, 1980; Andrew, 1992). According to Bank (2001), the historical evidence shows that many rural households were extremely responsive to market demands in the past, freely selling cattle and agricultural goods in return for cash. Cash was increasingly necessary for paying land, hut and cattle taxes and for purchasing the consumer goods that had been introduced.

Andrew (1992) showed how a number of inter-related factors were responsible for the decline in agricultural production in the Transkei over time. Some of these had to do with the selective promotion of white agriculture over black agriculture by the government of the day. Interventions such as the introduction of the Maize Control Board, tax relief and rail subsidies and special credit facilities for white commercial agriculture came at the expense of black agriculture (*ibid.*). Local production was further hit by the replacement of white traders with black traders in the post 1950s period (Hawkins Associates, 1980). The new black traders did not have the same access to the white commercial marketing sector nor did they have much interest in continuing the tradition of purchasing locally produced agricultural products such as wool clips, leather and maize. Thus, as Bank (2001:11) points out: "The story is one of intensive cultivation during the first few decades of the century, but a steady decline since then, egged on in the homeland era by the exit of white traders who were key trading partners for local producers."

In an attempt to address the decline in trade in agriculture, the government had in the more recent past (1970-1980s) launched various programmes to address this situation, but none of these were very successful (Bank, 2001). For example, in the 1970s, the Department of Agriculture and Forestry introduced a large scale Mechanisation Scheme, which later came to include a Marketing Board and an agricultural parastatal (Transkei Agricultural Corporation -TRACOR). According to

Bank, TRACOR became over-capitalised, top-down and highly technical, resulting in high levels of resistance by local people. TRACOR eventually collapsed under mounting resistance, which in some cases took the form of vandalism or theft of agricultural infrastructure. While TRACOR did not operate directly at Dwesa/Cwebe, it was active in the Mbashe area with the development of a maize belt from Nqadu in the west to beyond Fort Malan in the east. Local people were aware of the TRACOR legacy, and were highly sceptical of the ability of outsiders to improve local-level production in the area.

Based on the above, it would be incorrect to assume that the deeply entrenched subsistence ethic prevalent today is irreversible. Heron (1990) maintains that where markets do not exist, households produce only as much as is necessary to feed themselves. The converse of this is that households are likely to increase production should markets for excess products become available. However, even if marketing constraints were to be removed, the scope for increasing market-related agriculture at Dwesa/Cwebe was probably limited due to the higher returns that could be got from other forms of employment, the lack of agricultural infrastructure (such as irrigation), and the small land holdings (Chapter 8, Section 8.2.1.2).

5.2.11 Stores

There were two stores at Cwebe with one being of the older trading store variety. The Cwebe trading store, however, did not carry much stock and it appeared that the main source of income was from a liquor outlet that was on the property. The other, a relatively recent arrival - Khangelani Cafe - provided much of the village's food and grocery requirements.

At Ntubeni there was only one shop - Zakhele Store. This was also a post-trading store era shop, but like the trading stores of the past, it carried a diverse range of goods, including hardware and building materials. Residents were highly dependent on these stores for a variety of goods and services (including the cashing of pension cheques). All stores offered credit facilities to those with a regular income (mostly government officials and pensioners), and many households were heavily indebted to them. The shopkeepers also owned the only tractors in the villages. These were mainly used for deliveries, but were also hired out for ploughing.

Apart from the larger shops, there were also a number of smaller 'spaza shops' (home-based outlets) and 'shebeens' (informal liquor outlets) in both villages. Their sizes, and the range of products that they traded, varied considerably. Some were micro-enterprises that sold small everyday commodities such as matches and soap, or homemade beer. Others were larger concerns selling maize meal, flour, paraffin, etc, and/or alcoholic beverages.

5.3 Discussion

With respect to physical capital, the picture that emerges is one of severe under-development of infrastructure, marketing opportunities and services. A corollary of this is that the villages in the study area were extremely isolated from the nearest centres of economic activity, and there was very little market-oriented production that took place in the villages themselves. This situation was generally found throughout the region and had its roots in the spatial pattern of administration that emerged in the Transkei following annexation by the Cape Colony in the 1890's (Hammond-Tooke, 1975). The carving up of the landscape into large magisterial districts in which all services were centred in one geographic area (the district town) meant that the economic development of the rural periphery became neglected in favour of the district town (Hawkins Associates, 1980; Nel and Temple, 1992). In addition, State regulation of rural trading limited the development of trading stores to one site per administrative area, undermining investment and competition. While the rural trading stores of the past provided important opportunities for the marketing of rural produce (Hawkins Associates, 1980; Andrew, 1992), these trading stores were, at the time of the study, no more than rural retail outlets. Marketing opportunities had all but disappeared as the increased cost of production and transport meant that local producers would operate at a comparative disadvantage in the urban market. As a result of many years of lack of exposure to agricultural markets, the subsistence ethic had become pervasive at Dwesa/Cwebe. However, historical evidence suggests that local producers would respond positively were market-linkages to be re-established (Moll, 1988; Andrew, 1992).

In a study of two administrative areas in Willowvale district conducted in 2001, Bank (2001) found that proximity to an urban centre had a marked impact on local employment opportunities. The administrative area in closer proximity to Willowvale town (Mboya) had three times as many people employed locally as did those in the administrative area further away from the town (Nqadu). In a study of rural Tanzania, Ellis (2000b) found that proximity to roads and services appeared to have a particularly notable impact on the significance of non-farm self-employment and remittance income in village income portfolios. Ellis (2000b) also found that the remoteness of a village correlated with a higher reliance on farming as opposed to non-farming income-earning activities, with the subsistence share of total income being higher for more remote villages and lower for villages closer to town. While the distribution of household income-earning activities at Dwesa/Cwebe is the subject of Chapter 8, these studies suggest that the distance and remoteness of the study area was likely to pose a major livelihood challenge. In the case of Dwesa/Cwebe, poor roads and a lack of other basic infrastructure and services compounded geographical distance from the nearest centres of economic activity.

An important difference between the two study villages was the fact that a long-distance bus service existed at Ntubeni, but not at Cwebe. The existence of this bus service meant that it was logistically easier for Ntubeni residents to seek employment in Cape Town, and as shown in Chapter 8 (Section 8.2.3), many people were making use of this service. In addition, the existence of a regular bus service to Idutywa enabled daily, or weekly, commuting to town as well as opportunities for the limited trade in crafts (some women were using this bus service to transport woven sleeping mats and grass baskets to town for sale). Spaza shop owners also made use of this service to transport goods purchased in town to their rural homes. Residents at Cwebe, on the other hand, had little option but to make use of the taxis that were more crowded, less reliable, and more expensive.

Literature on poverty often assumes that rural households have a preference for cement brick houses and that housing styles are an indication of socio-economic status (Ellis, 2000b). This was not found to be the case at Dwesa/Cwebe, as even better-off households at Cwebe had houses conforming to the 'traditional' style. The differences in housing styles between the two sample villages appeared to relate to ethnicity and value-systems rather than to income (see Chapter 7, Section 7.3 and Chapter 8, Section 8.3.5 for other ways in which income and housing were related).

The longer history of exposure to education at Ntubeni due to missionary influences meant that residents at Ntubeni were more open to modern influences than those at Cwebe who tended to be more conservative in their orientation. This has implications for development interventions that rely on local people taking up new technologies and skills. It also means that residents at Ntubeni are likely to be better positioned to take up any new semi-skilled employment opportunities that could arise as a result of development activities (Chapter 8, Section 8.2.3).

5.4 Conclusion

This chapter has described the structural context influencing livelihoods in the study area. In Chapter 2 (Section 2.2) the historical reasons for the region's under-development were described. This chapter has detailed the nature of physical capital at Dwesa/Cwebe, the degree to which it is under-developed, and how it impacts on the livelihoods of local residents.

Clearly there is a need to improve the physical capital at Dwesa/Cwebe in order to promote development and diversification of livelihoods. However, there is another imperative to improve infrastructure and services. The high levels of poverty and vulnerability in the study area (Chapter 6), mean that, in the first instance, the development of infrastructure and services is an issue of basic human rights. For instance, in terms of the South African Constitution (Act No. 108 of 1996),

people have the right to health care services, education, sufficient food and clean water. Consequently, the development of physical capital should, as a matter of urgency, be targeted at improving the security of *existing* livelihoods. Clean water and energy, health facilities, education and affordable public transport need to be prioritised in this regard. However, the development of physical capital should not only be limited to the 'basic needs' of the people in the area. Rather, 'basic needs' - type development should be integrated with strategies to expand options for livelihood development. Improved agricultural extension, facilitation of market-linkages, and tourism development will be key in this regard.

We have seen that the study area is impoverished from a physical capital perspective, but just how poor are the communities at Dwesa and Cwebe from a financial capital perspective? And what does their impoverishment mean in terms of their vulnerability status? These two questions, central to an understanding of livelihoods in the area, are dealt with in the chapter that follows.

Chapter 6 Poverty and livelihood vulnerability at Dwesa/Cwebe

6.1 Introduction

In Southern Africa half the population live in poverty and the proportion of people living in extreme poverty is on the increase (United Nations Population Fund, 2002). Even though South Africa is perceived to be relatively 'better-off' than its Southern African neighbours (Carter and May, 1999; SLSA Team, 2003a), there are regions, such as in the former homelands, where extreme poverty is found. During the 1990s and 2000s, the issue of poverty eradication has received increasing national and international attention (United Nations, 1995; UK Government, 1997; United Nations Development Programme, 2000; World Bank, 2000; 2002; Middleton and O'Keefe, 2003). This, in turn, has stimulated debate about how best to package development aid so as to make a meaningful impact at the local level (Campbell, *et al.* 2002, SLSA Team, 2003b). Approaches, such as the livelihoods approach, acknowledge the need for the design of development interventions (policies, programmes, etc.) to be informed by an understanding of the social context in which poverty occurs (Carney, 1998; Scoones, 1998). Recent livelihoods research has indicated that conventional models of development, such as structural adjustment programmes, may be inappropriate in addressing the real needs of the poor (Campbell *et al.*, 2002; Ashley *et al.*, 2003; SLSA Team, 2003c). This is because conventional models tend to be fragmented and sectoral in nature, while new research into poverty suggests that poor households often rely on multiple and diverse income sources, and hence multiple sectors, for their survival (Bryceson, 2000; Ellis, 2000b; Barrett *et al.*, 2001, Carney, 2002).

Poverty is a multi-faceted and complex phenomenon and, according to Aliber (2003) there remain significant gaps in our knowledge about the incidence and causes of poverty, and even greater gaps in our knowledge of what practical measures work. More recent research has underscored the point that rural 'communities' are not necessarily homogenous with respect to their poverty status as there is often a high degree of socio-economic differentiation between households (May, 1996; 1998; Campbell *et al.*, 2002). Livelihoods research recognises that socio-economic position and power are closely allied, and that the poor are often unable to command control over limited resources within a community (Carney, 1998). More specifically, livelihoods theory suggests that the poor are likely to be characterised by limited access to, and ownership of, the five forms of livelihood assets (*ibid.)*. In the endeavour to meaningfully address poverty, it is, therefore, important that an understanding is gained of the distribution and nature of poverty within a community *before* designing interventions. Without such an understanding, and given the relative

power of the rural elite to appropriate scarce development resources (Cross *et al.*, 1996), development interventions run the risk of further marginalizing the poor. Thus, distinguishing the poor from the non-poor becomes an important aspect of any livelihood study.

A concept closely associated with poverty is that of vulnerability. Studies investigating the impacts of large-scale disturbances, such as those arising from drought or conflict, have shown that it is the poorest households that are often the most vulnerable (Sen, 1981; Cannon, 2001; World Bank, 2002). This is thought to occur because of the limited assets that poor households are able to accumulate, thus reducing their resilience and increasing their sensitivity to disturbances (Carney, 1998). Thus, the concept of vulnerability is central to an understanding of livelihoods, vulnerability being broadly defined as the ability of a livelihood to be able to cope with and recover from stresses and shocks, and resilience being defined as the ability of livelihoods to 'bounce back' from disturbances (Davies, 1996; Carney, 1998; May, 1998; Scoones, 1998; Adger, 2000). The livelihoods framework emphasises the importance of building an understanding of the trends, shocks and seasonal events that affect people's livelihoods as these factors potentially have a direct impact on people's asset status, and the options that are open to them in pursuit of beneficial livelihood outcomes (Department for International Development, 1997). Stresses can result from slow-moving environmental, social or economic trends, whereas shocks relate to the impact of sudden, often catastrophic events. Both kinds of events, be they rapid shocks or slower-moving trends, may be described as livelihood 'disturbances'.

Poverty is measured in various ways making use of both quantitative and qualitative data (May, 1998, World Bank, 2000). This chapter describes the extent and pattern of poverty in the study area, using primarily household income data. While many analysts prefer to use expenditure data for quantifying poverty, the growing popularity of the sustainable livelihoods approach is leading to greater use of income data (Ellis, 2000b). This is because income data represents a more tangible outcome of livelihood activities, i.e. it can be used to establish the relative success (in terms of financial return) of various individual livelihood activities, or packages of livelihood activities. It also allows for the use of absolute poverty lines, where a certain amount of income is required to purchase the basic minimum for survival. The focus on financial income in describing poverty in the study area should not distract from the potentially important role of non-material aspects of livelihoods and well-being, such as culture, social status, security and political status. While the livelihoods approach promotes broad-scale poverty assessments that include these factors, as discussed in Chapter 9 (Section 9.2.1), they are inherently more difficult to 'measure' than income data. For reasons of data availability this thesis focuses predominantly on household financial data in describing poverty (See Chapter 3 – Methods).

The analysis focuses on the following income-based measures of poverty: mean income, proportion of households living in poverty, gender of household head, depth of poverty and the poverty gap, and the distribution of poverty and population share among income quintiles. The section on poverty ends with a look at the main sources from which people in the study area derive their income. While detailed data on income sources is provided in Chapter 8 (Section 8.2.4.1), it was necessary to include some initial data at this point in order to provide a better understanding of the section on vulnerability (Section 6.2.2). This is because disturbances (shocks, stresses and trends) that have the greatest impact on livelihoods are likely to be those that affect sources of incomes most frequently accessed by the greatest number of households, thus requiring a prior understanding of these income sources.

Five key factors were identified as being relevant in shaping the vulnerability context in the study area. These were population trends, shocks related to climatic disturbances, health-related disturbances, the performance of the macro-economy, and the efficiency of governance. While additional factors were likely to have existed, a review of the literature, and interviews with residents, suggested that these five factors were the most important in terms of their potential impact on the sustainability of livelihoods.

A count of homesteads and dwellings from aerial photographs indicated that there were different population trends occurring in the two sample villages. The trend in Cwebe was one of steady population increase, although at a rate lower than the district, regional and national averages. The population at Ntubeni, however, appeared to be more stable, possibly even declining. These slower, longer-term population trends were contrasted by high levels of fairly rapid change in certain village sections as a result of betterment planning. The implications of these population dynamics for livelihoods are discussed in Section 6.3.6.

Weather patterns along the coastal portions of the Transkei could be quite unpredictable, and drought, particularly when it occurred in consecutive years, could have devastating effects on local agriculture (McAllister 1999). Without the income to buy supplementary feed for livestock, livestock owners risked losing significant numbers of animals when droughts occurred. As livestock were relied upon for multiple livelihood goods and services (Chapter 7, Section 7.2.2), the ‘knock-on’ effect of animal losses on livelihoods were likely to be extensive. Crop production was also susceptible to climatic variations such as flooding, unseasonal rain, or lack of rain. Drought could also lead to scarcity in surface drinking water sources, while flooding, severe storms and lightening posed a hazard to local people, as well as residential and transportation infrastructure.

With respect to diseases, HIV/AIDS is receiving much attention due to its growing prevalence in Southern Africa and because of its potentially destabilising affect. While local data on the prevalence of HIV/AIDS was not available, regional studies suggest that the Eastern Cape had one of the fastest growing HIV/AIDS rates in the world (Section 6.2.2.3). Apart from HIV/AIDS, there were a number of other more established diseases that reduced people's well-being. These, the so-called 'poverty diseases' were generally water and nutrition-related, and were a further manifestation of the under-development of physical capital in the study area.

The performance of the macro-economy is critically linked to the potential for job creation, particularly in urban metropolitan areas. Over the time of the study, economic growth based on the government's neo-liberal Growth, Employment and Redistribution (GEAR) strategy had fallen short of expectations (South African Reserve Bank, 1999). Direct foreign investment had been negligible, particularly in industry; domestic capital had flowed out of the country; and formal sector employment seemed to be contracting at an accelerating rate (Hart 2002). The trend was thus one of increasing retrenchments and increasing difficulty in finding employment.

Governance issues affected people's livelihoods at a number of levels and in a number of different ways. Those discussed here are petty corruption and extortion of the rural poor by civil servants, the inability of the government to curb crime, restructuring of the civil service leading to job losses at the nature reserve, failure to address the pressing need for infrastructure and service delivery, and recent changes in the institutional context for local government.

The chapter is divided into two sections. The first section describes the prevalence and distribution of poverty in the study area. It draws mainly on data from the household survey conducted in 1998, as well as on secondary data sources (Chapter 3, Sections 3.2.1 and 3.2.6). The second section investigates the key factors making up the vulnerability context.

6.2 Results

6.2.1 The distribution and extent of poverty

6.2.1.1 Distribution of income at Cwebe and Ntubeni

Figure 9 provides an indication of the distribution of cash income in the two sample villages. Most households had per capita (adult equivalent) income between R100 and R199[18] per month. Cwebe,

[18] US$15-US$30

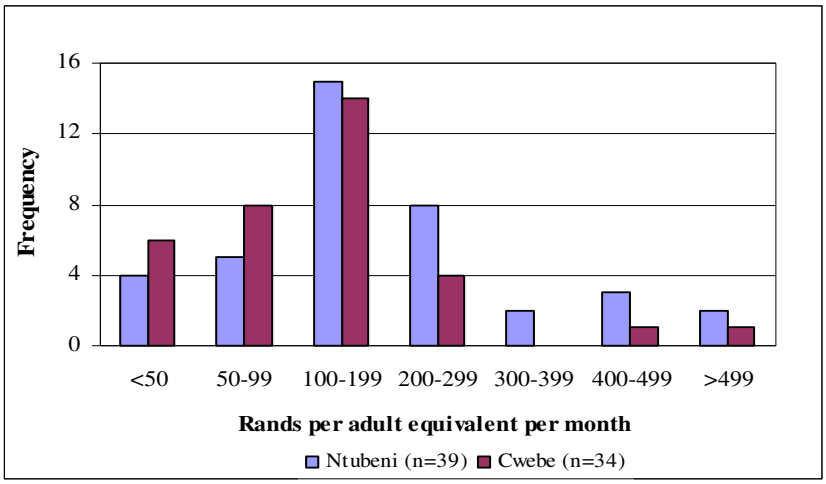


Figure 9 – Distribution of cash income among the households surveyed at Ntubeni and Cwebe

however, had a greater number of households with income less than R99 per month than Ntubeni. Ntubeni, on the other hand, had a greater number of households receiving more than R200 per month.

6.2.1.2 Mean income

The mean cash income among surveyed households at Ntubeni was R640 per household per month, or R208 per adult equivalent per month. At Cwebe, mean household cash income was R546 per month or R139 per adult equivalent per month. This implies that the mean per capita cash income at Ntubeni was just over US$1 a day (the generally accepted international poverty line), while at Cwebe it was just under US$1 a day.

Differences between the mean household cash incomes for the two villages were not statistically significant (t=0.93, df=72, p>0.05), but differences between per adult equivalent incomes were (t=2.13, df=72, p<0.05) (Table 8). This is the result of larger resident household sizes at Cwebe relative to Ntubeni, with household income having to be shared among a greater number of people (Chapter 8, Section 8.2.3).

Table 8 - Mean Monthly Cash Incomes by Village

	Ntubeni *(n=39)*		Cwebe *(n=34)*		Level of Significance
	Rands	±S.E.	Rands	±S.E.	*(t)*
- Per Household	640	73	546	18	NS
- Per Adult Equivalent	208	26	139	19	*

NS = Not significant; * p ≤ 0.05; ** p ≤ 0.01; ** p ≤ 0.001

6.2.1.3 Proportion of households living in poverty

In 1993 the minimum level of income required by a family of four adults and two children was calculated to be R723 per month in rural areas (Potgieter, 1993). This poverty line is referred to as the Household Subsistence Level (HSL) and refers to the minimum level of expenditure that is required for a family to meet its basic needs[19]. Taking inflation into account[20], the value of the HSL in 1993, as quoted above, was the equivalent of R275 per month per adult equivalent in 1997 – the year for which the household survey at Dwesa/Cwebe accounts.

Table 9 - Poverty Rates in Relation to the Household Subsistence Level by Village

	Ntubeni *(n=39)*		Cwebe *(n=34)*		Level of Significance
	No.	%	No.	%	(χ^2)
Households with cash income below the HSL	29	74.4	32	94.1	*
Households with total income below the HSL	19	48.7	27	79.4	**

NS = Not significant; * $p \leq 0.05$; ** $p \leq 0.01$; ** $p \leq 0.001$

An analysis of household incomes revealed over 74.4% of households at Ntubeni, and 94.1% of households at Cwebe, had *cash* incomes below the HSL, the difference being significant at the 0.05 significance level (χ^2=5.16, *df*=1, p<0.05) (Table 9). While these rates of poverty are very high, they do not take into account the in-kind value of own produced food and livestock products. When the equivalent cash value of own production was included (referred to here as total income), the proportion of households with incomes below the HSL dropped by approximately 25% at Ntubeni, and by approximately 15% at Cwebe, although they were still significantly different (χ^2=7.34, *df*=1, p<0.01). Poverty levels at Cwebe were clearly more pronounced than at Ntubeni, although they were also high at Ntubeni. When the samples were aggregated, then 84.3% of the households in both villages had *cash* incomes below the HSL, and 64.1% of the households had *total* incomes below the HSL.

6.2.1.4 Gender of household head

Table 10 indicates the relative number of male-headed and female-headed households in the two villages with *total* income below the HSL. At Ntubeni, the gender of the household head did not appear to influence a household's earning potential. At Cwebe, however, 92.9% of all female-

[19] Basic needs were defined as food, transport, fuel, cleaning materials, and clothing.
[20] The value of the HSL calculated by Potgieter (1993) was adjusted to 1997 values using the relevant CPI index (Base year =2000).

headed households had incomes below the HSL, as opposed to 65.0% of male-headed households. This implies that there was a strong gender dimension to poverty at Cwebe, with a high number of female-headed households among the poorest households.

Table 10 - Poverty Rates as Measured in Relation to the Household Subsistence Level by Gender

	Ntubeni				Cwebe			
	Male-headed households (n=26)		Female-headed households (n=13)		Male-headed households (n=20)		Female-headed households (n=14)	
	No.	%	No.	%	No.	%	No.	%
Households with income below the HSL	13	50.0	6	46.2	13	65.0	13	92.9

6.2.1.5 Depth of poverty

Greater insight into the depth of poverty was achieved by disaggregating households on the basis of their income relative to the Household Subsistence Level (Sen, 1981; ARDRI, 2001) (Figure 10). In both villages, households with *total* incomes below the HSL occurred in each category, i.e. from less than 20% below the HSL to more than 80% below the HSL. The category 40 - 59% below the HSL had the highest frequency of households at Cwebe, while those at Ntubeni were relatively evenly distributed between 20-79% below the HSL. Overall, Figure 10 suggests that the depth of poverty was not concentrated at any particular level below the HSL, but rather that it was distributed along a continuum.

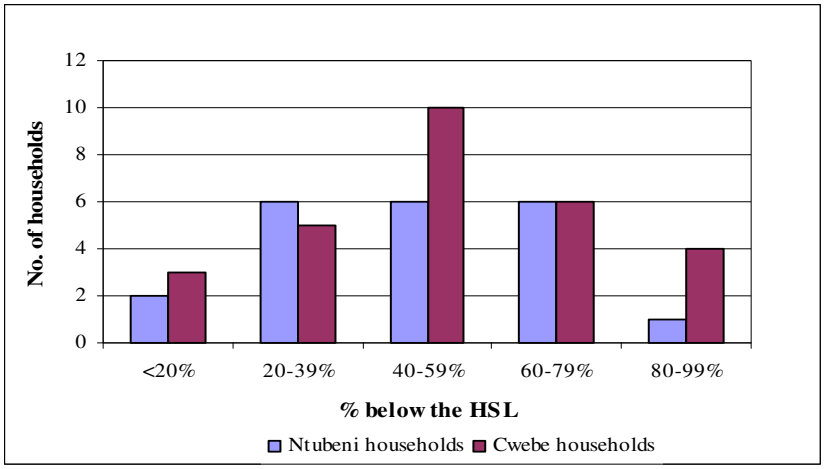


Figure 10 – Distribution of household incomes expressed as a proportion of the HSL

Knowledge of the *poverty gap* in the study area allowed for the calculation of the total amount of money needed to remove poverty from the sample villages. These results can further be extrapolated to include all the villages in the greater study area, i.e. the seven villages bordering the Dwesa/Cwebe Nature Reserve (see Chapter 3, Section 3.3.3 for comments on the validity of this extrapolation). The results, given in Table 11, show that the poverty gap at Ntubeni amounted to R636 691 per annum, while at Cwebe it amounted to R2 300 602 per annum. The poverty gap for the greater study area just under R10 million per annum

Table 11 – The Poverty Gap in the Study Villages, and in the Greater Dwesa/Cwebe Area

	Ntubeni		Cwebe		Dwesa/Cwebe	
	Sample *(n=39)*	Village *(n=193)*	Sample *(n=34)*	Village *(n=413)*	Sample *(n=73)*	All Villages *(n=2270)*
Poverty Gap	128 692	636 691	200 385	2 300 602	1 255 590	9 957 884

6.2.1.6 Income Inequality

Figure 11 depicts the degree of economic differentiation between households in the study area. With respect to income share, households in the lowest income quintile had 5% of the total cash income recorded in the survey, while the top income quintile had 43% of the total cash income. The poorest households were also found to have the largest share of the population (23%), and those in the top income quintile the lowest (15%).

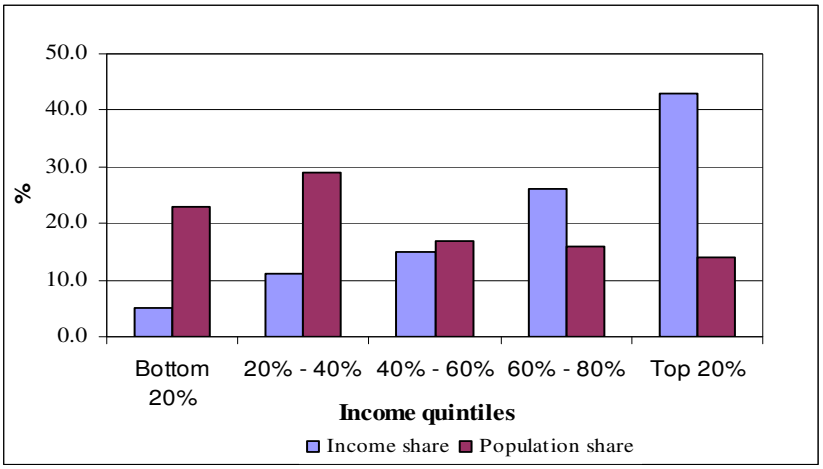


Figure 11 – Income share and share of population across income quintiles

6.2.1.7 Income Sources

Table 11 provides information concerning income sources for the combined household income data set. The two most pervasive income sources, i.e. they were drawn on by the highest frequency of

households, were *in-kind* income derived from cropping and *in-kind* income derived from livestock husbandry. This reflected the popularity of agricultural activities in the villages. Welfare grants were, however, the most common source of *cash* income, closely followed by remittances. Few households had members that were self-employed or that had local employment.

45.2% of households reported that state welfare grants were their most valuable sources of income. This was followed by the in-kind value derived from livestock goods and services (24.7%). Relatively few households were dependent on employment income, from salaries or remittances, as their primary source of income.

In-kind income derived from livestock goods and services, agricultural in-kind income and remittances were the most common sources of *secondary* income for most households, i.e. the second most valuable source of income for most households.

Other livelihood activities that contributed to household income included casual work (20.5% of households), livestock sales (16.4% of households), crop sales (12.3% of households), and craft production (11.0% of households). Few households were engaged in salaried labour (9.6% of households) and/or self-employment (5.5% of households). No households reported gaining an income from the collection and sale of natural resources.

Table 12 - Main Sources of Income *(n=73)*
(No. of households)

	Derived income from source		Most valuable source		Second most valuable source	
	No.	%	No.	%	No.	%
'In-kind' Value of Crops	62	84.5	4	5.5	15	20.6
Livestock Goods and Services	56	76.7	18	24.7	28	38.4
State Welfare Grants	38	58.9	33	45.2	4	5.5
Remittances	31	42.5	6	8.2	14	19.1
Casual work	15	20.5	2	2.7	4	5.5
Livestock Sales	12	16.4	0	0.0	5	6.8
Crop Sales	9	12.3	0	0.0	1	1.4
Crafts	8	11.0	1	1.4	2	2.7
Salary	7	9.6	6	8.2	0	0.0
Self Employment	4	5.5	3	4.1	0	0.0

6.2.2 The vulnerability context

6.2.2.1 Population trends and vulnerability

A count of homesteads and dwellings from a time-series of aerial photographs[21] revealed that there had been an increase in the total number of *homesteads* in each village over the time period (Table 13). At Cwebe this corresponded with an increase in the number of dwellings (individual houses or huts within a homestead). At Ntubeni, however, the total number of dwellings had actually decreased over the period 1961 - 1995. The decline in the total number of dwellings at Ntubeni corresponded to a decline in the average number of dwellings per homestead, from 3.4 in 1961 to 2.2 in 1995. Thus, while the number of homesteads had grown over the 34 year period by roughly 25% (0.7% per annum), the number of people accommodated by these homesteads had dropped. Decline in the total number of dwellings at Ntubeni would seem to suggest a declining population trend of approximately 0.6% per annum. However, the relationship between dwellings and population numbers is not absolute as it is possible that a decline in the number of dwellings may be attributed to causes other than population decline, e.g. lack of resources for building leading to a higher ratio of people per dwelling.

The rate of growth in the number of homesteads at Cwebe (46% growth over the 34 year period, or 1.4% per annum), was higher than that which had occurred at Ntubeni. As at Ntubeni, homesteads at Cwebe had also become smaller (from 2.6 dwellings per homestead in 1961 to 2.2 in 1995). However, in contrast to Ntubeni, the total number of *dwellings* had risen by 26.6% since 1961 (0.8% per annum). This data suggests that the population at Cwebe is growing. If the average between the rate of growth in the number of homesteads *and* dwellings is taken as a proxy for population growth then the rate of population increase at Cwebe is 1.1% per annum. This is lower than that for the district as a whole (2.6%). At Ntubeni the average between the rate of growth of homesteads and the rate of decline of dwellings suggests an almost static population growth rate of 0.1% per annum.

The above results generally accord with the opinions of local residents who were asked to comment on village growth during structured interviews. A common response was that it was not easy to say whether the village had grown or not, due to the fact that homestead sizes had decreased, and due to the changes in settlement pattern that had occurred during the betterment planning. However, just over half the respondents at Ntubeni (55%), were of the opinion that the population of the village had either stayed the same or had decreased, while the majority of those interviewed at

[21] See Section 3.2.7.3 for a description of the methods used.

Cwebe (75%) held the view that there had been an increase in the population. Inability to obtain a residential and/or arable site, more crowded residential areas, and a reduction in the amount of grazing were reported to be some of the livelihood implications of the increase in the population at Cwebe. In addition, there was felt to be a decline in the amount of poles and fuel wood available from the local pocket forests, although this was felt to be more a consequence of the closing of the nature reserve, which had created greater pressure on the smaller pocket forests, rather than to population growth alone.

Table 13 – Changes in the Numbers of Homesteads and Dwellings
at Ntubeni and Cwebe between 1942 and 1995

	Area	Homesteads			Dwellings		
	Km^2	1942	1961	1995	1942	1961	1995
Locality							
Ntubeni	10.59	n/a	149	187	n/a	508	401
Sub-localities							
Ngomane	1.96	25	39	38	66	137	78
Mkhuhlu	2.68	29	43	84	94	136	162
Gume	5.95	n/a	67	65	n/a	235	161
Locality							
Cwebe	17.32	197	250	367	485	647	819
Sub-localities							
Xeni	n/a	70	53	48	171	147	141
Madakeni	n/a	28	52	20	89	115	36
KwaRasi	n/a	82	121	273	187	329	595
Bhula	n/a	17	24	26	38	56	47

The impact of betterment removals at the sub-ward level can clearly be seen in Table 13. At Ntubeni, the number of homesteads at Ngomane and Gume declined slightly between 1961 and 1995, while they nearly doubled at Mkhuhlu. Under the betterment plan for Ntubeni, Mkhuhlu was to become the 'planned' residential area in the village and a number of people relocated there upon instruction from the authorities and in anticipation of closer access to centralised services. A similar differentiated pattern of settlement growth is visible at Cwebe. Here the area zoned for residential relocation, KwaRasi, experienced a high influx of people between 1961 and 1995, while other sections of the ward remained stable or, as was the case at Madakeni, declined in size.

The picture that emerges is one of steady population increase at Cwebe, and population stability, or moderate decline, at Ntubeni.

6.2.2.2 Climate and vulnerability

As pointed out in Chapter 2, average annual rainfall at Dwesa/Cwebe is in excess of 1200 mm, most of it falling in the summer months between October and April. However, the distribution and amount of rainfall is not always consistent as it can drop to as little as 662 mm, as occurred in 1980, and rise to as much as 1832mm, as was the case in 1978 (Figure 12).

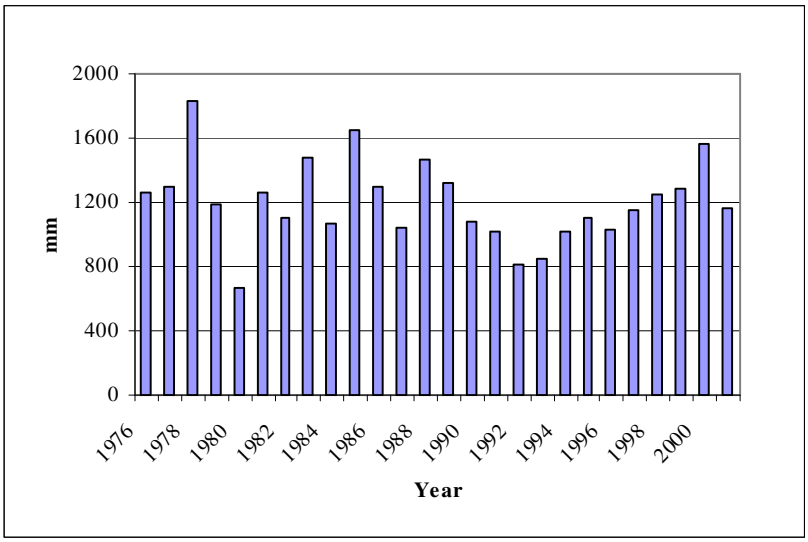


Figure 12 – Annual rainfall at Dwesa/Cwebe (1976-2001)

Beinart and Bundy (1987) suggest a drought cycle in the Transkei of 1 in 7 years at the turn of the previous century, but there is little scientific data to substantiate that this cycle has been a long-term phenomenon. Historical stream flow data pertaining to the Dwesa/Cwebe area, derived from Hughes *et al.* (1997), suggests that since the 1920s the number of droughts occurring per decade have varied between one and five (Table 14), with no obvious pattern being evident. Droughts have been defined here as any hydrological year (October to September) for which annual stream flow volume was less than 50% of the average. Droughts and floods do not have to be prolonged to cause damage to livelihoods. From an assessment of historical stream flow data, Hughes *et al.* (1997) conclude that deviations from the 'normal' rainfall pattern can, and do, occur at any time of the year at Dwesa/Cwebe. Thus, while not having the severity of climatic extremes associated with semi-arid regions, inter- and intra-annual variation in rainfall is a reasonably well-established characteristic of the climate in the study area. Local informants, as well as other studies conducted in the broader area attest to the often devastating effects that unseasonal weather can have on local crop production, and hence food security (Agriculture and Rural Research Institute, 1989; McAllister, 1999).

Table 14 - Number of Drought Years
between 1920 and 1989

Decade	Drought years
1920's	1920, 1923, 1925, 1927
1930's	1931
1940's	1940, 1941, 1944, 1946, 1948
1950's	1951, 1952, 1955, 1957, 1959
1960's	1964, 1967, 1968
1970's	1972, 1979
1980's	1981, 1983

Figure 13 depicts the dynamic inter-relationship between drought and cattle numbers in the study area. As can be seen from the graph, the droughts of 1982-1984 and 1993-1994 had a severe impact on cattle herds at Cwebe. During the period 1982-1984 just over a quarter of the cattle at Cwebe died as a result of the drought. By 1992 the cattle herds within the village had recovered to their pre-drought levels, but were once again hit hard by the drought of 1993-1994, which, according to Figure 13, resulted in mortality rate of 38%.

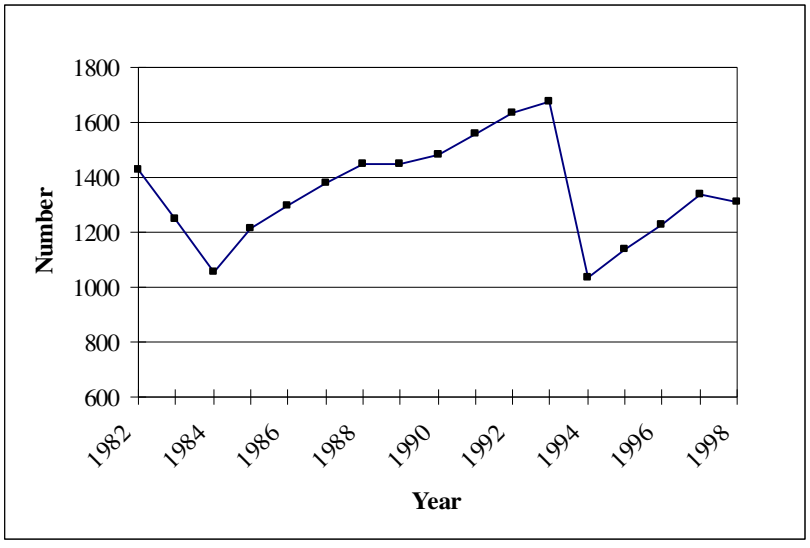


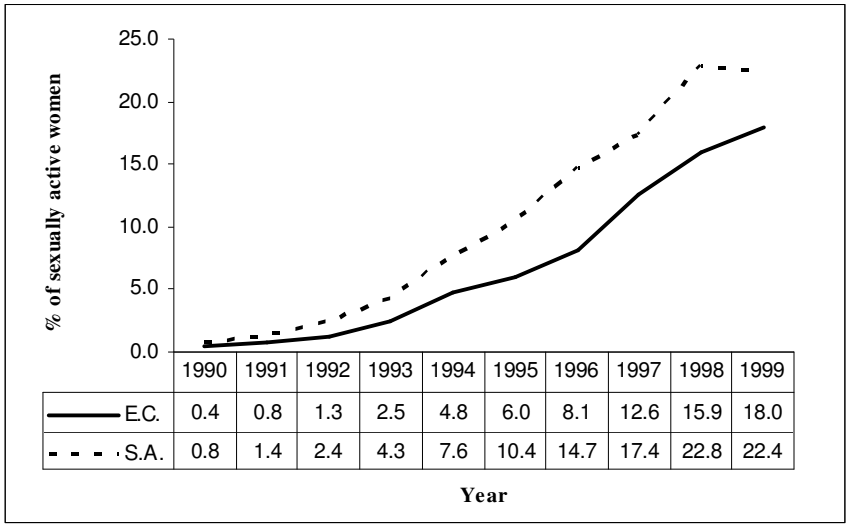
Figure 13 – Cwebe cattle numbers (1982-1998)

6.2.2.3 Health and vulnerability

The main diseases afflicting the people of Dwesa/Cwebe were water and nutrition related diseases such as scabies, diarrhoea, kwashiorkor, stunting, and tuberculosis (Hughes *et al.*, 1997; van Harmelen, 1997). Although cholera had not occurred in the study area itself, localised outbreaks have been increasing in frequency in neighbouring districts (Daily Dispatch, 2002). In 1999, the HIV prevalence rate in the Eastern Cape among sexually active women was estimated as 18% (Eastern Cape Department of Health, 2000 (Figure 14). This represented a 45 fold increase in the prevalence of HIV since 1990, with a doubling time of + 14 months. As a result the Eastern Cape Province was thought to have one of the fastest HIV growth rates in the world. Although there was no empirical data on HIV prevalence in the study area, antenatal provincial data, as well as local anecdotal accounts, suggest that HIV infection at Dwesa/Cwebe is increasing rapidly (Amatole District Municipality, 2002). In addition to the above-mentioned pathologies, observations also suggested a high incidence of disabilities due to accidents associated with industrial employment, e.g. missing eyes or limbs.

Infant mortality rates are often cited as a major indicator of the health status of a community. While data for Dwesa/Cwebe was unavailable, a medical anthropological study in nearby Shixini (Simon, 1990) found that the infant mortality rate to be as high as 218 per 1000 live births.

For households engaging in livestock husbandry, livelihoods were also threatened by a variety of animal diseases. As mentioned in Chapter 4 (Section 4.2.4) the coastal areas are especially prone to tick-borne diseases such as Heartwater, Red Water and Gall Sickness. This is corroborated by



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
E.C.	0.4	0.8	1.3	2.5	4.8	6.0	8.1	12.6	15.9	18.0
S.A.	0.8	1.4	2.4	4.3	7.6	10.4	14.7	17.4	22.8	22.4

Fig 14 – HIV Trends over time: Eastern Cape and South African Antenatal Surveys 1990-1999. Source: Eastern Cape Department of Health, 2000.

historical sources which report that the outbreak of East Coast Fever between 1890 and 1935 was particularly severe in the Dwesa/Cwebe area and led to this area becoming the first in the region to receive dipping tanks (King, 1941; Hammond-Tooke, 1957). While the introduction of dips and other veterinary control measures may have reduced the severity of animal diseases in theory, at the time of the study, problems remained with the extension of these services. For example, interruptions in the supply of cattle dip, inefficiencies in the application of cattle dip, shortage of state veterinarians, etc.

6.2.2.4 The macro-economy as a vulnerability factor

In a report entitled *Winners and Losers: South Africa's Changing Income Distribution in the 1990s*, Whiteford and van Deventer (2000) estimated that, while black South Africans' share of national income rose from 29.9% to 35.7% between 1991 and 1996, almost all of this increase was concentrated in the top 10 per cent of black households. In contrast, the poorest 40% of black households suffered a fall in income of around 21%. All indications are that these tendencies accelerated after 1996 in the context of massive increases in unemployment, declining private sector investment and strict fiscal austerity policies. This is not to mention the economic impact of HIV/AIDS, for which there is little data available. Growth and employment figures sourced from the South African Reserve Bank (1999) (Table 15) indicate a consistent drop in the growth rate of the Gross Domestic Product and growing unemployment since 1996.

Table 15 – Trends in Growth and Employment for South Africa (1994 -1999)

	1994	1995	1996	1997	1998	1999
Growth	3.2	3.1	4.2	2.5	0.6	0.9*
Employment	4	-1.1	-0.7	-1.7	-3.7	na

Growth is defined as per cent change in GDP at constant 1995 prices; employment is defined as per cent change in employment in the non-agricultural formal sector. * The growth figure for 1999 is an estimate.
Source: South African Reserve Bank 1999.

In the mid-1980s the mining sector was by far the biggest source of employment for Transkeian workers (Hawkins Associates, 1980). However, ongoing retrenchments from the mining sector, related to the drop in the gold price, since the 1980s have impacted heavily on rural households in this region (Transkei Government, 1991; Daily Dispatch, 1999). Job prospects in the formal economy continue to weaken. Indications are that the labour absorption capacity of the national economy dropped from 39.9% in 1994 to 35.4% in 1997 (Stats SA, 1998a). Unemployment over the same period rose from 18.8% to 21.7% (29% among the black population). A number of economic migrants from Ntubeni have historically found work in the fruit growing regions of the Western Cape. However, prospects with respect to the commercial agricultural sector were also

decreasing - overall employment having declined by 25.1% during the period 1988 to 1996 (*ibid.*). These trends converge with anecdotal accounts of growing joblessness.

6.2.2.5 Governance and vulnerability

Cases of petty corruption and exploitation of the rural poor by officials are well documented, both under the former-Transkei government and since the Transkei's reincorporation (Spiegel, 1992; CIET International, 1998). The seriousness of the problem led to it being stressed by the president of South Africa in his State of the Nation Address in 2003. Moreover, the payment of state welfare grants (the primary source of cash income for most households) is interrupted from time to time, either as a result of changes in payment systems, corruption among officials, or as a result of cash in transit heists (Daily Dispatch, 2000; 2003a). Such interruptions constitute a severe shock for households reliant on pensions and social grants.

Furthermore, at the time of the study, restructuring processes had resulted in a potential decrease in employment opportunities linked to the Dwesa-Cwebe Nature Reserve, the biggest source of employment in the study area. Under the Transkei government, nature and forest reserves were heavily subsidised to provide jobs to a large number of unskilled people in the economically depressed rural areas (Mpuhlu, pers. comm., 1996). Following the re-incorporation of the Transkei, conservation departments came under pressure to 'rationalise' their staffing structures. Employment statistics for the Dwesa-Cwebe Nature Reserve in 1996, showed 97 of the 205 employees (47.3%) were to remain under the provisions of the new employment plan. Approximately 55% of the workforce at the nature reserve at the time constituted local people (Department of Economic Affairs, Environment and Tourism, 1996).

In 2001, the Haven hotel, situated within the Cwebe sector of the nature reserve, was forced to cut its staff component by two thirds (Berlin pers. comm., 2001). This resulted from a crisis in the hotel's lease arrangements with the provincial government, believed by the manager to be the result of administrative bungling. Another example of job losses occurred in 1999 when a Western Cape apple farmer who had been collecting contract workers from the Dwesa/Cwebe area since the 1950's, refused to continue collecting people due to the deterioration of the roads. He estimated that the loss of this employment source would result in job losses for about 300 people with a loss to the region of between R200000 to R300000 per year (Eastern Cape Herald, 1999a). The extremely poor state of the roads also impacted negatively on the local tourism economy with many of the roads leading to the coastal resorts in "a shocking state" (EP Herald, 1999b).

The timing of the research coincided with a period in which the systems of local government in South Africa were undergoing fundamental changes. In the rural areas of the former homelands,

this transition period was characterised by under-resourced and capacity-poor structures of local government. Rural areas, such as Dwesa/Cwebe, fell under Transitional Representative Councils (TRCs) and councillors were appointed from party lists to coordinate the implementation of development. However, without adequate transportation and in the absence of any payment or guidelines, councillors were hard pressed to fulfil this role. In addition, their task was further complicated by conflict with traditional leaders (Ntsebeza, 1999). Prior to 1994, tribal authorities had been the main agents of local government in the rural areas, a position that was threatened by the new councillors.

6.3 Discussion

6.3.1 Mean household and per adult equivalent income

Mean household cash income in the study area, i.e. R593 per month, was considerably lower than the national average of R3 594[22] per month (Stats SA, 2002). It was also considerably lower than the mean household income among black households in the Eastern Cape Province (R1 554) (*ibid.*). Mean household income at Dwesa/Cwebe also appeared to be lower than the average for the Transkei region (R768) (Hawkins Associates, 1980), although more current data is lacking.

Household cash incomes were not very different to those reported for the districts into which they fell. Mean adult equivalent monthly cash income at Ntubeni (R208) was only marginally higher than that calculated for rural Willowvale (R190) (ARDRI, 2001). However, mean monthly per adult equivalent cash incomes at Cwebe (R139), was lower than that calculated for the Elliotdale District (R196) (ARDRI, 2001). The reason why mean income at Cwebe is lower than that of the district is unclear. One hypothesis is that there is a decrease in income levels with increasing distance from urban centres, an observed trend, but one for which there is little data (cf. Ellis, 2000b). This in itself would not explain the greater parity between village and district incomes at Ntubeni, as the villages are equally distant from the nearest towns. At Ntubeni, the effect of distance is, however, likely to be mediated by the better public transport system relative to Cwebe (Section 5.2.1), thus resulting in a greater amount of integration with the urban economy.

[22] For comparative purposes all values in this section have been adjusted to 1997 price levels using the relevant CPI index (Base year =2000).

6.3.2 Establishing the depth of poverty

The degree of poverty in the study area is reflected by the fact that, even when the in-kind contribution of cropping and livestock rearing is taken into account, over two thirds of the households sampled had incomes below the HSL. The data once again revealed how poverty is differentially distributed in the study area, with the proportion of households below the poverty line at Cwebe being significantly higher than at Ntubeni. The survey conducted by the Agricultural and Rural Development Research Institute (ARDRI, 1989) also found the proportion of households with incomes below the poverty line extremely high. They found that 77% of households in rural Willowvale, and 70% of households in rural Elliotdale, fell below an 'ultra-poor' poverty line of R190 per month per adult equivalent income. This was opposed to 50% and 37% in the Willowvale Town and Elliotdale Town respectively. Interestingly, their survey found poverty to be marginally greater in Willowvale District than in Elliotdale District, an inverse relationship to that found at Ntubeni and Cwebe.

6.3.3 Contextualising the poverty gap at Dwesa/Cwebe

Calculation of the poverty gap indicated that roughly 10 million Rand per annum would be needed in order to eliminate poverty in the study area. This is a conservative estimate as it was based on the *total* incomes of households in the sample, i.e. it included the in-kind contribution of crops and livestock. The poverty gap would probably be greater if only cash incomes were considered. Also, as Bell (2001) has pointed out, calculating the poverty gap means bringing people up to the poverty line, but not over it. As the Household Subsistence Level reflects the bare minimum needed to subsist, this is unlikely to equate to a comfortable existence. It would also not be a secure existence, as basing the poverty gap on the HSL does not make allowance for any savings, thereby increasing people's vulnerability to livelihood disruptions.

The poverty gap at Cwebe was disproportionately larger than that at Ntubeni, considering the respective sizes of the two villages. This is illustrated by the fact that the poverty gap at Cwebe (R2 300 602 per annum) was over 3.5 times greater than at Ntubeni (R636 691 per annum), but Cwebe was only 1.4 times larger than Ntubeni in terms of the number of people, and only twice as large in terms of households (Chapter 2, Section 2.1). While this is in part a true reflection of the greater extent of poverty at Cwebe, the difference is also influenced by the higher levels of absent household members at Ntubeni relative to Cwebe[23] (Chapter 8, Section 8.2.3). Strictly speaking,

[23] 38.3% at Ntubeni and 12.8% at Cwebe.

absent household members should not be included in the comparison as calculations of per adult equivalent income are based only on the resident population (Chapter 3, Section 3.3.2). However, when only the resident population is considered, there were still only twice as many people at Cwebe than at Ntubeni, while the poverty gap was 3.5 times as large. The greater relative depth of poverty at Cwebe is an important finding that will need to be taken into account when planning development in the study area (Chapter 9, Section 9.4).

6.3.4 Addressing the poverty gap

While the poverty gap at Dwesa/Cwebe appears to be considerable, eliminating the gap seems much more 'achievable' as a development objective when one considers that it would require a rise in household incomes among poor households of only R596 a month[24]. This is the equivalent of one household member from each poor household having a half-day waged job[25]. However, when one considers the *number* of households that would need access to jobs, then the challenge involved in eliminating the poverty gap comes into perspective once more. There are approximately 1 392 poor households in the greater study area. If each were to have access to a half-day job, it would require the creation of 1 392 new half-day job opportunities. To put these figures into perspective, the annual labour budget for the 201 people employed by the nature reserve, the single largest source of employment in the study area, was R2.8 million in 1996, significantly lower than the approximately R10 million needed to eliminate poverty, and the potential for the nature reserve to create additional jobs was extremely limited as the reserve was considered to be heavily over-staffed (Gerry Pienaar, pers. comm., 1998). The best potential for job creation lay with public works programmes needed to improve infrastructure (water and roads in particular), and in the expansion of tourism facilities. However, poverty elimination is not only about providing jobs, and given the area's remoteness and economic depression, it is unrealistic to expect the required growth in jobs to take place. Rather, a multi-tiered development strategy is required, one that mixes the creation of formal job opportunities, promotion of informal local business opportunities, and greater coverage of the social welfare net. In 1997 the value of a pension or disability grant was R470 per month, not much less than the R596 needed per household to eliminate the poverty gap.

[24] R9 957 884/1 392 households = R7 154/12 months = R596 per month (US$92).
[25] In 1997 the average wage for a labourer at the nature reserve was R1 200.

6.3.5 Income inequality and the poverty gap

It is common knowledge that there are often high levels of income inequality in rural areas, and the situation at Dwesa/Cwebe was no different (Perkins and May, 1998; May, 1998). While it is orthodoxy to consider income inequality as a negative trait (May, 1998; Ellis, 2000a; 2000b), it should also be borne in mind that differential income between households in a village can facilitate the creation of local opportunities for labour (e.g. through inter-household labour arrangements), and/or through commerce (e.g. trading between households) (Chapter 7, Section 7.2.3). Contrasting the poverty gap among the poorest households with the amount of *excess* income among better-off households, i.e. the amount of income that better-off households have that is in excess of the poverty line, gives an indication of the amount of money that is theoretically available locally for addressing the poverty gap.

At Cwebe the amount of income exceeding the HSL among better-off households in the sample amounted to roughly R54 000, i.e. roughly 25% of the poverty gap. This indicates that the potential for economic growth at Cwebe, based on the recycling of the local economy is limited, without injection of outside funds. At Ntubeni, however, the amount of income exceeding the HSL among better-off households amounted to R116 461, i.e. 90% of the poverty gap. Addressing the poverty gap through local economic growth based on the utilisation of available resources was, therefore more feasible at Ntubeni. Better-off households in this village theoretically had the potential to support poorer households through redistributive labour arrangements and/or through the purchase of locally produced goods and services. The implication of the above finding is that development interventions at Cwebe will need to create income-earning opportunities that are based on non-local sources of funds, while at Ntubeni, there appears to be greater scope for encouraging development based on the local economic stimulation. At both villages, however, greater emphasis needs to be placed on identifying goods and services that can be produced locally.

6.3.6 Income sources

Calculation of the in-kind value of livestock and own produced food allowed for these activities to be compared with the more conventional sources of cash income, such as state welfare grants and remittances. The large number of households deriving a savings from self-provisioning attests to the importance of agriculture as a supplementary livelihood activity. Of particular interest is the fact that the in-kind value of livestock goods and services was the second most valuable source of income in the study area.

Although nobody reported selling natural resources, limited trade did occur (see Chapter 8, Section 8.3.3). This could take the form of selling fish or shellfish to tourists, or medicinal plants to other villagers. Some people were able to trade their labour by entering into arrangements that involved them collecting natural resources on behalf of other people. Others were involved in the illegal hunting of wildlife from in and around the nature reserve, however this did not appear to be as widespread as was the case at Mkambati Nature Reserve, further north (Kepe, 1997). However, like at Mkambati, nature reserve staff were often the main perpetrators of illegal resource sales.

The direct-use, or in-kind, value of 'wild' natural resources was not calculated as part of this research project. However, studies elsewhere have found that the average value of 'wild' natural resources to households in the former 'homelands' was as high as R2 792 per annum (Adams *et al.*, 2000, cited in Shackleton *et al.*, 2001), which would place them on a par with the value of remittances (Table 35). It was also likely that the number of households benefiting from using natural resources was substantially higher than those benefiting from remittances (42.5%).

6.3.7 Population trends as a factor affecting livelihoods

While population densities at Ntubeni and Cwebe were high (Chapter 4, Section 4.2.1), population growth appeared to be relatively low in relation to district, regional and national data (Table 16 overleaf). Localised differences in growth trends existed between the two localities, with Cwebe experiencing a higher rate of population growth than Ntubeni. The pattern of high population densities coupled with low rates of growth within the villages suggests that many people were relocating to other areas. At Cwebe, where the continuance of field-based cultivation accounted for a large proportion of the land, the decision to leave was probably motivated by a lack of access to new residential and arable sites (Chapter 4, Section 4.2.1, Chapter 8, Section 8.2.2.1). Unlike in other Southern African countries, e.g. Malawi (Ellis, Kutengule and Nyasulu, 2002) it is not possible to sub-divide arable allotments in the Transkei. Fixed plot sizes, together with pressure from livestock owners for additional grazing land, therefore made it very difficult for potential 'new entrants' to acquire land for cultivation. In addition, the scope for securing a residential site, large enough to contain a garden, had reduced over time (Hoboyi, pers. comm., 1998). Thus, growing land shortages at Cwebe mitigated against high population growth.

The same argument cannot be used at Ntubeni, as in this village there was no real shortage of new land for residential or cultivation purposes because of the land released by abandonment of field-based agriculture. However, as at Cwebe, population growth seemed to be held in check by a high level of relocation out of the area. Palmer and Fay (2002) ascribe this to the trend of entire nuclear family units (husband, wife and children) relocating to urban areas, particularly Cape Town

(Chapter 5, Section 5.2.1). Primary motivating factors in this case were the improved access to jobs and social services that could be found in urban areas. Palmer and Fay (2002) also attributed the pattern of increased out-migration to a more recent trend of female migration at both villages (cf. Bank, 2001) (Chapter 8, Section 8.2.3). The pattern of population stability linked to consistent out-migration at Ntubeni conforms to a similar pattern observed at nearby Shixini by McAllister (1999). McAllister (1999:6) maintained that the population there had remained "virtually static" since he carried out his first household survey in 1976.

Table 16 - Comparative Population Data at National, Regional and District Levels.

	Population Density	Population Growth Rate
	People per km^2	% per annum
South Africa	-	2 - 3[26]
Transkei	88[27]	2.6[28]
Willowvale	75[29]	1.8[30]
Elliotdale	95	2.6
Ntubeni	173	0.1
Cwebe	153	1.1

Population pressure was more acute in sub-localities that had received an influx of people due to betterment planning, than for the villages as a whole. In his research in Hobeni (a village neighbouring Cwebe), Fay (2003) described how overcrowding in betterment areas posed constraints to garden cultivation, and led to a decline in the availability of natural resources. As a result, a trend in the post 1994 period has been the relocation of 'betterment households' to their former 'pre-betterment' sites, where the scope for land-based livelihood activities is perceived to be greater (*ibid.*). Similar trends have been observed at Cwebe and Ntubeni although there is an absence of empirical data.

[26] State of the Environment Report (Department of Environmental Affairs and Tourism, 1998)
[27] Calculated from National Census Data (Stats SA, 1998b)
[28] Transkei Government (1991)
[29] Calculated from National Census Data (Stats SA, 1998b)
[30] The population of Willowvale was estimated at 72637 in 1965, and 112365 in 1996 (Muller and Mpela, 1987; Stats SA, 1998b). This represents an increase of 54.7% over a period of 30 years, or 1.8% per annum. Using the same sources, the corresponding figure for Elliotdale in 1965 was 40 527 rising to 72 438 in 1995 - a rise of 78.7% over 30 years, or 2.6% per annum.

When one considers that at Cwebe, field agriculture, requiring large tracts of land, remains a dominant form of land use (Chapter 8, Section 8.2.1.2), then it can be expected that the rise in population at Cwebe will place increasing strain on opportunities for land-based livelihoods due to increased competition for limited resources. Land-based livelihoods at Ntubeni may be equally constrained, but the reasons differ. Here the potential for agricultural activity may become increasingly limited due to high rates of out-migration and a consequent decline in labour availability (Chapter 8, Section 8.2.3).

6.3.7 Climate as a factor affecting livelihoods

With 84.5% of households deriving in-kind income from cropping and 76.7% from livestock (Section 6.2.1.7), risks associated with climatic irregularities have the potential to affect a large number of households.

Local farmers were well aware of the inevitable occurrence of droughts from time to time, even if their exact timing was unpredictable. One way in which people attempted to cope with droughts was to place a premium on building up livestock numbers so as to provide some insurance against drought-induced mortalities. As Chavunduka (1976, cited in Hatch, 1996), points out, "if a man loses half his 100 cow herd he is still better off than if he lost half of his two cow herd"; implying that absolute numbers are important in dealing with drought (see also Ainslie, 2002a). Additional ways of attempting to cope with climatic variation included staggering the timing of planting (McAllister, 1999), and positioning fields at different elevations and aspects (Fay, 2003).

6.3.8 Health as a factor affecting livelihoods

While it was clear that people in the study area suffered from a range of diseases, there was little data from which to derive general patterns and trends. Data extrapolated from Shixini suggested that the infant mortality rate was likely to be extremely high, almost three times the national infant mortality rate for blacks in South Africa (218/1000 at Shixini versus 78/1000 for males and 68/1000 for females in South Africa (Bradshaw *et al.*, 1992)). The infant mortality rate was also higher than the average for sub-Saharan Africa (154/1000) (Zlidar *et al.*, 2003). High infant mortality is considered one of the reasons why poor people tend to favour large family sizes (*ibid.*).

Regional data on HIV/AIDS prevalence suggested that the incidence of HIV/AIDS was increasing at an alarming rate. According to the World Health Organization, around half of all people who acquire HIV become infected before they turn 25 and typically die before their 35th birthday (Department of Health: Eastern Cape, 2000). The impact of the disease on households is difficult to

predict, but it is likely that it will deprive an increasing number of families of income earners, particularly where migrant workers are laid off due to the illness. In addition, the loss of those of economically active age may lead to higher dependency rates, i.e. an increase in the ratio of elderly and young children in relation to adults, and to a shortage of household labour for agricultural activities. HIV/AIDS is also likely to increase the already high infant mortality rate (Zlidar *et al.*, 2003). The loss of household members of economically active age is expected to place a greater strain on social welfare services (Department of Health, 2001). The epidemic will be a major obstacle to reducing poverty and will require the dedicated attention of policy and development planners.

With respect to animal health, the trend of declining agricultural extension services, particularly with respect to veterinary services, means that animal diseases are likely to become an increasing burden for livestock farmers. At the time of the study the Department of Agriculture encouraged livestock farmers to become more self-sufficient in the supply of medication by organising themselves into groups to engage in collective bulk purchasing (Madakani, pers. comm., 1998). However, having received free medication[31] since the early 1900s, livestock owners have become dependent on the state and it will require a significant shift in mindset for them to accept the new proposals (Hawkins Associates, 1980).

6.3.9 Problem animals and declining fertility of fields

Additional threats facing land-based livelihoods were problem animals and the trend of declining fertility of fields. Crops were susceptible to a range of pests ranging from locusts (plagues were recorded in 1923 and in 1934 (Hammond-Tooke, 1957)), damage associated with bushpigs, monkeys, cane rats and livestock, to smaller pests such as mayflies, aphids as well as various crop diseases. A number of people interviewed at Ntubeni attributed the abandonment of field-based cultivation to bushpig damage due to a population 'explosion' of bushpig in the early 1980s (Chapter 4, Section 4.2.1). Some were of the opinion that the problem originated with the introduction of warthog into the forest reserves. The warthogs, it was said, had out-competed the bushpig in the forests leading the bushpig to leave the forests and invade people's fields in search of food.

The reported decline in field fertility (Chapter 4, Section 4.2.1) is likely to have been another factor contributing to the abandonment of field-based cultivation in Ntubeni, and may increasingly affect

[31] While cattle dip and other medication was often perceived to be free, for many years it was in fact paid for through the levying of various taxes on the local populace (Beinart and Bundy, 1987).

prospects for field-based cultivation at Cwebe. According to Andrew (1992) and McAllister (1999), fields are expensive to fertilise and difficult to manure, thus making it difficult to reverse the trend. The trend of declining fertility further accords with Burchmore's (1988) opinion that the sandy soils of the coastal forelands are easily over-used.

6.3.10 The macro economy as a factor affecting livelihoods

Declining rates of economic growth and the restructuring of the macro-economy as a result of the government's Growth, Employment and Redistribution (GEAR) policy have resulted in substantial job losses in the formal economy. As a result, at the time of the study, livelihood opportunities linked to economic migrancy were shrinking. However, with little scope for local employment and in light of the inability to generate cash from agriculture, many people continued to migrate to urban centres in search of work. With work increasingly difficult to find, rural dependents had to contend with a decline in income from remittances, for many years the backbone of the rural economy (Cross *et al.*, 1996). Research carried out in coastal Kentane and Willowvale (Timmermans and Rouhani, 2002) suggests that returning migrants are increasingly looking for opportunities to trade in natural resources as an alternative means of livelihood. From this perspective, natural resources are likely to play an increasingly important role in supporting local livelihoods.

6.3.11 Governance

The time of the study corresponded with a decline in the quality of local governance. Local governance had, in fact, been declining in rural Transkei since Tribal Authorities had became increasingly challenged by a disillusioned populace following the overthrow of the Matanzima government in the 1987, and the unbanning of the ANC and PAC in the Transkei in 1990 (Southall, 1992; Ntsebeza, 1999). Under the Matanzima government, corrupt Tribal Authorities had lost all semblance of legitimacy and, in areas such as Dwesa/Cwebe, became viewed as instruments of an oppressive state (Chapter 2, Section 2.2). Following the democratic elections in 1994, new workable systems of local governance were slow to arise. One result of this was a vacuum of authority in rural areas (Ntsebeza, 1999). In addition, restructuring of the state machinery to address apartheid imbalances (administration, legislation, fiscal allocations, etc.) required time. Of necessity, these macro-restructuring processes began at the national level, only later filtering down to provincial and local government levels. In the interim, governance at the local level was beset with problems and virtually came to a standstill.

As described earlier, the decline in governance impacted on many aspects of people's livelihoods, from social welfare services to job losses. In addition, it was during this period of breakdown in governance that the 'invasion' of the nature reserve took place. Another indication of the downward trend in governance lay in the deteriorating condition of the road network. As can be seen from Table 17, between 1995 and 1998 the number of gravel roads in the category 'very poor' rose from 28% to 45%, reaching 50% in 2000.

Table 17 - Condition of Gravel Roads in the Eastern Cape

	1995	1998	2000
Very Good	2%	7%	2%
Good	10%	8%	8%
Fair	20%	15%	15%
Poor	40%	30%	25%
Very Poor	28%	45%	50%

Source: Department of Economic Affairs, Environment and Tourism (2002)

For the people of Dwesa/Cwebe, as for all South Africans, the question to be asked is whether the decline in governance is a transitional phenomenon, or whether it is to become a permanent feature. This is a complex arena of political analysis which the researcher is ill equipped to enter. Suffice to say that at the time of the study, local residents were faced with a decline in the condition of government services across the board, and that this had a significant impact on the scope for successfully generating a secure livelihood for many households.

6.4 Conclusion

In this chapter an attempt has been made to better understand the distribution and extent of poverty, and the nature of vulnerability in the study area. This is an important aspect of livelihoods research as i) it provides the context in which livelihood strategies can be understood, ii) it gives an indication of where to channel support to improve livelihood security, and iii) it provides baseline data against which the impacts of interventions (policies, programmes, etc.) can be measured.

Using a range of poverty indicators (mean incomes, depth of poverty, poverty gap, income inequality) poverty at Cwebe was found to be more acute than at Ntubeni, although the poverty status of both villages was found to be severe. This insight suggests that poverty is differentially situated among the villages in the greater Dwesa/Cwebe area and that, therefore, some villages may be in greater, and more urgent, need of assistance than others. This research, together with Palmer and Fay's research (2002), and Fay's (2003) research at Hobeni, suggests that the Mbashe River ,

in addition to being an administrative divide, may also constitute a *geographical* poverty line separating the acutely poor from the poor. However, little is known of the poverty status of the other four villages at Dwesa, i.e. south of the Mbashe River, and additional research will be required to ascertain if this is indeed the case. Additional research is also needed to establish why poverty at Cwebe is comparably worse than in the rest of the district.

Differences between the two study villages were also identified with respect to population increase and land shortages. The continuation or abandonment of field cultivation appeared to play a role in that, at Cwebe where field cultivation was actively practiced, land shortages were evident. Land shortages were not so much of an issue at Ntubeni as most households had abandoned field cultivation in favour of smaller home gardens. In both villages natural population increase was ameliorated by permanent relocation of family units to other areas, although the rate of relocation was higher at Ntubeni than at Cwebe.

Other main kinds of livelihood vulnerability were related to climatic variation, health status of the communities, the performance of the macro-economy and the quality of governance. Development planning in the study area will need to take cognisance of these potential threats to livelihoods in their efforts to strengthen and promote sustainable livelihoods. In Chapter 9, the concluding chapter, various policy and intervention options for building livelihood resilience, are proposed.

Chapter 7 Inter-relationships between components of the livelihood system

7.1 Introduction

One of the outcomes of the increased academic interest in rural livelihoods in recent years has been the realisation that livelihoods are complex and dynamic systems, involving a diverse mix of assets and activities often spanning multiple economic sectors (May, 1996; Kepe, 1997; Ellis, 1998; Carter and May, 1999; Bryceson, 2000; Toulmin *et al.*, 2000; Campbell *et al.*, 2002; Scoones and Wolmer, 2003). The complexity and flux of these systems pose particular challenges for development practitioners as, without an appreciation of the inter-connectedness of components, interventions into any one particular sphere run the risk of having unintended negative 'knock-on effects' on other components of the system (Carney, 1998). In this sense livelihood systems are not that different to ecological systems. Some commentators argue that, given their connectedness to, and embeddedness in, natural (biophysical) systems, rural livelihood systems should in fact be viewed as extensions of ecological systems (Adger, 2000; Holling, 2001). As with ecological systems, it is, therefore, necessary to take a holistic systems view of livelihoods, built on an understanding of the connectedness and inter-relationships between various components. The livelihoods approach provides the framework for such a view and goes further to recognise that components of the system may be inter-changeable with certain assets and activities being substituted for others as the need arises (Carney, 1998; Scoones, 1998; Allison and Ellis, 2001). As with all complex systems, different components of the system are likely to be differentially weighted in terms of their linkages with other components. It thus becomes possible to identify so-called 'key determinants' – variables that have a strong influence on system processes and outcomes (May, 1987; Carswell, 2000; Ellis, 2000a).

This chapter sets out to achieve two aims. The first is to describe, at a general level, the main prevailing livelihood system in the study area, as well as the mix of assets that are required to sustain it. This is not to suggest that livelihoods in the study area are homogenous. Rather, the intention is to outline the contours of the overarching socio-ecological system within which different households construct different livelihood paths, using varying combinations of assets and activities. Most households in rural Transkei derive their livelihoods from a mix of small-scale cultivation, livestock husbandry, income-earning, and use of natural resources (Hawkins Associates, 1980; May, 1987; Kepe, 1997; McAllister, 1999; ARDRI, 2002). There is a large degree of mutual reinforcement between these activities, with access to assets linked to one particular activity often being necessary to enable others. Certain assets also display a degree of

substitutability in that they can be exchanged for essential inputs. Cash income is the most versatile of assets in this regard (May, 1987).

The second aim is to identify key determinants of the livelihood system in the study area (May, 1987; Carswell, 2000; Ellis, 2000a). The focus here is on identifying those variables that have a strong influence on household income, agricultural activity, education and physical living conditions - four livelihood components that serve as indicators of the well-being of the communities concerned. Due to ambiguity concerning their placement in the livelihoods framework (income is both a financial asset as well as a livelihood outcome; agriculture is an activity, but livestock owned is both a natural asset as well as an outcome of investment, etc.), they are referred to in this chapter as assets/activities/outcomes. Household income was calculated in terms of per adult equivalent income, garden sizes and livestock holdings were used as proxies for cultivation effort, education was calculated in terms of the total number of years among all household members divided by the number of household members, i.e. mean number of years per household, and the number of people per residential unit within a homestead was used as a proxy of physical living conditions. Potential key determinants were identified for each of the livelihood assets/activities/outcomes mentioned above (Table 18).

Table 18 - List of Variables Tested

Dependent variable	Independent variable
Household Income (Rands per adult equivalent per month)	Age of household head; Household size; Household members aged 16-64 years; % members aged 16-64 years absent; Males aged 16-64 years absent; Number of pensioners; Mean number of years education among members aged 16-64 years.
No. of Large Stock Units (LSUs) owned	Age of household head; Household income; Males aged 16-64 years absent; Number of pensioners; Mean number of years education among members aged 16-64 years.
Size of Gardens (m^2)	Age of household head; Household income; Household size; Members aged 16-64years present; Number of pensioners; Number of cattle owned.
Education (mean number of years among all household members)	Household income; Household size.
Household density (No. of people per dwelling)	Household income; Household size.

Correlation tests were performed between potential key determinants and livelihood components to establish the nature of the relationship existing between them. It was anticipated that the identification of key determinants would allow for a better understanding of livelihood systems that existed in the study area, thereby assisting in the design of appropriate development strategies.

7.2 Results

7.2.1 Cultivation as a component of the livelihood system

Most households at Dwesa/Cwebe cultivated crops, either in home gardens or in gardens and fields (Chapter 4, Section 4.2.1; Chapter 8, Section 8.2.1.2). Maize (97.7% of households), beans (75.9% of households) and pumpkins (60.5% of households) were the most commonly planted crops. Crops were grown in early spring (September/October) and harvested in late summer (April/May). No winter crop was grown and gardens and fields were left fallow during this period.

Cropping at Dwesa/Cwebe was an integral part of household livelihood strategies and it fulfilled a number of different livelihood roles. These included:

- Production of food for home consumption.
- Income stretching. By providing a portion of the household's food requirements, cultivation assisted in saving income.
- Income generation. Surpluses could be sold, although at Dwesa/Cwebe the amount traded was very small (Chapter 8, Section 8.2.1.2).
- Bartering. Produce could be exchanged with neighbours for other commodities, food products, or labour.
- Brewing of maize beer. As described by McAllister (1999), maize beer has important social, cultural and economic functions within rural Cape Nguni society. For example, it enables sociability (important for household status), the hosting of rituals (important for household well-being), income-earning through sales, and inter-household cooperative labour through the hosting of work-parties (Chapter 8, Section 8.2.3.2).
- Supplementary animal feed. Livestock were put to graze in gardens and fields once the maize crop had been harvested. This allowed them to access an alternative food source (maize stubble, remains of pumpkin plants, wild herbs, etc.) during the dry winter months when forage on the grazing lands was depleted.

- Status building. Being able to share produce with neighbours and visitors strengthened a household's status.
- Reinforcing an entitlement to arable land. It was not uncommon for ploughing to take place with minimal, or no, planting accompanying it. This took place when household members were unable to accumulate the resources required to actively engage in cultivation (or were not present for long enough as in the case of migrant workers), but nevertheless were concerned that if they didn't use their land, others might lay claim to it.
- The practice of cultivating was an important cultural activity in its own right. This related to the cultural imperative of '*umkwakha umzi*', or building the homestead (Sansom, 1974; McAllister, 1999). This has as much to do with issues of cultural identity, an important part of which is ancestor veneration, as it does with economic reasons. The maintenance of a garden or field was considered a fundamental component of '*umkwakha umzi*', and irrespective of its economic situation, a 'Xhosa household' might feel compelled to cultivate, albeit for symbolic purposes only.

Given these multiple roles and outcomes of cultivation, it follows that households did not necessarily cultivate for the same reasons. For instance, for a household with sufficient income to meet its consumption needs, the motivation to cultivate might purely be based on cultural objectives, e.g. being able to brew one's own maize beer; or social objectives, e.g. being able to give food away in order to build status. Alternatively, for a household with little or no access to income, the production of food might be of primary importance in its motivation to cultivate.

Whatever a household's motivation, cultivation could not readily be achieved without access to the five kinds of assets described in the livelihoods framework (Carney, 1998). For example, natural assets necessary for crop production included access to arable land and access to cattle for ploughing and manure. Cropping also required access to forests and woodlands to collect materials for the production of physical assets, such as fencing, handles for hoes, yokes for ox-teams, and for the construction of wicker-basket sledges and grain baskets. Some physical assets, such as mechanical ploughs, weeders and planters, could not be hand-made. Financial capital was required to purchase other inputs, such as fertilizer and seed. Human capital was required to undertake the work involved in ploughing, planting, weeding and harvesting, while social capital played an important role in mobilizing labour and gaining access to cooperative ploughing arrangements. Many of these assets could, of course, be purchased with income, but as was evident from the earlier discussion on poverty, few households had sufficient income to do this.

7.2.2 Livestock husbandry as a component of the livelihood system

Cropping and livestock production systems were dynamically inter-related in the sense that, as mentioned above, cattle were necessary for ploughing and manuring, while crop residues were used to help cattle survive through the dry winter season, in turn building up their strength for the following season's ploughing. Apart from ploughing and manuring, there were many other reasons why livestock were important in local livelihoods. These included:

- Ritual, status and redistributive value. Cattle and goats were considered 'cultural animals' as they were used for ancestral veneration. Ancestral veneration was important to bestow good fortune on the household, to ward off evil, and to enable rites of passage. Ritual slaughtering also functioned to redistribute meat to other members of the community, thereby enhancing social status on the part of the giver and assisting poorer households to gain access to a valuable source of protein.
- Savings value. Livestock functioned as stores of wealth. Males claimed that investing savings in fixed assets such as cattle, assured them control over how and when these savings were to be used. This is unlike cash savings over which they appeared to have less control. Pigs, which were kept by females, were important means of saving for women. The selling of pig meat was a common way for women to raise income when in need of urgently raising cash, such as for school fees.
- Meat. Most animals were, however, rarely slaughtered outside of a ritual or ceremonial context. Those that had died of disease or natural causes were not offered for ritual, although the meat was normally shared with neighbours.
- Milk. Harvested primarily in the calving season, milk was used to make sour milk for own consumption.
- Hides. Hides were used to make leather for whips and thongs for harnesses.
- Transport. Oxen were used for many transportation purposes such as collecting wood, transporting goods purchased at trading stores, transporting crops at harvesting time, transporting coffins at funerals and even transporting pensioners to pension pay-out points. In most cases the carriage consisted of a wicker basket attached to a sled.
- Brideswealth. The age-old cultural practice of offering brideswealth (in the form of cattle and goats) to the family of newly married women continued to operate in the study area. While the value of the brideswealth was calculated in terms of cattle, payment would normally comprise a combination of livestock and cash.

- Ability to participate in ploughing companies. Four strong oxen were typically required for ploughing, but as few households had these, it was necessary to engage in cooperative arrangements with other households. In some cases this entailed membership of an inter-household 'ploughing company' (see Chapter 8 - Social capital). Membership of a ploughing company did not necessarily require ownership of oxen (a household could contribute equipment or labour), but, as Heron (1991) pointed out, the ownership of animals did strengthen a member's position in the company. This was important as the order in which fields were ploughed depended on the relative value of a household's material contribution to the company. Households with little status in the company ran the risk of late ploughing, which, as McAllister (1999) has shown, could drastically reduce a household's yield.
- The means to host work parties. Smaller animals, particularly pigs, were accepted currency for payment of people participating in work parties. Work parties were particularly necessary for weeding, but were also used for other purposes such as wood collection, building, plastering, thatch collection, etc. (Chapter 8, Section 8.2.3.2)

As with cultivation, various inputs were required to sustain a household's livestock production system. These inputs, listed below, essentially comprised a combination of the various forms of capital/assets identified by the livelihoods framework.

- Acquiring livestock. There was, of course, a link between income (financial capital) and livestock in that income was required to purchase animals. However, other means of acquiring animals also existed, for example livestock acquired through brideswealth payments (human capital), through inheritance (social capital), or through loaning arrangements (social capital). Livestock numbers could, of course, also be built up through natural reproduction (natural capital).
- Labour. In areas where field cultivation was practiced it was necessary that animals were actively herded during the summer months to prevent them from damaging crops. Traditional Cape Nguni livestock husbandry involves the over-night 'kraaling' of animals close to the homestead. Labour (human capital) was, therefore, required on a daily basis to lead animals out to pasture in the mornings and to collect them again at the end of the day. Special trips were required to collect livestock during dipping days. Some households relied on their own labour, while others engaged in cooperative labour arrangements with their neighbours (social capital). Households with labour shortages, and who could afford to do so, employed herders (financial capital).

- Kraal maintenance. Labour and forest products (natural capital) were required for the erection and maintenance of cattle byres/kraals (physical capital). Access to oxen was necessary to transport the wood from the forest to the homestead. For households without oxen it was necessary to rely on assistance from kin (social capital) or to hire oxen (financial capital). Only males were allowed to enter kraals and, with so many males absent, the maintenance of kraals presented an important income-earning niche for resident men (financial capital). Kraals were also important sites for cultural activities (social capital), thus ownership of a kraal did not necessarily depend on ownership of livestock. The placement of kraals adjacent, and normally above, gardens ensured that gardens had a constant supply of nutrients (natural capital). Dung from kraals was also used for plastering the walls and floors of houses (physical capital).
- Feed and medication. Other inputs required for livestock included feed (purchased or taken from the harvest) for pigs and chickens, and livestock medication (purchased or sourced from the wild). The latter was becoming more important in the context of declining government-subsidised dipping and veterinary services (Chapter 5, Section .2.8; Chapter 6, Section 6.2.2.5).

7.2.3 The role of cash income in the livelihood system

For most households, cash income was essential to gain access to food and to the various means of production as described above. Other important uses of income included transportation costs, clothing costs, school fees and medical costs (Table 19). Main income sources were pensions, disability grants, child welfare grants, remittances, wage work, occasional local work, stock sales, and crop sales (Chapters 6, Section 6.2.1.7; Chapter 8, Section 8.2.4.1). For those households without a member receiving a welfare grant or without a member in full-time local employment, income could be extremely limited and irregular. Income needs had a seasonal dimension in that cash income was at a premium at certain times of the year, e.g. at the beginning of school terms, or at the end of the year when migrant workers returned and many rituals were held.

7.2.4 The role of non-agricultural natural assets in the livelihood system

Forests, grasslands, marine and fresh-water resources were the main natural assets feeding the livelihood system (Chapter 4). Apart from the products and services already mentioned, forests provided grazing, medicines for humans and stock, wood for building and wood for fuel. They also provided a variety of edible wild plants and fruits. Grasslands provided grazing as well as edible wild plants and medicines. They were also the main source of thatching grass, and in wetter areas they contained reeds for weaving. Marine resources were important for consumption and health reasons. Other marine-related products, such as sea-sand and shingle, were sometimes used in the

construction of houses. Surface water sources were utilised by people and stock alike for consumption purposes.

Table 19 - Breakdown of Household Expenditure for the Two Villages Combined (n=73)

	Households Paying		Mean Amount
	No.	%	Rands per month
Food	72	98.6	205 ± 17
Transport	65	89.0	23 ± 9
Clothing	61	83.6	31 ± 3
School fees	59	80.8	24 ± 3
Medical costs	59	80.8	25 ± 4
Agricultural inputs (medication, feed, seed, fertiliser, etc.)	53	72.6	59 ± 9
Church fees	47	64.4	8 ± 1
Rituals	27	37.1	56 ± 9
Informal savings (revolving credit associations)	24	32.9	54 ± 24
Formal savings (e.g. insurance policies, bank accounts)	13	17.5	153 ± 36
Livestock purchases	13	17.5	170 ± 65
Instalment payments (furniture, appliances, vehicles)	10	13.7	216 ± 104
Money sent to support others	8	11.0	68 ± 23
House construction	7	9.6	381 ± 123
Other	4	5.5	60 ± 26
Tertiary education fees	3	4.1	505 ± 206

7.2.5 Key determinants of livelihood production systems

Table 20 presents the outcomes of the correlation tests for key determinants. From the range of variables selected as potentially influencing cash income, the only variable that correlated with it at Cwebe was the number of members of economically active age forming part of the household. This was a negative correlation, however, indicating that households with more members between 16 and 64 years had lower incomes than households with fewer members in this age group. The result suggests that household members of economically active age contributed little towards household cash income. This is indicative of the high unemployment rate that existed at Cwebe, both among the resident and non-resident population.

Table 20 – Results of the Correlation Tests

	Village	Household Income	Age of Household Head	Household Size	Household Members Aged 16 -64	Members Aged 16-64 Present	% Members Aged 16-64 Absent	Males Aged 16-64 Absent	Number of Pensioners	Education: Members Aged 16-64	Number of Cattle Owned
Household Income	Cwebe	-	NS	NS	** (r=-4.6)	-	NS	NS	NS	NS	-
	Ntubeni	-	* (r_s=0.34)	NS	NS	-	* (r=0.37)	NS	* (r=0.38)	NS	-
No. of LSUs	Cwebe	NS	NS	-	-	NS	-	NS	NS	NS	-
	Ntubeni	NS	NS	-	-	NS	-	* (r=0.32)	NS	NS	-
Garden Size	Cwebe	NS	NS	NS	-	NS	-	NS	NS	-	NS
	Ntubeni	* (r=0.31)	*** (r=0.49)	NS	-	NS	-	NS	*** (r=0.51)	-	* (r=0.35)
Household Education	Cwebe	NS	-	NS	-	-	-	-	-	-	-
	Ntubeni	NS	-	NS	-	-	-	-	-	-	-
Household Density	Cwebe	* (r=-0.33)	-	-	-	-	-	-	-	-	-
	Ntubeni	* (r=-0.39)	-	-	-	-	-	-	-	-	-

NS = Not significant; * $p \leq 0.5$; ** $p \leq 0.01$; *** $p \leq 0.001$

At Ntubeni the age of the household head, the proportion of economically active members absent, and the number of pensioners in a household, were important variables affecting household per capita income. This result stems from the fact that households with older heads were more likely to be receiving one, or sometimes two, pensions. The correlation between cash income and the proportion of adults absent suggests that remittances from urban-based family members were still important factors influencing household cash income. However, this claim is contradicted by the lack of any correlation between the number of adult males (traditionally the breadwinners) absent and household cash income. This can either be interpreted as reflecting the increasing importance of women in economic migration, or as an outcome of households with fewer members present having fewer people with which to share limited household income. A closer look at the gender of remitters dispelled the first hypothesis – only 20% of those remitting were females, remitting on average R100 per month, whilst males remitted on average R164 ± 36 S.E. per month. Given the predominance of social welfare grant income in the study area (58.9% of households received them at a mean value of R552 ± 33 S.E.), it would appear that the second hypothesis, i.e. that income among households with a greater number of absentee adults is generally higher as a result of having fewer members present with whom to share limited cash income, is closer to the mark.

None of the variables tested correlated with the amount of livestock owned by households at Cwebe. Thus, richer households did not necessarily own more livestock than poorer households. Neither did the mean level of education within the household have any influence over livestock ownership. However, a closer look at gender and cattle ownership revealed differences between male and female-headed households. For instance, there was a significant difference in the proportions of male and female-headed households owning cattle (17 of the 22 male-headed

households (77.2%) owned cattle, as opposed to 7 of the 17 female-headed households (41.1%), χ^2= 5.3, *df*=1, *p*<0.05). The mean number of cattle owned by male-headed households that had cattle (6.5 ±1.1 S.E.) was also larger than the mean number of cattle owned by female-headed households that had cattle (3.0 ±.0.8 S.E.) (*t*=2.0; *df*=22; *p*=0.05). Female-headed households, however, owned a higher mean number of pigs (3.5 ±0.5 S.E.), than male-headed households (1.8 ±0.2 S.E.) (*t*=3.0; *df*=34; *p*<0.01). Livestock ownership at Cwebe was therefore highly differentiated along gender lines.

Income and education levels also had little influence over livestock ownership at Ntubeni. However, unlike at Cwebe, a correlation existed between the number of livestock owned and the number of absent male household members. This suggests that migrant workers at Ntubeni continue to invest their earnings in cattle. Further evidence of this trend is that 88.2% of the households that were receiving remittances owned cattle, i.e. 15 out of 17 households, whereas only 36.3% of households that did not receive remittances, i.e. 8 out of 22, owned them (χ^2= 10.7, *df*=1, *p*=0.001). Unlike at Cwebe, there was no *significant* difference in the proportion of male and female-headed households owning cattle, although a similar pattern was evident. There was also no significant difference in the mean number of cattle owned, but this result was likely to be influenced by one of six female-headed households who owned an unusually high number of cattle (22). There was also no significant difference in the mean number of pigs owned between the two household types. Thus, it would appear that, unlike at Cwebe, gender of the household head was not a strong determining variable with respects to livestock ownership as it was at Ntubeni.

None of the variables chosen as potential determinants of garden size at Cwebe had any significant influence on this index of agricultural activity. It should be remembered, however, that as most households at Cwebe made use of both gardens and fields (Chapters 4, Section 4.2.1; Chapter 8; Section 8.2.1.2), the usefulness of garden size as a measure of agricultural activity, in isolation of fields, was constrained.

Analysis of potential drivers of garden size at Ntubeni, where few households had fields in addition to gardens, was more revealing. Here garden size appeared to be related to the age of the household head, the household's income, the number of pensioners in the household, and the number of cattle owned. The finding of a relationship between age of household head, household income and number of pensioners in the household has been described earlier. The fact that households with a greater number of members of pensionable age had larger gardens suggests either that cultivation at Ntubeni requires access to cash income, or that older people are more inclined to partake in cultivation, or both. Access to labour did not appear to constrain cultivation, there being no correlation either between household size and garden size, or the number of members of

economically active age present and garden size. Access to cattle, for ploughing and manuring was, however, a limiting factor with respect to the amount of land that could be cultivated.

Neither household size, nor household income, correlated with mean per capita levels of education in either village. However, it should be pointed out that this calculation dealt only with *mean* per capita levels of income among the members of a household, and that this tended to disguise the fact that there was often a large degree of variation in education levels between individuals. Thus, where two households had similar mean per capita levels of education, this could either represent a household in which all members had low levels of education, or a household in which one or two members had high levels of education, but the rest had no education. Differences in the income returns from these two different household education investment strategies therefore could not be clearly discerned.

Household density (as measured by the number of people per housing unit/dwelling), was negatively correlated with household income in both villages. This provides evidence that household density is a good indicator of household economic status. It also suggests that there is a housing demand in the study area, in the sense that poorer households are in need of additional houses, but that they cannot afford the costs associated with building.

7.3 Discussion

The over-arching livelihood system at Dwesa/Cwebe was complex with a high degree of integration and inter-dependence existing between crop production, livestock husbandry, income generation, and the use of wild natural resources. Many of these inter-relationships are acknowledged in the literature on living conditions in the Transkei (e.g. Hawkins Associates, 1980; Rural Monitor, 1984; Moll, 1988; Transkei Government, 1991; Andrew, 1992; Porter and Phillips-Howard, 1997; Bank, 2001), but the tendency is to look at different components of livelihoods in separation of each other, rather than focus on the ways in which different components are inter-dependent. However, the growth in popularity of the livelihoods approach, with its explicit focus on interactions between components of livelihood systems, has led more recent research undertakings to place greater emphasis on these linkages (e.g. Kepe, 1997; ARDRI, 2001; Fay, 2003). Notwithstanding this trend, there is still a shortage of empirical quantitative research, as few micro-level studies have tested the nature of these relationships using statistical methods.

Three exceptions were the studies by May (1987), Heron (1991) and Fay (2003). May's (1987) study involved 255 households in three administrative areas that had been heavily affected by betterment planning in the Umzimkulu district. His study sought to refute the idea that labour

migration was optional (as various theories of migration at the time maintained, e.g. individual migration decision analysis based on the idea of push-pull factors, the 'bright lights' theory, etc.). By focusing on the relationships between labour migration, subsistence production and household maintenance, May (1987) demonstrated that the resources available for subsistence production and local income-earning were so limited, and the need for cash income so great, that labour migration was, in fact, a necessary condition for survival for most households in rural Transkei. Of these resources, access to land was identified as a key determinant of agricultural production. The proportion of households without land was 48.1% across the sample, rising to as high as 74% in one area (Sihleza). The high level of landlessness was attributed to the affect of the betterment schemes as many of the households that had lost land to the scheme had not been reallocated land upon relocation to settlement areas.

Although betterment planning had occurred at Ntubeni and Cwebe (Chapter 4, Section 4.2.1), access to land did not feature as a key determinant of agricultural production as 100% of households at Ntubeni and 87.4% of households at Cwebe had access to a home garden or a field (Chapter 8, Section 8.2.1.2). In his study on the resettlement of betterment-removed households to their former betterment sites at Hobeni (the village neighbouring Cwebe), Fay (2003) found that although shortage of space for cultivation was often cited as a reason for returning to former sites, land access was not necessarily a key determinant of agricultural activity. Rather, the greatest constraint facing household production was the ability to mobilise labour during critical periods in the agricultural cycle, when labour bottlenecks would develop. The absence of a correlation between household labour (as represented by the number of adults present) and agricultural activity (as represented by the number of LSUs and garden sizes) at Ntubeni and Cwebe suggests that existing household labour was rarely sufficient to meet agricultural needs. This, together with the fact that most households in the study engaged in a combination of livestock husbandry and cropping, emphasises the importance of inter-household labour arrangements in enabling agriculture in rural Transkei (Heron, 1991; McAllister, 2001; Fay, 2003).

In his study of agricultural production at Shixini, Heron (1991) found that the variable with the greatest influence on a household's production was its access to stock. Although other variables, such as the number of consumers and workers in the household, were also important, the number of stock units had the greatest significant correlation with both yield, and with the area of arable holdings. Livestock ownership (number of cattle owned) also emerged as a key determinant of the size of arable holdings (households with gardens only) at Ntubeni, while the results for Cwebe were inconclusive due to the absence of field size data. The absence or presence of betterment does not appear to have had an impact on this relationship. Even though betterment was never implemented at Shixini, while it was partially implemented at Ntubeni and Cwebe, rates of access

to land holdings in the two areas appear to be very similar (at Shixini 76% of households had access to fields and 90% to home gardens) (Andrew, 1992).

The results from Dwesa/Cwebe further point to the important role played by household income in capitalising agricultural production. While the relationship between agricultural production and income in homeland agriculture has long been acknowledged (Union of South Africa, 1955; Spiegel, 1979; Hawkins Associates, 1980; Simkins, 1981; Transkei Government, 1991), this has normally focused on income from migrant remittances as the income source capitalising agriculture. The absence of a correlation between the number of adult men absent and garden size suggests, however, that remittance income, was not a key variable in capitalising agriculture in the study area. May (1987) and Heron (1991) also failed to find any relationship between remittance income and agricultural production, leading May (1987:146) to conclude that: "there is little justification in arguments that migratory labour, *per se*, positively or negatively affects subsistence production, agricultural investment, educational investment, or modernity". However, in contradiction to the findings of the above two authors, there was strong evidence at Ntubeni of investment of migrant earnings in livestock, particularly cattle. As the number of cattle owned correlated positively with garden size, it was therefore likely that receipt of remittances did have an *indirect* influence on cultivation activity, even if the number of adult men absent and garden size did not directly correlate (cf. Murray, 1981). However, the fact that both income and garden size were positively correlated with the age of the household head, and the number of pensioners living in the household, indicates that social grants (primarily state pensions) are likely to play a far greater role in sustaining agricultural production in rural areas than has previously been acknowledged. The presence of pensioners, ownership of cattle and, indirectly, access to remittances were, therefore, key determinants of agricultural production at Dwesa/Cwebe.

It is intuitive to expect that, being able to access more highly paid jobs, households comprising more educated members would earn more than households with fewer educated members. Indeed, using data from the 1996 South African October Household Survey, McKeever (2002) found this to be true at the national level. However, this was not the case at Ntubeni and Cwebe, as no relationship was evident between household education and household income at either village. This suggests that the majority of income accruing to the area was from economic sectors that did not require a high level of education. It also suggests a high rate of unemployment in sectors requiring school leaving qualifications. This accords with the finding that most economic migrants worked as labourers on commercial farms, on construction sites, in the manufacturing sector, on the mines, or as domestic workers (Palmer and Fay, 2002). Although some household heads did not see much value in education (normally illiterate, elderly, traditionalist males who would prefer to keep their sons at home to tend to their livestock and assist with cultivation work), most households viewed

education as more than just a means to improve income-earning. It was also seen as a prerequisite for personal development and participation in the modern world, and the majority of households were prepared to invest a portion of their income into the payment of school fees (Table 19). This was confirmed by relatively high rates of school attendance in the rural areas of Transkei - between 92.9% and 96.2% of children between the ages of 7 and 15 attend school[32] (Stats SA, 2002). Payment of school fees, however, constituted a significant burden on cash strapped households and, given the importance of education to the development of human potential, consideration should be given to extending the system of school fee exemptions or bursaries, which nationally only caters for 1.6% of school goers (*ibid.*).

Levels of income and the number of people per housing unit /dwelling were strongly correlated at both Ntubeni and at Cwebe. This finding is similar to that reported at the national scale in the South African Living Standards and Development Survey (SALDRU, 1994). According to this study, the average number of people per room in the 'ultra-poor' income category was 2.3 compared with an average across all income categories of 1.4. The average number of people per housing unit at Dwesa/Cwebe was slightly higher at 2.6 (Chapter 8, Section 8.2.2.2), reflecting the severe poverty status of these communities. According to a study by the Community Agency for Social Enquiry (CASE) (1995), the average number of people per room in the former homelands in 1995 was 1.5. 'Housing units' and 'rooms' are strictly speaking, not directly comparable as housing units may in fact contain multiple rooms. However, this factor did not strongly influence the comparison of the data sets as the majority of housing units in the study area (86.9%) consisted of a single room (either a traditional round 'rondavel', a hexagonal shaped rondavel, or a rectangular, single roomed structure) (Timmermans, 2002; Chapter 8, Section 8.2.2.2).

In South Africa, overcrowding is normally associated with living conditions in informal settlements in urban centres (Health Systems Trust, 1995; Lohnert, 1998). Less attention has been paid to the issue as it affects rural households. This may be because the majority of the people (e.g. 66.3% in OR Tambo Municipal Area according to the 1999 October Household Survey (Stats SA, 2002)) live in so-called 'traditional housing', which in most instances is constructed from freely occurring natural resources (wattle and daub, indigenous poles, thatch grass, etc). The assumption, therefore,

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[32] These statistics should be viewed critically, however, as i) they reflect the numbers on the official school registers, not the *de facto* number of children that attend school regularly, and ii) they reveal little about the quality of education that is delivered in rural areas. Apart from the case of the parents sending their children to school on alternative weeks, it was also not uncommon for children to be required to first help their grandfathers with livestock related duties, before being allowed to go to school. As a result they would miss half of the morning's classes. Poor infrastructure could also lead to the cancellation of school during bad weather.

is that poor rural households do not face constraints in building houses. This is not true, however, as local respondents indicated that the cost of labour, transport and materials to build a rondavel could amount to as much as R2 000. For poorer households these costs represent a very real barrier to extending their homesteads, and it is not surprising that the CASE study found that 63% of 'traditional dwellings' were overcrowded, and that overcrowded households had a lower health status (CASE, 1995). The issue of overcrowding among poor households in rural areas deserves greater research attention, particularly given the trend for urban-based household members that are ill to return to their rural homes (Chapter 6, Section 6.2.2.3), and the fact that 70% of all African children live in rural areas (CASE, 1995).

7.4 Conclusion

This chapter has described the general livelihood system in the study area, and the nature of the inter-relationships between various components of the system. It has been pointed out that the system is highly complex, with a large degree of complementarity, as well as substitutability, between asset categories. It is, therefore, important that policy makers and development practitioners view livelihoods as holistic systems, and that development interventions are appropriately integrated.

While components of the system interacted in various ways, not all inter-relationships were equally weighted. This made it possible to identify a number of key variables affecting household income, agricultural production, education and household living conditions - all indicators of well-being. Income from social grants was identified as a key determinant of total household income, as well as of agricultural activity. Remittances were important for purchasing livestock, but contrary to what has been suggested in the literature, played less of a direct role in enabling cropping. Land scarcity was not a key variable influencing livelihoods in the study area, but the ability to mobilise extra-household labour at critical periods was. The level of education within a household did not relate to a household's income-earning potential, as the majority of migrant workers were employed in manual, blue-collar jobs. Nevertheless, most households valued education, and, given the high levels of poverty in the area, it was argued that greater attention should be given to the issue of exemptions from school fees. A strong relationship emerged between housing density and poverty, and the issue of overcrowding is one that should be taken up by those interested in developing the area.

Chapter 8 Household assets, livelihood strategies and livelihood outcomes

8.1 Introduction

The livelihoods approach considers assets to be the basic building blocks upon which households are able to undertake production, engage in labour markets, and participate in reciprocal exchanges with other households (Department for International Development, 1997; Carney, 1998). Thus, asset endowments are considered to play an important role in enabling a household to generate a means of survival, or to sustain its material well-being at differing levels above survival (Ellis, 2000b). From this perspective, poverty is defined in terms of a lack of access (through ownership or other means) to various assets essential for generating a livelihood (World Bank, 2000). As described in Box 1 (Chapter 1), the livelihoods framework organises assets into the categories of natural assets, physical assets, financial assets, social assets and human assets (Carney, 1998). The theoretical relationship between assets and livelihoods (Figure 1, Chapter 1) has led to a growing number of studies that have explored differences in the asset endowments of poorer and better-off households (Ellis, 2000b; Campbell *et al.*, 2002), with most finding empirical evidence for the relationship. As a result, development agencies are encouraging a stronger focus on assisting the poor to build up their asset endowments, thereby allowing the poor to construct their own routes out of poverty (World Bank, 2000).

Livelihood strategy is the overarching term used to denote the range and combination of activities and choices people make/undertake in order to achieve their livelihood goals (Department for International Development, 1997). The kinds of strategies which may, or may not, be available to a household is thought to be mediated by the nature of its asset holdings, in relation to broader political and economic contexts influencing livelihoods (May, 1996). Livelihood strategies normally encompass a mix of natural resource and non-natural resource based activities (Ellis, 2000b), which are alternatively referred to as 'farm' and 'non-farm' activities. A characteristic of livelihood strategies is that they are often dynamic, responding to fluctuations in asset holdings, and pressures and opportunities in the broader economy (*ibid.*). Diversification of livelihood strategies, as represented by a straddling of activities between different economic sectors, is thought to be a key way in which poor households build resilience to fluctuations in any one particular sector (*ibid.*). In this context, resilience refers to the ability of a livelihood system to 'bounce back' from stresses and shocks (Adger, 2000). An understanding of the different livelihood strategies that people pursue is important for policy development, as households that depend mainly on the natural environment will have different needs to those that derive most of

their income from cash cropping, who in turn will differ from those that derive only a small proportion of their income from food production, and a large proportion from non-farming activities (Ellis, 2000b). In sub-Saharan Africa, there appears to be evidence that the non-farm component of rural livelihoods is becoming increasingly important as the prospects for peasant agriculture decline, due to the impact of structural adjustment policies (Bryceson, 1996; 2000).

Livelihood outcomes are defined as the achievement or outputs from livelihood strategies (Department for International Development, 1997). These may take the form of increased income, increased well-being, reduced vulnerability, improved food security, and/or more sustainable use of the natural resource base (Figure 1, Chapter 1). However, as discussed in the previous chapter, increased income is likely to be a key livelihood objective for most households.

This chapter sets out to investigate the asset holdings of households at Dwesa/Cwebe, as well as the different kinds of livelihood strategies adopted. Livelihood outcomes are evaluated both in terms of the relative worth of the different livelihood strategies, as well as the degree of diversification between different economic sectors. The data is analysed in three different ways. First, the combined data for the two study villages is discussed, based on the assumption that this presents a representative picture of the broader Dwesa/Cwebe area. Second, significant differences that are apparent between the two villages are discussed. Third, data is analysed in terms of household income groups, again focusing on significant differences that existed, or did not exist, between income groups (Chapter 3, Section 3.3.3).

Household assets are grouped under the categories: natural, physical, human, social and financial assets, with the terms assets and capital being used interchangeably. The following types of household assets are described in each category:

Natural assets:	Access to residential sites and arable land; size of arable holdings; crop diversity and yields; livestock holdings; and use of 'wild' natural resources.
Physical assets:	Ownership of agricultural equipment and transportation assets; housing infrastructure and building materials used.
Human assets:	Household size; rates of absenteeism; employment rates; and household education.
Social assets:	Family and kinship networks; inter-household cooperation; leadership structures; and development committees.
Financial assets:	Sources of income and rates of saving.

The results of the analysis of livelihood strategies and livelihood outcomes are dealt with simultaneously, as it did not make practical sense to separate them. In analysing livelihood strategies and outcomes, use was made of a livelihood typology, income portfolios, and diversity indices (Chapter 3, Sections 3.3.9 - 3.3.11), and the results are structured accordingly.

The breadth of the data presented on household assets, strategies and outcomes, left little scope for analysis of findings in Section 8.2 (Results). Much of the analysis of the findings, therefore, takes place in Section 8.3 (Discussion).

8.2 Results

8.2.1 Natural assets

This section documents the levels of access to residential and arable land holdings, sizes of gardens, crop diversity, garden yields, the distribution of livestock ownership, and the use of 'wild' natural resources. Data is analysed in terms of the two variables mentioned above – site and income tercile.

8.2.1.1 Residential sites

All of the households surveyed at Ntubeni, i.e. 40 out of 40 (100%), and 33 out of the 39 households surveyed at Cwebe (84.6%), reported having their own residential sites (Table 21). Of the remaining 6 households at Cwebe, two had not been allocated sites after being resettled under the betterment programme (and were consequently 'squatting' on the sites of others), one had moved to Cwebe after being evicted from a farm and had presumably failed to gain permission to establish their own site (this household was also 'squatting' on another person's site), and one was the household of a woman that had moved back to build on her parents site following the disappearance of her husband. Of the remaining two, one did not answer the question, and for the other, there was no reason offered.

8.2.1.2 Gardens and fields

39 of 40 households surveyed at Ntubeni (97.5%), and 34 of the 39 households surveyed at Cwebe (87.1%), had access to arable land in the form of a garden or a field[33] (Table 21). However, the number of households owning fields at Cwebe (30 out of 39 (76.9%)) was significantly higher than at Ntubeni (11 out of 40 (27.5%)) (χ^2=17.4; *df*=1; p<0.001). Few households had neither a garden

[33] See Chapter 3, Section 3.3.8 for a description of the differences between gardens and fields.

nor a field. With respect to the intra-village distribution of fields, most of the households owning fields at Ntubeni lived at Gume, while there was no discernable spatial pattern at Cwebe. With respect to income, the 11 households owning fields at Ntubeni were all either in the middle or top income tercile, i.e. none of the households in the poorest income tercile owned fields. At Cwebe, field ownership was equally distributed between all income terciles.

Table 21 - Land Holdings in the Study Villages

	Ntubeni *(n=40)*	Cwebe *(n=39)*	Combined *(n=79)*
Residential Site	40	33	73
Garden	39	31	70
Field	11	30[a]	41
Garden or Field	39	34	73
Neither Garden nor Field	1	3	4

[a] The status of four households was unclear due to missing data.

While all households actively used their gardens, not all households used their fields. Non-usage of fields was significantly higher at Ntubeni than at Cwebe (χ^2=7.1; *df*=1; p<0.01). For instance, of the 30 households with fields at Cwebe, 8 (26.6%) had not used them in the summer preceding the household survey. Of the 11 households with fields at Ntubeni, 8 (72.7%) had not used them. Various reasons were given for not using fields. These included: a lack of fencing, infertility of the soil, drought, lack of labour for weeding and animal damage.

Gardens varied considerably with respect to size, ranging between 150 m^2 and 10 000 m^2. Mean garden size at Ntubeni was, however, significantly larger than that at Cwebe (Table 22) (t=2.0; *df*=68; p<0.05), but as most households at Cwebe also had fields, it can reasonably be assumed that *total* arable holdings at Cwebe were larger than at Ntubeni[34].

Table 22 - Mean Garden Size by Village

	Ntubeni *(n=39)*		Cwebe *(n=31)*		Combined *(n=70)*	
	M^2	± S.E.	M^2	± S.E.	M^2	± S.E.
Mean Garden Size	2 787	356	1 668	411	2 301	276

[34] Due to various fieldwork constraints it was not possible to measure the size of fields as part of the household survey (Chapter 3, Section 3.3.8).

A breakdown of garden sizes by different size classes reveals that most gardens at Cwebe were smaller than 2 000 m^2, while at Ntubeni gardens up to 4000 m^2 were more common (Table 23). For the sample as a whole, only 8 out of 73 households (10.9%) had gardens larger than 6 000 m^2.

Table 23 - Household Distribution by Garden Size

	Ntubeni	Cwebe	Combined
< 2 000m^2	15	24	39
2 000 – 4 000 m^2	17	3	20
4 001 – 6 000 m^2	2	1	3
> 6 001 m^2	5	3	8
Total Households	*39*	*31*	*70*

With respect to crop diversity, households grew between 1 and 7 crops, with a median of 3. Households at Ntubeni grew, on average, a greater range of crops (3.9), than at Cwebe (3.2) (t=2.0; df=76; p<0.05). Despite the larger arable holdings at Cwebe, reported crop yields *per household* were remarkably similar between the two samples (Table 24). Crop yields, however, differed considerably between households, ranging from as little as 11 kg to as much as 1 700 kg. Crop yields per hectare (a reflection of garden production only, due to the absence of field size data) ranged from 158 kg per hectare to 5 989 kg per hectare with a mean of 1 757 kg per hectare. Maize yields per hectare ranged from 22 kg per hectare to 3 438 kg per hectare, with a mean of 747 kg per hectare. Maize accounted for 41.6% of total crop output at Ntubeni and 46.7% at Cwebe.

Table 24 - Mean Crop Yield by Study Village

	Ntubeni *(n=40)*		Cwebe *(n=39)*		Combined *(n=79)*	
	Kg	± S.E.	Kg	± S.E.	Kg	± S.E.
All Crops						
- Yield per household[1]	384	39	366	75	377	38
- Yield per hectare[2]	1 757	306	-	-	-	-
Maize Only						
- Yield per household	160	22	171	36	164	16
- Yield per hectare	747	141	-	-	-	-

[1] Gardens and fields.
[2] Households making use of gardens only.

Only one of the households surveyed managed to meet its subsistence maize requirements, calculated in terms of the minimum subsistence requirement of 175 kg of maize per person per year (ARDRI, 1989) (Table 25). The majority of households, 50 out of 79 (63.2%), produced less than a quarter of their subsistence maize requirement.

Table 25 - Proportion of Maize Consumption Met by Production by Study Village
(based on 175 kg per person per year)

	Ntubeni	Cwebe	Total
MAIZE			
Up to 25%	24	26	50
25% to 50%	8	5	13
51% to 75%	5	4	9
76% to 100%	0	0	0
More than 100%	1	0	1
n/a	2	4	6
Total Households	*40*	*39*	*79*

To sum up, although nearly all households actively engaged in cultivation, the level of this engagement was highly differentiated. A considerable range in garden size, number of crops grown, and crop yields was evidence of this. Despite the continuing interest in cultivation, few, if any, households were able to cultivate enough to see them through to the next season. Despite the general absence of fields at Ntubeni, households there were able to obtain similar total yields to those at Cwebe. Garden sizes at Ntubeni were, however, on average, bigger than those at Cwebe.

8.2.1.3 Livestock holdings

The most common forms of stock owned in the study area were pigs (75 households owned them (94.9%) and poultry (74 households owned them (93.6%) (Table 26). The mean number of pigs owned by households at Ntubeni was significantly higher than the mean number owned at Cwebe (t=2.0; df=73; p<0.05), but there was no significant difference in the mean number of poultry owned (t=0.4; df=69; p>0.05).

Forty-nine of the 79 households surveyed kept cattle (62.0%), with a mean across all households of 3.7 cattle. The mean herd size among households owning cattle was 6.0. Based on resident household members only, i.e. *de facto* household size, the per capita cattle holdings was 0.6 cattle per head for all households and 0.9 per head among those households owning cattle. The largest cattle herd captured in the Ntubeni survey numbered 22 animals, while the largest cattle herd at Cwebe numbered 17 animals. The difference in the mean herd sizes between the two villages was, however, not significant (t=0.72; df=47; p>0.05).

Thirty-one households (39.2%) kept goats, with a mean across all households of 3.2. The mean herd size among households owning goats was 7.5. The difference in the mean herd sizes between the two villages was not significant (t=0.7; df=32; p>0.05).

Ownership of sheep and equines was relatively common at Cwebe, but rare at Ntubeni. Whereas 15 of the 39 households at Cwebe owned sheep (38.4%), and 12 owned equines (30.7%), only one household at Ntubeni owned sheep, and only one owned equines. The mean number of sheep owned across all households at Cwebe was 5.9, with an average flock size among households owning sheep of 16.5[35].

Table 26 - Livestock Ownership by Village.

	Ntubeni *(n=40)*		Cwebe *(n=39)*		Total *(n=79)*	
	No.	± S.E.	No.	± S.E.	No.	± S.E.
Cattle						
- Households Owning	24	-	25	-	49	-
- Mean: All Households	3.9	0.8	3.5	0.7	3.7	0.5
- Mean: Cattle Owning Households	6.5	1.0	5.5	0.8	6.0	0.6
Goats						
- Households Owning	16	-	15	-	31	-
- Mean: All Households	2.9	0.6	3.6	1.0	3.2	0.4
- Mean: Goat Owning Households	6.8	0.8	8.2	1.7	7.5	0.9
Sheep						
- Households Owning	1	-	15	-	16	-
- Mean: All Households	0.1	0.1	5.9	1.7	3.0	0.9
- Mean: Sheep Owning Households	5	-	16.5	3.3	14.8	3.1
Equines						
- Households Owning	1	-	12	-	13	-
- Mean: All Households	0.0	0.0	0.5	0.1	0.2	0.1
- Mean: Equine Owning Households	1	-	1.5	0.3	1.5	0.3
Pigs						
- Households Owning	39	-	36	-	75	-
- Mean: All Households	3.6	0.4	2.4	0.3	3.0	0.3
- Mean: Pig Owning Households	3.7	0.4	2.6	0.3	3.2	0.2
Poultry						
- Households Owning	36	-	35	-	74	-
- Mean: All Households	6.8	0.9	7.3	0.9	7.1	0.7
- Mean: Poultry Owning Households	7.5	0.9	8.1	0.9	7.8	0.6

[35] When four households that had more than 20 sheep were excluded, the mean flock size decreased to 9 ± 0.9 S.E.

With respect to household income, there was no difference in the proportion of households in the three income terciles that owned cattle (χ^2=1.21; *df*=2; *p*>0.05) (Table 27). Cattle holdings among households in the top income tercile were, however, considerably larger than those of other income groups (*F*=6.66; *df*=2, 43; *p*<0.01) - the mean size of herds among households in this group was nearly twice the size as those of others. Households in Income Tercile I, i.e. the poorest households, owned marginally more cattle than those in the middle income tercile.

There was no significant difference in the proportion of households owning goats, when separated by income group (χ^2=0.65; *df*=2; *p*>0.05), and no significant difference in the size of goat herds (*F*=0.03; *df*=2, 28; *p*>0.05).

Sheep ownership was evenly distributed across the income terciles, and the large amount of variation within the groups, meant that the observed difference in mean numbers owned was not significant (*F*=2.35; *df*=2, 11; *p*>0.05). However, 4 of the 5 households with more than 12 sheep were lower-income households.

There was no significant difference in the proportion of households owning equines (χ^2=2.53; *df*=2; *p*>0.05), and the sub-sample sizes were too small to test for differences between the means.

There was no significant difference in the proportion of households owning pigs (χ^2=2.09; *df*=2; *p*>0.05), or in the mean number owned across the household income terciles (*F*=1.30; *df*=2, 66; *p*>0.05).

There was no significant difference in the proportion of households owning poultry (χ^2=1.22; *df*=2; *p*>0.05). Lower-income households, however, had significantly fewer poultry than those in Income Terciles II (*t*=2.13; *df*=43; *p*<0.05) and III (*t*=2.27; *df*=41; *p*<0.05).

The picture that emerges from the disaggregation of livestock assets in the study villages can be summarised as follows:

- Micro-livestock, in the form of pigs and poultry, were the most commonly owned animals, with over 90% of households owning them. Sixty-two percent of households had cattle, 39.2% had goats, 20.3% had sheep, and 16.5% had equines.
- With respect to site differences, sheep and equines were almost exclusively found at Cwebe, but households at Ntubeni owned, on average, a greater number of pigs than those at Cwebe.

- With respect to income, there were no significant differences in the proportion of households owning different kinds of livestock across the three income terciles.
- However, households in the top income tercile that owned cattle, owned nearly twice as many cattle as other households. Households in the bottom income tercile owned fewer pigs than households in the two other income groups.

Table 27 - Livestock Ownership by Income Tercile.

	Income Tercile I *(n=25)*		Income Tercile II *(n=24)*		Income Tercile III *(n=24)*	
	No.	± S.E.	No.	± S.E.	No.	± S.E.
Cattle						
- Households Owning	17	-	16	-	13	
- Mean: All Households	3.3	0.7	2.9	0.7	5.0	1.2
- Mean: Cattle Owning Households	4.8	0.7	4.3	0.8	9.2	1.5
Goats						
- Households Owning	9	-	11	-	11	-
- Mean: All Households	2.8	1.3	3.3	1.0	3.4	0.9
- Mean: Goat Owning Households	7.8	3.1	7.2	1.0	7.5	1.1
Sheep						
- Households Owning	5	-	5	-	4	-
- Mean: All Households	4.9	2.4	1.8	0.8	2.2	1.3
- Mean: Sheep Owning Households	24.4	7.6	8.6	1.1	13.3	5.3
Equines						
- Households Owning	6	-	2	-	3	-
- Mean: All Households	0.4	0.2	0.2	0.1	0.1	0.1
- Mean: Equine Owning Households	1.7	0.5	2.0	1.0	1.0	0.0
Pigs						
- Households Owning	23	-	24	-	22	-
- Mean: All Households	2.8	0.4	2.8	0.3	3.5	0.7
- Mean: Pig Owning Households	3.1	0.4	2.8	0.3	3.9	0.7
Poultry						
- Households Owning	22	-	23	-	21	-
- Mean: All Households	5.4	1.0	8.4	1.3	7.8	1.2
- Mean: Poultry Owning Households	5.6	0.8	8.7	1.3	8.9	1.2

8.2.1.4 Use of 'wild' natural resources

Apart from water, which everybody used, the three most heavily used natural resources in both villages (in terms of the proportion of households collecting them) were fuel wood (98.7%), edible wild plants (92.4%) and shellfish (75.9%) (Table 28). These were followed by building wood (46.8%), thatching grass (45.6%), and building sand (39.2%). Just under one third of households (32.9%) reported using medicinal plants or marine fish. Only 3 households (0.04%) reported using honey.

There were no significant differences in the proportion of households collecting water, fuel wood, thatching grass, wild edible plants, bark, medicinal plants or honey between the two villages. However, significantly more households at Ntubeni reported collecting building wood (χ^2=3.70; *df*=1; *p*=0.05), building sand (χ^2=8.44; *df*=1; *p*<0.01), marine fish (χ^2=7.81; *df*=1; *p*<0.01), and shellfish (χ^2=3.69; *df*=1; *p*=0.05), than at Cwebe.

Table 28 - Proportion of Households that had Used Selected Natural Resources in the Last Year by Village

	Ntubeni *(n=40)*		Cwebe *(n=39)*		Combined *(n=79)*	
	No.	%	No.	%	No.	%
Water	40	100.0	39	100.0	79	100.0
Fuel Wood	40	100.0	38	97.4	78	98.7
Building Wood	23	57.5	14	35.9	37	46.8
Building Sand	22	55.0	9	23.1	31	39.2
Thatching Grass	17	42.5	19	48.7	36	45.6
Wild Edible Plants	34	85.0	39	100.0	73	92.4
Bark	9	22.5	13	33.3	22	27.8
Medicinal Plants	12	30.0	14	35.9	26	32.9
Honey	0	0.0	3	7.7	3	0.0
Marine Fish	19	47.5	7	17.9	26	32.9
Shellfish	36	90.0	24	61.5	60	75.9

3 x 2 contingency tables revealed no significant differences in the numbers of households collecting any of the above natural resources between households in the three income terciles in both villages. Thus, there appeared to be no difference in the pattern of natural resource utilisation between poorer and richer households. All households could, therefore, be assumed to make similar use of natural resources for livelihood purposes, bearing in mind that data on amounts used, and frequency of trips, was not collected.

8.2.2 Physical assets

8.2.2.1 Agricultural equipment and transportation assets

Apart from hoes, which were owned by 36 of the 39 households (81.0%), rates of ownership of agricultural and transport assets were relatively low (less than 50% ownership frequencies in all categories) (Table 29). Very few households owned a bicycle or a car, and none owned a tractor. Under a third of households surveyed owned a plough or a sledge (30.4% and 27.8% respectively).

Table 29 - Ownership of Physical Assets by Village

	Ntubeni *(n=40)*		Cwebe *(n=39)*		Combined *(n=79)*	
	No.	%	No.	%	No.	%
Agricultural Equipment						
Spade	25	62.5	11	28.2	36	45.6
Hoe	36	90.0	28	71.8	64	81.0
Plough	15	37.5	9	23.1	24	30.4
Saw	20	50.0	13	33.3	33	41.8
Axe	22	55.0	11	28.2	33	41.8
Transportation Assets						
Motor Car	1	2.5	2	5.1	3	0.0
Bicycle	1	2.5	3	7.7	4	0.1
Horse	1	2.5	10	25.6	11	13.9
Sledge	9	22.5	13	33.3	22	27.8
Tractor	0	0.0	0	0.0	0	0.0

Rates of ownership of agricultural assets appeared to be higher at Ntubeni than at Cwebe, with differences in three of the categories being significant, i.e. spades (χ^2=9.36; *df*=1; p<0.01), hoes (χ^2=5.00; *df*=1; p<0.05), and axes (χ^2=5.83; *df*=1; p=0.01). There were no significant differences in the rates of ownership of transportation assets between the two villages, apart from the higher rate of horse ownership at Cwebe (χ^2=8.82; *df*=1; p<0.01).

There was little difference in the ownership of assets by households in different income groups. However, the trend indicates a lower ownership rate of agricultural assets across all categories by households in the bottom income tercile. More than two thirds of the households in this income category do not have ownership of a spade, a plough, a saw or an axe. Households in this income category do better with respect to ownership of transportation assets such as horses and sledges. Households in the middle income tercile were notable for the relatively high proportion owning

sledges, while households in the top income tercile own significantly more bicycles than those in other income groups (χ^2=8.64; *df*=2; *p*=0.01).

Table 30 - Ownership of Physical Assets by Income Tercile

	Income Tercile I *(n=25)*		Income Tercile II *(n=24)*		Income Tercile III *(n=24)*		Level of Significance
	No.	%	No.	%	No.	%	(χ^2)
Agricultural Equipment							
Spade	7	28.0	12	50.0	13	54.2	NS
Hoe	19	76.0	21	87.5	21	87.5	NS
Plough	7	28.0	8	33.3	9	37.5	NS
Saw	6	24.0	12	50.0	11	45.8	NS
Axe	7	28.0	11	45.8	13	54.2	NS
Transportation Assets							
Motor Car	1	4.0	0	0.0	1	4.1	NS
Bicycle	0	0.0	0	0.0	4	16.7	**
Horse	5	20.0	1	4.1	3	12.5	NS
Sledge	7	28.0	10	41.6	5	20.8	NS
Tractor	0	0.0	0	0.0	0	0.0	NS

NS = Not significant; * p ≤ 0.5; ** p ≤ 0.01; *** p ≤ 0.001

8.2.2.2 Housing infrastructure

The number of housing units per residential site ranged between 1 and 6, with a mean of 2.7 at both villages. The majority of these houses were single roomed rondavels (70.6%) and most houses were constructed of mud bricks (69.7%) (Table 31). Most housing units had thatched roofs (71.0%) with rafters built of gum poles (77.6%). 29.1% of the homesteads had guttering and 21.5% had water storage equipment (either plastic containers or a rainwater tank). Housing densities ranged from 0.7 people to 9.0 people per housing unit. The mean number of people per housing unit was 2.6 ± 0.2 S.E.

Significant differences between the villages were the greater proportion of square and 'modern' houses at Ntubeni (χ^2=24.71; *df*=1; *p*<0.001 and χ^2=7.38; *df*=1; *p*<0.01 respectively), and a greater proportion of rondavels at Cwebe (χ^2=36.74; *df*=1; *p*<0.001). Households at Ntubeni also made greater use of commercial pine rafters and zinc plated roofing (χ^2=10.93; *df*=1; *p*<0.001 and χ^2=42.82; *df*=1; *p*<0.001 respectively), while use of thatch was more common at Cwebe (χ^2=42.82; *df*=1; *p*<0.001). Rain-water retention equipment was also unequally distributed between the two

villages, with only 10.0% of homesteads at Cwebe having guttering, and 13.0% having water storage facilities, compared to 50.0% and 30.0% respectively, at Ntubeni.

There was no significant difference between the two villages with respect to the mean number of people per housing unit (t=1.01; df=77 p>0.05).

Table 31 - Housing Data by Village

	Ntubeni *(n=108)*		Cwebe *(n=106)*		Combined *(n=214)*	
	No.	%	No.	%	No.	%
Type of housing unit:						
- Round (single roomed)	56	51.9	95	89.6	151	70.6
- Square (single roomed)	25	23.1	1	0.9	26	12.1
- Hexagonal (single roomed)	6	5.5	3	2.8	9	4.2
- 'Modern' (multi-roomed)	19	17.6	6	5.6	25	11.7
Wall construction:						
- wattle and daub	18	16.7	25	23.6	43	20.1
- mud brick	79	73.1	70	66.0	149	69.6
- cement brick	11	10.2	11	10.4	22	10.3
Rafters:						
- gum poles	76	70.4	90	84.9	166	77.6
- indigenous wood	6	5.5	8	7.5	14	6.5
- commercial pine	26	24.1	8	7.5	34	15.9
Roofing material:						
- thatch	55	50.9	97	91.5	152	71.0
- zinc plates	53	49.1	9	8.5	62	29.0

With respect to income, a greater proportion of houses in the bottom income tercile were constructed from wattle and daub (χ^2=14.70; df=2; p=0.001), and had thatch roofs (χ^2=12.2; df=2; p<0.01), compared with other groups (Table 32). A greater proportion of houses in the top income tercile had walls constructed from cement bricks (χ^2=8.45; df=2; p<0.05), had commercial pine rafters (χ^2=6.78; df=2; p<0.05), and had zinc roofs (χ^2=12.2; df=2; p<0.01). With an average of 3.2 ± 0.3 S.E. people per house, houses in the bottom income tercile were more crowded than in the middle income (2.4 ± 0.4 S.E.) and higher income terciles (1.9 ± 0.2 S.E) (F=5.11; df=2, 70; p<0.01). There were no significant differences in the proportions of households in the different income terciles with respect to ownership of guttering (χ^2=1.28; df=2; p>0.05), or rain-water storage facilities (χ^2=2.42; df=2; p>0.05).

Table 32 - Housing Data by Income Tercile

	Income Tercile I *(n=62)*		Income Tercile II *(n=72)*		Income Tercile III *(n=70)*		Level of Significance
	No.	%	No.	%	No.	%	(χ^2)
Wall construction:							
- wattle and daub	21	33.9	15	20.8	5	7.1	***
- mud brick	36	58.1	54	75.0	52	74.3	NS
- cement brick	5	8.0	3	4.2	13	18.6	*
Rafters:							
- gum poles	53	85.5	57	79.2	49	70.0	NS
- indigenous wood	4	6.5	7	9.7	5	7.1	NS
- commercial pine	5	8.0	8	11.1	16	22.9	*
Roofing material:							
- thatch	51	82.3	54	75.0	39	55.7	**
- zinc plates	11	17.7	18	25.0	31	44.3	**

NS = Not significant; * $p \leq 0.5$; ** $p \leq 0.01$; *** $p \leq 0.001$

To sum up this section on physical capital,

- Ownership of agricultural and transport assets was unevenly distributed, with relatively few households owning a plough or a sledge.
- More households at Ntubeni owned agricultural equipment (spades, hoes and axes) compared to Cwebe. Horse ownership was, however, higher among Cwebe households.
- Poorer households tended to have lower rates of ownership of agricultural assets across all categories.
- A number of different housing types and building materials existed, but single roomed rondavels constructed of mud bricks were the most common.
- There was a trend away from 'traditional' rondavels at Ntubeni, in favour of more modern square houses with zinc roofs.
- Households tended to use different building materials depending on their socio-economic position. Lower-income households were more likely to use wattle and daub for building walls, and thatch for roofing, than other income groups. Higher income houses, on the other hand, were more likely to use cement bricks, commercial pine rafters and zinc roof plating.
- The average housing density, which was consistent between the two villages, was 2.6 people per housing unit. Housing density showed a clear correlation with income (Chapter 7, Section 7.2.5), with housing density among the lower-income households averaging 3.2 people per housing unit. Among higher income households it was 1.9.

8.2.3 Human assets

The mean household size among those households surveyed was 8.5 (Table 33). Households had on average 2.3 members absent, with a mean of 1.5 members being away for employment purposes, and 0.3 members away for schooling purposes. The remainder that were away were not seeking work for various reasons. Of the 1.5 people per household that had left for employment purposes, 0.9 were employed in either a full or part time position, and 0.6 were unemployed. This means that there was about a 60.0% chance that workers that migrated to the cities would find work. Employment prospects for those that remained at home were far bleaker, with only 0.1 of the 1.3 people per household of economically active age having employment (7.7%). Nine out of every ten people employed were employed outside of the study area. The unemployment rate for both resident and absent work seekers combined was approximately 65.5%.

Households in the study area had, on average, 0.7 people of pensionable age per household. However, of the 57 pensioners recorded in the survey, 12 (21.1%) were not receiving pensions.

A key difference between the villages was the vastly higher rates of absenteeism at Ntubeni relative to Cwebe (t=4.77; df=77; p<0.001). As a result households at Cwebe had significantly larger resident populations than those at Cwebe (t=2.27; df=77; p<0.05).

There was no significant difference in the mean number of adults[36] between the two localities (t=1.35; df=77; p>0.05), but due to the lower rate of migration at Cwebe, households at Cwebe had a greater number of adults present (t=3.58; df=77; p<0.001), while those at Ntubeni had a greater number of adults away. Ntubeni households had a greater mean number of children that were away (t=3.14; df=77; p<0.01).

With respect to the gender and location of the adult population, the proportion of adult males that were absent from Ntubeni (41 out of 59 (69.5%)) was significantly higher than at Cwebe (23 out of 56 (41.1%) (χ^2=9.40; df=1; p<0.01). The difference was even greater with respect to the proportion of female adults absent, with 39 of the 66 adult females captured in the survey (51.3%) being absent at Ntubeni, and only 9 of the 68 adult females (13.2%) at Cwebe being absent (χ^2= 23.42; df=1; p<0.001).

[36] Defined as people of economically active age; i.e. 16 to 64 years in the case of males, and 16 to 59 years in the case of females. In South Africa, males of 65 years, and women of 60 officially become pensioners.

Households at Ntubeni had, on average, twice as many adults employed than households at Cwebe (t= 2.39; df=77; p<0.05). However, households in both villages had similar numbers of adults seeking work, although the bulk of those seeking work at Cwebe were resident members, while at Ntubeni there was a more even split between those that were present and those that were away.

There was no significant difference in the mean number of people of pensionable age between the two localities (t= 0.88; df=77; p>0.05), or in the rate of uptake of pensions.

Education levels among all adults at Ntubeni were, however, significantly higher than those at Cwebe (t= 4.59; df=75; p<0.001).

Table 33 - Household Composition by Village (mean number of people)

	Ntubeni *(n=40)*		Cwebe *(n=39)*		Combined *(n=79)*	
	No.	± S.E.	No.	± S.E.	No.	± S.E.
Household Size	9.0	0.7	8.0	0.5	8.5	0.4
- Home	5.6	0.4	7.0	0.5	6.3	0.3
- Away	3.5	0.5	1.0	0.2	2.3	0.3
Adults	3.5	0.3	3.2	0.2	3.3	0.2
- Home	1.4	0.2	2.4	0.2	1.9	0.1
- Away	2.0	0.3	0.8	0.1	1.4	0.2
Children	4.1	0.4	3.7	0.3	3.9	0.3
- Home	3.2	0.3	3.6	0.3	3.4	0.2
- Away	0.9	0.2	0.2	0.0	0.5	0.1
Adults Employed [1]	1.3	0.2	0.7	0.1	1.0	0.1
- Home	0.2	0.1	0.1	0.1	0.1	0.1
- Away	1.2	0.2	0.6	0.1	0.9	0.1
Adults Seeking Work	1.9	0.2	1.9	0.2	1.9	0.1
- Home	0.8	0.2	1.7	0.2	1.2	0.1
- Away	1.0	0.2	0.2	0.1	0.6	0.1
People of Pensionable Age	0.8	0.1	0.6	0.1	0.7	0.1
People Receiving a Pension	0.6	0.1	0.5	0.1	0.6	0.1
Years Education Per Capita (Adults)	6.3	0.4	3.8	0.4	5.0	0.4

[1] Includes those employed on a part-time basis.

There was no significant difference in mean household sizes for households in different income groups (F=2.04; df=2, 70; p>0.05), although poorer households had a greater mean number of people present (F=13.06; df=2, 70; p<0.001). While there was no difference in the number of adults between the income terciles, the bottom income tercile had the highest mean number of children

(F=4.28; df=2, 70; p<0.05), and the highest mean number of adults at home (F=7.98; df=2, 70; p<0.001).

With respect to employment, there was no difference in the mean number of people employed (F=2.45; df=2, 70; p>0.05) in the different income groups. However, households in the bottom income tercile had the highest mean number of people seeking employment (F=3.41; df=2, 70; p<0.05). The unemployment rate among households in this income tercile was 78.6%, among households in the middle income tercile it was 59.4%, and among households in the top income tercile it was 52.0%.

Table 34 - Household Composition by Income Tercile (mean number of people)

	Income Tercile I *(n=25)*		Income Tercile II *(n=24)*		Income Tercile III *(n=24)*		Level of Significance
	No.	± S.E.	No.	± S.E.	No.	± S.E.	*(F)*
Household Size	9.4	0.8	8.3	0.8	7.3	0.6	NS
- Home	8.0	0.6	6.1	0.4	4.3	0.4	***
- Away	1.5	0.4	2.3	0.5	3.0	0.5	NS
Adults	3.8	0.4	4.0	0.5	3.6	0.3	NS
- Home	2.6	0.3	2.3	0.3	1.2	0.2	***
- Away	1.2	0.3	1.8	0.4	2.4	0.4	NS
Children	4.9	0.5	3.7	0.5	3.0	0.5	*
- Home	4.6	0.5	3.3	0.3	2.4	0.3	***
- Away	0.3	0.1	0.5	0.3	0.5	0.2	NS
Adults Employed	0.6	0.3	1.3	0.2	1.2	0.2	NS
- Home	0.0	0.0	0.1	0.1	0.3	0.1	*
- Away	0.6	0.2	1.2	0.3	0.9	0.2	NS
Adults Seeking Work	2.2	0.3	1.9	0.3	1.3	0.2	*
- Home	1.8	0.3	1.1	0.3	0.6	0.1	**
- Away	0.5	0.2	0.8	0.3	0.7	0.2	NS
People of Pensionable Age	0.6	0.2	0.9	0.2	0.9	0.2	NS
People Receiving a Pension	0.3	0.1	0.7	0.1	0.8	0.2	*
Years Education per Capita (Adults)	4.4	0.5	5.2	0.7	6.0	0.5	NS

NS = Not significant. * p ≤ 0.5; ** p ≤ 0.01; *** p ≤ 0.001

There was no significant difference in the mean number of people per household of pensionable age between the three income groups (F=0.96; df=2, 70; p>0.05). However, there was a significant difference between the mean number of people *receiving* pensions (F=4.45; df=2, 70; p<0.05), with less than half of those qualifying for pensions in the lowest income group actually receiving them.

There was also no significant difference in the mean number of years education per capita among the different household income groups (F=0.82; df=2, 70; p>0.05).

Human capital at Dwesa/Cwebe can be summed up as follows:

- Households were generally large, averaging 8.5 members. Each household had, on average, 2.3 members absent, the majority having migrated for employment purposes.
- The unemployment rate was approximately 65.5%, but it was far higher for those adults living in the village, and lower for those that had migrated.
- The rate of migration at Ntubeni was considerably higher than at Cwebe. While this was the case for both sexes, the greatest difference lay in the higher proportion of females that were migrating at Ntubeni. The mean resident household size at Cwebe, including the number of adults present, was larger than at Ntubeni, because of the lower rate of migration.
- Nearly twice as many adults at Ntubeni were employed than at Cwebe. The bulk of those seeking work at Cwebe were resident in the village.
- Education levels at Ntubeni were considerably higher than at Cwebe.
- Poorer households had a greater mean number of people present than households in other income groups. As a result there were more adults and children present in poorer households.
- There was no difference in the mean number of people employed per household in the different income groups. However, poorer households had a higher unemployment rate (defined as the number of people that said they were seeking work).
- Poorer households had fewer members receiving a pension than households in other income groups, but there was no difference in the levels of education between the household income groups.

8.2.3 Social capital

8.2.3.1 Family and kinship networks

As in many African societies, social capital between, and within, households in the study area took the form of rights and obligations that were embedded within kinship relations and social networks (Hammond-Tooke, 1974). While ties between immediate family members, i.e. parents and children

were probably stronger than those between extended family members, i.e. cousins, members of the same clan, etc., extended kinship ties were extremely important in that they facilitated inter-household assistance in the form of labour or food sharing. It was this sense of kinship morality that less well off people appealed to in times of need. Kinship networks were also important with respect to receipt of remittances from urban-based family members. Rural-urban kinship and social networks were also important for support structures for work-seekers migrating to the cities.

8.2.3.2 Inter-household cooperation

Even at the non-kin level, a morality of mutual assistance prevailed. Social values represented by the terms *Ubuntu* (humanness) and *Ubumelwane* (neighbourliness), placed an obligation on the better-off off to assist those that were destitute. These values were reinforced and supplemented by Christian values, which many families, particularly at Ntubeni, subscribed to.

In the agricultural sphere, work parties (*amalima*) and informal ploughing companies (*umfeladawonye*) were important traditional institutions of reciprocity that helped ensure that households with limited production capacity were able to maintain the means to produce (cf. McAllister, 2001; Fay, 2003). Work parties were organised through the recruitment of neighbourhood 'section' members and were used for a wide variety of activities, such as hoeing, weeding, harvesting crops, making mud bricks, collecting thatching grass and plastering houses. The gender of people in work parties was largely determined by the nature of the task to be performed. For instance, a work party for making mud bricks would typically only involve women, a work party to cut and collect building wood would involve only men, while a hoeing work party could involve both men and women. While people recruited to take part in a work party were ‘reimbursed’ in some form (maize beer, a meal, etc.), participation in work parties was more of a moral obligation than simply an economic transaction. Work parties were reciprocal labour arrangements in the sense that a person participating in a work party would expect the person they were working for to, in turn, make themselves available should they organise a work party at a later date. Work parties were an efficient way to get a job done quickly, but not all households could afford to host them. Those that could not afford work parties recruited labour on a smaller scale, sometimes seeking voluntary assistance from kin, or employing people in return for basic commodities such as paraffin, sugar, etc. These households were at a distinct disadvantage, however, as it would take a lot longer to complete agricultural activities that needed to be completed quickly, such as weeding or harvesting.

Ploughing companies were informal arrangements, normally between male kin people, but also between friends, that involved the pooling of productive equipment such as oxen, ploughs, planters and labour (cf. Heron, 1990; Fay, 2003). The seniority of a member in a company was usually

determined by his position and status in the lineage. McAllister (2001) described how the timing of ploughing and planting was crucial for crop production, and that only a small 'window' period existed in which conditions were favourable. As decisions concerning the order of ploughing were normally based on the relative value of the contribution of a household to the ploughing company, those with little to contribute were, therefore, most at risk of reaping poor harvests due to having ploughed or planted late.

8.2.3.3 Leadership structures

The forms of social capital described above mostly took place at lower hierarchical scales of social organisation, e.g. cooperation between neighbours, kin, etc. Levels of social capital tended to decline as the scale of organisation increased. For instance, at the time of the study, there was little cooperation between residents of Ntubeni and the headman of the ward of which it formed a part. The reasons for this lack of cooperation were unclear, but they were, in part, the result of dissatisfaction with the role played by the headman in supporting betterment planning and other unpopular government interventions. Conflict was also evident between residents of the three sub-wards at Ntubeni. This conflict could be traced to the planned location of the new primary school. Residents of Ngomane sub-locality wished the new school to be built at the existing site of an old missionary school in their area (the location of the existing school at the time), while the residents of the other two sub-localities (Mkuhlu and Gume), and the headman, supported the planned relocation of the new school to Mkuhlu, as this was a more central site. The conflict over the siting of the school was an emotive issue, and, long after the school had eventually been built at Mkuhlu, it was evident that the legacy of this conflict continued to sour relations between the various village sections. As a result there was limited cooperation between village sections.

While the institution of traditional leadership was better respected at Cwebe than at Ntubeni, few respondents were satisfied with the quality of leadership of the headman, describing him as being of poor character. His role was almost purely ceremonial, as his ability to mobilise developmental resources was limited. At both Cwebe and at Ntubeni, village leadership was more effective at the sub-locality level, because it was at this level that people identified themselves more strongly as a 'community'. This stems from the historical pattern of decentralised authority structure and residential settlement among the Cape Nguni (Sansom, 1974), where decision-making power over everyday activities rested closest to the level of production. Village elders, who were also sometimes sub-headmen, took up the leadership mantle at this level. Social capital was, therefore, probably strongest at the level of the neighbourhood or neighbourhood 'section', as it was at this level that most forms of cooperative organisation, including decisions regarding land use, took place.

8.2.3.4 Development committees

At the time of the study, the post-1994 ANC government's Reconstruction and Development Programme (RDP), and the rhetoric of 'people-centred development', inspired people in the study area to organise themselves into various development oriented committees. At Cwebe a local RDP committee was formed, with the purpose of communicating the community's needs to the government. An equivalent committee, referred to as a Resident's Association, was established in Ntubeni (Ngomane sub-locality). However, given the overwhelming extent of the need for development in the rural areas, government departments were slow to respond to community representations. With little government engagement forthcoming, the committees soon lost their sense of purpose and, after a while, they dissolved, having achieved very little in terms of mobilising development resources.

A number of women's groups arose at about the same time throughout the study area. Their focus was also on development, but unlike the RDP committees who dealt with issues such as roads and water, the women's committees were set up to promote income-earning projects. One such group, Phakamani Women's Association, was established in Cwebe in 1995. Projects identified were poultry farming, gardening and craftwork (such as the weaving of grass mats and baskets, the sowing of traditional clothes, and beadwork). An equivalent women's association was formed in Ntubeni (Ngomane sub-locality) in 1995. This association, which doubled as a gospel choral group, had the intention of staging choir concerts to raise money for local development projects. However, constraints faced by these women's groups, such as a lack of project skills, funds, training support, and competing demands on women's time, proved to be overwhelming. By 1999, upon completion of the fieldwork associated with this research, little progress had been made in getting any of the envisaged income-earning projects off the ground.

8.2.4 Financial capital

8.2.4.1 Cash Income

Eight categories of cash income were identified in the study area. They were: local occasional work (e.g. weeding, *ad hoc* employment by the nature reserve, plastering houses, fixing kraals, etc.), local employment (e.g. conservation rangers, cleaners, general labourers, domestic workers, etc.), self-employment (e.g. carpentry, building, informal trading, etc.) state welfare transfers (e.g. old age pensions, disability grants, child support grants, etc.), migrant remittances, sale of crops, sale of livestock and sale of crafts.

Many of these income sources, such as crop sales, occasional work, sale of crafts, etc., were irregular. The only forms of cash income that could be regular were wages derived from local work and social welfare grants. However, there was much variation in the regularity of receiving remittances between different households, the regularity of receipt being largely dependent on the personal circumstances and level of commitment of the remitter. Welfare payments could also be interrupted from time to time (Chapter 6, Section 6.2.2.5).

The most *common* source of cash income was state welfare grants (58.9% of households were receiving them), followed by remittances (42.5%) (Table 35). The most *valuable* income sources recorded in the survey were self-employment (R13 300 per annum) and local employment (R10 986 per annum), but only a small proportion of households had access to these (4.1% and 11.0% respectively). State welfare grants, worth substantially more than remittances (t=2.02; df=72; p<0.001), offered the next best return. The sale of crafts and crops, worth R596 and R203 respectively, offered the lowest returns. Only 11.0% of the households surveyed derived income from these sources.

Significant differences between the two villages were the proportions of households deriving income from occasional work (11% at Ntubeni; 4% at Cwebe (χ^2 = 3.83, df = 1, p=0.05)), from crop sales, and from local employment (17.9% at Ntubeni, 2.9% at Cwebe in both cases (χ^2 = 4.19, df = 1, p<0.05)). There were no significant differences in the mean values of income sources between the two villages.

Table 35 - Number of Households Deriving Income from Different Income Sources and Mean Annual Income from each Source

	Ntubeni *(n=39)*		Cwebe *(n=34)*		Combined *(n=73)*			
	No.	%	No.	%	No.	%	Rands	± S.E.
State Welfare Grants	21	53.8	22	64.7	43	58.9	6 627	399
Remittances	17	43.6	14	41.2	31	42.5	2 563	468
Occasional Work	11	28.2	4	11.8	15	20.5	1 063	264
Livestock sales	6	15.4	6	17.6	12	16.4	1 582	360
Crop Sales	7	17.9	1	2.9	8	11.0	203	43
Crafts	6	15.4	2	5.9	8	11.0	596	269
Local Employment	7	17.9	1	2.9	8	11.0	10 986	1 533
Self-employment	1	2.5	2	5.9	3	4.1	13 300	6 236

With respect to income groups, access to welfare grants was lowest in the bottom income tercile (40.0% of households), and highest in the top income tercile (75.0% of households) (χ^2 = 6.39, df = 2, p<0.05). Households in the highest income tercile were most likely to derive an income from

local employment (25.0% of households, as opposed to 4.1% and 0.0% in the middle and bottom income terciles respectively (χ^2 = 10.2, *df* = 2, $p<0.01$)). While there was no difference in the proportion of households in the three income groups receiving remittances (χ^2 = 0.37, *df* = 2, $p>0.05$), the mean values of remittances were significantly higher for households in the top and middle income terciles (R3 950 ± 3 440 S.E. per annum and R2 736 ± R2 239 S.E. per annum respectively), than for households in the bottom income tercile (R1 145 ± 1 037 S.E. per annum). No other significant differences existed between either the proportions of households deriving income from a source, or in the mean value of a source.

8.2.4.2 Cash savings

Despite the widespread poverty in the study area, 37.8% of households reported saving money (Table 36). Both formal and informal methods of saving occurred. Formal methods involved savings accounts at banks or post offices and/or insurance policies, while informal methods involved rotating credit associations (*imigalelo*). With respect to the latter, different kinds of savings clubs existed, but they normally involved a group of twelve individuals, with the members deciding in advance on the value of the monthly premiums. Premiums were pooled and each month a different member would receive a lump sum payout. Savings clubs were relatively unsophisticated (e.g. there was no interest), but unlike more formal means of saving, they did not involve travel or postage costs. They were also flexible as members could agree to swop their payout months in accordance with their personal cash needs.

Given the study area's isolation from urban-based services, such as banks and post offices, it was not surprising that more households were using revolving credit associations (27.0%) than formal methods of saving (20.3%). Categories of savings methods were not exclusive, however, with a quarter (25.0%) of the households that were saving, making use of more than one type.

Table 36 - Proportion of Households that were Saving by Village

	Ntubeni *(n=39)*		Cwebe *(n=35)*		Combined *(n=74)*	
	No.	%	No.	%	No.	%
Informal Credit Associations (*Imigalelo*)	13	33.3	7	20.0	20	27.0
Savings Accounts or Insurance Policies	12	30.8	3	8.6	15	20.3
Any of the Above	19	48.7	9	25.7	28	37.8

A significant difference existed with respect to the proportion of households that were saving in the two villages, the proportion of households saving at Ntubeni (48.7%) being nearly twice as large as at Cwebe (25.7%) (χ^2 = 4.15, *df* = 1, $p<0.05$). This difference is the result of the greater use of formal savings methods at Ntubeni relative to Cwebe (χ^2 = 5.62, *df* = 1, $p<0.05$).

With respect to income, the results indicate significant differences in the savings patterns of households in the three income groups (Table 37). Only 8.0% of households in the bottom income tercile were saving money, as opposed to over 50% in the middle and top income terciles (χ^2 = 13.1, *df* = 2, *p*=0.001). While the middle and top income terciles were making equal use of revolving credit associations, households in the top income tercile were making significantly greater use of formal methods of savings (χ^2 = 11.0, *df* = 2, *p*<0.01).

Table 37 - Proportion of Households that were Saving by Income Quartile

	Income Tercile I *(n=25)*		Income Tercile II *(n=24)*		Income Tercile III *(n=24)*		Level of Significance
	No.	%	No.	%	No.	%	(χ^2)
Informal Credit Associations (*Imigalelo*)	2	8.0	9	37.5	8	33.3	*
Savings Accounts or Insurance Policies	1	4.0	4	16.7	10	41.7	**
Any of the Above	2	8.0	13	54.2	13	54.2	***

NS = Not significant. * p ≤ 0.5; ** p ≤ 0.01; *** p ≤ 0.001

8.2.5 Livelihood strategies and outcomes

The above sections have described, in some detail, the range of livelihood assets that were available (or not available) to households in the study area. This section examines the various ways in which different households combine assets in their quest to generate viable livelihoods.

8.2.5.1 A typology of livelihoods

Households were classified into seven livelihood strategies on the basis of the relative income that they derived from welfare, employment and agricultural income (Table 38) (Chapter 3, Section 3.3.9). The most frequently occurring livelihood strategy was dependence on welfare income (26%), followed by dependence on welfare income in combination with agriculture (21.9%). 16.4% of the households in the survey had livelihoods based primarily on employment, and 13.7% had livelihoods based on a combination of employment and agriculture. Only 12.3% of households were primarily dependent on agriculture for their income, 6.8% being primarily dependent on livestock production, the remainder being dependent on a combination of livestock and cultivation. No households had livelihoods based primarily on cropping.

Those households with livelihoods primarily derived from livestock production were all located at Cwebe, this being the only significant difference in either the proportion of households in the

various livelihood categories, or in the mean annual incomes of households in the various livelihood categories, between the two villages ($\chi^2 = 6.16$, $df = 1$, $p=0.01$).

Table 38 - Livelihood Strategies by Village

	Ntubeni *(n=39)*		Cwebe *(n=34)*		Combined *(n=73)*			
	No.	%	No.	%	No.	%	Rands	± S.E.
Welfare Dependent	10	25.6	9	26.5	19	26.0	7 888	508
Employment Dependent	8	20.5	4	11.8	12	16.4	11 554	2 273
- of which Remittance Dependent	1	2.6	2	5.9	3	4.1	5 667	2 243
- of which Wage Dependent	4	10.3	1	2.9	5	6.8	15 489	2 149
- of which Self-employment Dependent (incl. Crafts)	2	5.1	1	2.9	3	4.1	14 091	6 658
Agriculture Dependent	3	7.7	6	17.6	9	12.3	8 666	1 799
- of which Livestock Dependent	0	0.0	5	14.8	5	6.8	9 703	2 492
- of which Cropping Dependent	0	0.0	0	0.0	0	0.0	-	-
Combining Income Sources: Welfare & Employment	1	2.6	0	0.0	1	1.4	7 381	-
Combining Income Sources: Welfare & Agriculture	6	15.4	10	29.4	16	21.9	13 602	1 518
Combining Income Sources: Employment & Agriculture	7	17.9	3	8.8	10	13.7	7 617	1 323
Combining Income Sources: Welfare, Employment & Agriculture	4	10.3	2	5.9	6	8.2	19 566	5 229

A greater proportion of households in the bottom income tercile (7 out of 25 (28.0%)) were dependent on agricultural livelihoods than those in the middle (2 out of 24 (8.3%)) or top income terciles (0 out of 24 (0.0%)) ($\chi^2 = 9.41$, $df = 1$, $p<0.01$) (Table 39). The 5 households at Cwebe that were dependent on livestock were all located in the bottom income tercile. Apart from agriculture and livestock dependency, there were no other significant differences in the proportions of households in the different livelihood categories across income groups. However, the selection of multiple categories in the context of a reasonably small sample population meant that this particular analysis suffered from small sub-sample groups. When the categories were merged into the three categories of welfare dependent, employment dependent and agriculture dependent[37] (Table 39), clear differences between the income groups emerged. Households in the middle income tercile dominated in the category 'welfare dependent' (70.8% of households), households in the top income tercile dominated the category 'employment dependent', and households in the bottom income tercile dominated the category 'agriculture dependent'.

[37] Households previously categorised in the categories 'Combining Income Sources' were re-categorised in terms of the income source making the biggest contribution to total household income.

Table 39 - Livelihood Strategies by Income Tercile

	Income Tercile I *(n=25)*		Income Tercile II *(n=24)*		Income Tercile III *(n=24)*		Level of Significance
	No.	%	No.	%	No.	%	(χ^2)
Welfare Dependent	9	36.0	17	70.8	10	41.7	*
Employment Dependent	3	12.0	2	8.3	9	37.5	*
Agriculture Dependent	13	52.0	5	20.8	5	20.8	*

NS = Not significant. * $p \leq 0.5$; ** $p \leq 0.01$; *** $p \leq 0.001$

8.2.5.2 Income portfolios

An analysis of the income portfolio for both villages combined indicated that livelihoods were more or less equally spread between agriculture, employment and social welfare (Table 40) (Chapter 3, Section 3.3.10). With respect to agriculture, livestock production, in the form of in-kind income from goods and services, made a considerably bigger contribution to household income than did cropping. Of the five sub-categories of employment income, the sub-categories wages and remittances, were most important. 36.3% of all income recorded in the household survey (cash and in-kind) was derived from social welfare grants.

Table 40 - Income Portfolios by Village

	Ntubeni *(n=39)*		Cwebe *(n=34)*		Combined *(n=73)*	
	Rands	%	Rands	%	Rands	%
Crops	32 578	7.5	19 211	5.5	51 789	6.6
- Own Consumption	31 133	7.2	19 031	5.4	50 164	6.4
- Sales	1 445	0.3	180	0.1	1 625	0.2
Livestock	112 104	25.9	119 291	33.9	231 395	29.5
- Own Consumption	102 704	23.7	109 711	31.2	212 415	27.1
- Sales	9 400	2.2	9 580	2.7	18 980	2.4
Sub-total Agriculture	*144 682*	*33.4*	*138 502*	*39.4*	*283 184*	*36.1*
Wages	64 900	15.0	12 000	3.4	76 900	9.8
Remittances	50 960	11.8	28 500	8.1	79 460	10.1
Occasional Work	12 650	2.9	3 290	0.9	15 940	2.0
Craft Production	4 660	1.1	110	0.1	4 770	0.6
Self-employment	13 500	3.1	26 400	7.5	39 900	5.1
Sub-total Employment	*146 670*	*33.8*	*70 300*	*20.0*	*216 970*	*27.6*
Social Welfare Grants	142 200	32.8	142 740	40.6	284 940	36.3
Total	*433 552*	*100.0*	*351 542*	*100.0*	*785 094*	*100.0*

The income portfolio for Ntubeni indicated a more even spread between agriculture, employment and social welfare grants, than did the income portfolio for Cwebe. At Cwebe, households were more heavily reliant on income from agriculture and social welfare grants, than they were on employment income. The proportion of income from cropping was marginally higher at Ntubeni than at Cwebe, both in terms of its value for own consumption and for selling. The proportional contribution of livestock income was, however, considerably higher at Cwebe than at Ntubeni.

There was a considerable difference between the relative proportions of wage income in the income portfolios for the two villages. 15.0% of all income recorded in the survey at Ntubeni was derived from local waged employment, while at Cwebe wages contributed only 3.4%. Proportional contributions from remittances, occasional work and craft production were higher at Ntubeni, than at Cwebe. Income from self-employment, however, made a bigger contribution to the income portfolio for Cwebe, than it did for Ntubeni. 40.6% of all income recorded at Cwebe was derived from social welfare grants, compared to 32.8% at Ntubeni.

Table 41 depicts the income portfolios for the three household income terciles. Households in the bottom income tercile relied most on income from agriculture (54.4%), households in the middle income tercile relied most on social welfare grants (49.5%), and households in the top income tercile relied most on employment income (40.1%). Income among households in the top income tercile was, however, more evenly spread than was the case in the other income groups.

The proportional contribution of agriculture to households in the bottom income tercile (54.4%) was considerably higher than for households in the middle and top income terciles (31.9% and 30.5% respectively). This resulted from the greater proportional worth of income from own consumption cropping, livestock goods and services, and livestock sales among poorer households. The proportion of income from crop sales was marginally higher among households in the middle income tercile.

Wages contributed considerably more to the income portfolios of households in the top income tercile, than to those of other income groups. In fact, wage income made absolutely no contribution to the income portfolio of households in the bottom income tercile, and contributed only 3.6% to the income portfolio of households in the middle income tercile. The proportional contribution of income from remittances, occasional work and craft production was more evenly spread between the income terciles. Although low, income from occasional work made the greatest proportional contribution to the portfolios of households in the bottom income tercile, while households in the top income tercile were the only income group deriving income from self-employment. Income

from social welfare grants made the greatest proportional contribution to households in the middle income tercile, and the smallest proportional contribution to households in the top income tercile. The proportional contribution of social welfare grants to the top and bottom income terciles were notably similar.

Table 41 - Income Portfolios by Income Tercile

	Income Tercile I *(n=25)*		Income Tercile II *(n=24)*		Income Tercile III *(n=24)*	
	Rands	%	Rands	%	Rands	%
Crops	14 204	8.4	17 654	7.5	19 931	5.3
- Own Consumption	14 104	8.3	16 807	7.1	19 253	5.1
- Sales	100	0.1	847	0.4	678	0.2
Livestock	77 864	46.0	57 428	24.4	96 103	25.3
- Own Consumption	68 684	40.6	54 828	23.3	88 903	23.4
- Sales	9 180	5.4	2 600	1.1	7 200	1.9
Sub-total Farm	*92 068*	*54.4*	*75 082*	*31.9*	*116 034*	*30.5*
Wages	0	0.0	8 400	3.6	68 500	18.0
Remittances	12 600	7.5	27 360	11.6	39 500	10.4
Occasional Work	6 140	3.6	5 500	2.3	4 300	1.1
Craft Production	1 910	1.1	2 560	1.1	300	0.1
Self-employment	0	0.0	0	0.0	39 900	10.5
Sub-total Employment	20 650	12.2	43 820	18.6	152 500	40.1
Social Welfare Grants	56 400	33.3	116 580	49.5	111 960	29.4
Total	*169 118*	*100.0*	*235 482*	*100.0*	*380 494*	*100.0*

8.2.5.3 Diversification as a livelihood strategy

Households in the study area had, on average 3.3 income sources, ranging between 1 and 7 (Table 42). The mean number of income sources at Ntubeni, however, was significantly higher than at Cwebe (t=2.76; df=71; p<0.01). The mean Shannon-Weaver score (an index of diversity that combines both the number of income sources and the evenness in the spread of income across income categories; Chapter 3, Section 3.3.11) was also higher at Ntubeni than at Cwebe (t=2.17; df=71; p<0.05). However, there was no significant difference in the mean evenness scores, an index that measures only the spread of income, between the two villages.

Table 42 - Income Diversity by Village

	Ntubeni *(n=39)*		Cwebe *(n=34)*		Combined *(n=73)*	
	No.	± S.E.	No.	± S.E.	No.	± S.E.
Mean Number of Income Sources	3.6	0.2	2.9	0.2	3.3	0.1
Mean Shannon-Weaver Score	0.83	0.13	0.65	0.11	0.75	0.04
Mean Evenness Scores	0.65	0.03	0.61	0.05	0.63	0.03

There were no differences in the mean number of income sources, the mean Shannon-Weaver score, or the evenness score with respect to income terciles (Table 43).

Table 43 - Income Diversity by Income Tercile

	Income Tercile I *(n=25)*		Income Tercile II *(n=24)*		Income Tercile III *(n=24)*		Level of Significance
	No.	± S.E.	No.	± S.E.	No.	± S.E.	*(F)*
Mean Number of Income Sources	3.0	0.2	3.5	0.2	3.4	0.3	NS
Mean Shannon-Weaver Score	0.73	0.06	0.79	0.07	0.72	0.09	NS
Mean Evenness Scores	0.67	0.05	0.65	0.04	0.58	0.06	NS

8.3 Discussion

8.3.1 Access to land and agricultural production

The fact that 15.4% of the households surveyed at Cwebe did not have access to a residential site reflects the increasing demand for land at Cwebe. Land shortages in this village were the result of a combination of factors. These included i) the continuance of field-based agriculture, and ii) high population density in areas demarcated for residential settlement. The two were, of course, related in that field cultivation required more land, leaving less land available for settlement. Overcrowding in residential areas was said to stem from the 'compaction' of households into demarcated settlement areas during the betterment planning intervention (cf. McAllister, 1992).

Most households (92.4%) did, however, have access to land for growing crops, although again the proportion of households *without* access to arable land was higher at Cwebe (12.8%) than at Ntubeni (2.5%). The fact that garden sizes at Ntubeni were, on average, bigger than those at Cwebe, suggests that households at Ntubeni had enlarged the area of land under gardens to compensate for the land lost by the abandonment of fields. Quite why households at Ntubeni had

abandoned field-based cropping while households at Cwebe continued to pursue it is difficult to explain. Andrew (1992) documented a similar trend away from fields in favour of home gardens at Shixini, approximately 50 kilometres to the south of Ntubeni. She explained the trend in terms of a loss of productivity of fields due to a lack of resources (including labour), drought and low soil fertility. Andrew (1992) and McAllister (1999) have shown that garden cultivation holds a number of advantages over field cultivation in the context of labour shortages: being smaller, they are easier to fence, easier to manure, and easier to guard against theft and animal damage. Some of these factors were clearly in evidence at Ntubeni. In addition to bushpig damage and declining fertility (Chapter 4, Section 4.2.1), a lack of fencing (Chapter 5, Section 5.2.9), a shortage of labour at Ntubeni was also likely to constrain field-based production – only 42.9% of the adult population was present at the time of the survey (Section 8.2.3). However, with respect to labour, the direction of causation is unclear, i.e. was it a case of the declining prospects of field-based cultivation leading people to leave the area in search of other sources of livelihood income, or was it the departure of people in search of jobs that lead to the decline in field-based cultivation?

None of the above reasons adequately explains why field-based cultivation continued to be pursued at Cwebe, and not at Ntubeni. While localised differences in soils between the two villages have been noted (Chapter 4, Section 4.2.2), it is unlikely that this environmental factor alone can account for the difference. More plausible is the hypothesis that residents at Cwebe have not yet made the transition from livelihoods based on agriculture and male contract migrancy (the 'old' pattern of livelihood generation in the rural Transkei, (Hawkins Associates, 1980; de Wet, 1987; Moll, 1988; Nattrass and Nattrass, 1990), to the more modern variant of home-based gardens and urban migration, of both men and women, in sectors other than the traditional sector of mining. The reasons for this phenomenon are likely to be the outcome of historical socio-political factors, ethnicity factors, and ideological factors relating to 'traditional' versus 'modern' value systems (see Fay *et al.*, 2002a; Fay, 2003, for a detailed account of the history and anthropology of the area).

A characteristic of gardens in the study area was the large range in sizes between different households. This finding is in keeping with other studies that have documented marked differentiation between garden sizes in the Transkei (Hawkins Associates, 1980; May 1987; ARDRI, 1989; CIET International, 1998; McAllister, 1999; Bank, 2001; ARDRI, 2001). At Ntubeni, variations in garden size appeared to be related to household income and the size of cattle holdings, rather than the amount of labour available (Chapter 7, Section 7.2.5).

Comparative data suggests that gardens in both areas were relatively small (mean size of 2301m^2 for the villages combined) with respect to neighbouring coastal wards. For instance mean garden size at Shixini in 1999 was calculated as 6 514 m^2 (McAllister, 2000), and at Mboya[38] it was in the region of 5 000 m^2 (Bank, 2001). A recent survey of 300 households in the Mbashe municipal area (which included both inland and coastal wards in Elliotdale and Willowvale Districts), put average garden size at 4 193 m^2 (ARDRI, 2001). May (1987) estimated that the minimum size of arable land that a family of five permanent members would require to be self-sufficient was 46 000m^2. However, this figure is surely too high, as McAllister (2000) found that at Shixini, 11 of the 16 households that he surveyed were able to meet their subsistence requirements, despite having gardens considerably smaller than this. In a study conducted by Bembridge (1984), local residents in three inland sites reported the optimal size of arable land to be between 30 000 – 40 000m^2. However, this was before the more recent trend away from fields in favour of smaller, more intensively cultivated gardens.

Despite maize yields from gardens at Ntubeni (747 kg per hectare) being slightly higher than the 500 kg per hectare normally quoted for the region (Bank, 2001), only one of the households surveyed managed to meet its subsistence maize requirements. The majority of households (63.2%) produced less than a quarter of their subsistence maize requirement. However, two methodological issues need to be considered here. First, reported maize yields may have been underestimated due to difficulties with capturing this kind of data (see McAllister, 2000 for a critique of questionnaire-based surveys). McAllister (2000) found that, in addition to various technical and cultural constraints that he describes, people generally understated their yields when asked to report on them. This lead him to conclude that calculations of mean maize yields based on questionnaire surveys were often "utterly misleading" (McAllister, 2000:8). Second, the estimated amount of maize required for a household to meet its subsistence needs, i.e. 175 kg per person, may be unrealistically high. While this figure is similar to that resulting from more recent research in KwaZulu-Natal - 180 kg per person (IDEAA, 2001 cited in Bank, 2001) - it does not take into consideration the different consumption levels of different age groups. Children require less food than adults, and women require less food than men (Cavendish, 2002). Thus, in a situation such as at Dwesa/Cwebe, where children outnumber adults by approximately 2:1, and resident women outnumber resident men by approximately 1.8:1, the estimated figure of 180 kg per person may be inappropriate. The use of nutritional weightings for different sex and age groups (as used in the calculation of adult equivalent values) may yield a more realistic measure of maize subsistence

[38] Like Shixini, Mboya is a coastal ward to the south of the Dwesa/Cwebe area.

needs (see Collier *et al.*, 1986 for a listing of nutritional weightings developed by the World Health Organisation).

Despite the use of gardens and fields at Cwebe, reported crop yields *per household* were remarkably similar between the two samples. This suggests that the productivity of gardens at Ntubeni equalled that of gardens and fields combined at Cwebe. However, the lack of data on field sizes at Cwebe made this difficult to verify.

Research on cultivation in the Transkei tends to focus only on the staple crop, i.e. maize (cf. Beinart, 1992). However, the inclusion of other crops in this survey highlighted the important role of non-maize crops in local production systems. At Ntubeni and Cwebe, non-maize crops - predominantly beans, pumpkins, sweet potatoes, and cabbages - contributed 55.9% to overall crop output in terms of weight. Thus, calculation of yields and subsistence needs, based only on maize output, may be an inappropriate indication of agricultural production in the rural areas.

8.3.2 Livestock holdings

Most households in both villages owned livestock assets, in one form or another. Nearly all households (>90%) owned pigs and chickens and these types of 'micro-stock' were clearly important as a food source (cf. Kepe, 2002a; Fay 2003). Ownership of 'macro-stock', i.e. cattle, sheep, goats and equines, was less equally distributed, although there was no indication that the proportion of households owning either macro- or micro-stock was influenced by income. This finding is in contrast to that of other studies that found a positive correlation between wage earning households and those with stock (Hendricks, 1990; Beinart, 1992).

With respect to cattle ownership, rates of ownership and herd sizes were similar to those reported in other studies of the coastal districts of the Wild Coast (Institute for Management and Development Studies, 1986; ARDRI, 1989; Andrew, 1992). 62.0% of households at Dwesa/Cwebe owned cattle. This was higher than the 50% that Beinart (1992) estimated for the whole of the Transkei and confirms his hypothesis that rates of cattle ownership were "probably higher in the coastal than inland districts" (Beinart, 1992:182). Per capita cattle holdings, both among all households and among those households owning cattle, were, however, very similar to that estimated by Beinart for Transkei as a whole, i.e. 0.5 and 1.0 cattle per person respectively.

While income did not appear to influence the proportion of households owning cattle, it did influence the number of cattle owned by households in the different income terciles. However, as pointed out in Section 7.2.5 (Chapter 7), the relationship between income and the number of cattle

owned was not simply a direct positive correlation. Rather, as the data in Table 27 indicated, households in the bottom and middle income terciles had similar mean numbers of cattle (although those in the bottom income tercile had marginally more), while the mean herd sizes rose considerably among households in the top income tercile. Higher income households obviously have the means to purchase larger numbers of cattle and the data suggest that there is no decrease in interest among richer households with respect to investment in livestock. The fact that the mean herd size among households in the bottom income tercile was marginally higher than that of households in the middle income tercile suggests that, despite limited income, poorer households were actively seeking to invest in cattle as a livelihood strategy. This was probably due to the fact that households in the bottom income category had more incentive to build up cattle herds as they had little access to either employment or welfare income. As a result they were more dependent on the goods and services (including sales) derived from cattle. This stresses the 'safety net function' of livestock for the poorest households (Andrew *et al.*, 2003).

It should be pointed out, however, that there was a large degree of variation in the livestock holdings of the poorest households, and this was likely to have influenced the results. For example, three of the households in the bottom income tercile, all residents of Cwebe, were clearly seeking to secure a livelihood from livestock - one had 10 cattle, 27 sheep and 28 goats; another had 8 cattle, 50 sheep and 20 goats; while the third had 10 cattle and 27 sheep. Other households in this income tercile had relatively few livestock. While it is not clear how the three households mentioned above managed to accumulate such relatively high numbers of livestock in the absence of fixed income sources, each of these households had sold animals in the 12 month period preceding the survey. It would seem reasonable to conclude that these four households had chosen to adopt a livelihood strategy based predominantly on livestock farming as a means to secure a livelihood. This suggests that households in the different income terciles cannot be considered homogenous in terms of asset holdings and livelihood strategies and that, therefore, an analysis that is based purely on mean asset holdings *between* groups might disguise some of the differentiation that exists *within* groups.

A key difference between the villages was the virtual absence of sheep and equines in the livestock portfolios of households at Ntubeni. While interviewees at Ntubeni offered different reasons why sheep were not kept, e.g. there were too many ticks, there was not enough short grass; the owner of the one large sheep flock at Ntubeni attributed the absence of sheep to the fact that the State no longer offered a free vaccination service. However, this did not adequately explain why households at Cwebe continued to keep sheep. The reasons were probably a combination of the withdrawal of extension services and ecological factors. Hammond-Tooke noted in 1957 that: "Willowvale is not

a big sheep farming area" (1957:72), presumably implying that the ecological conditions were not good for sheep farming (cf. ARDRI, 2001).

According to Bembridge (1979), a minimum of 11 cattle is needed for a herd to be biologically and economically viable for subsistence purposes. However, this says nothing about herd composition, which is another important factor. For example, for a household to be self-sufficient in ploughing the herd would need to include at least four oxen. Relatively few households (8.8%) had 11 or more cattle. Assuming that households aspired to have viable cattle herds then for most households increasing the size of their herds was likely to be a key livelihood objective. Building up herd sizes was also a key strategy to minimize losses during droughts (Chapter 6, Section 6.3.7).

In two recent reviews of livestock farming in rural areas, Ainslie (2002b) and Andrew *et al.* (2003) found that there was no evidence to suggest an overall decline in the importance of livestock to rural livelihoods. Rather, in the context of declining economic returns from employment, the 'safety net' function of livestock appeared to be growing in importance as a means to supplement incomes. This pattern accords well with the situation observed at Dwesa/Cwebe.

8.3.3 Natural resource use

Apart from water, which everybody used, the three most heavily used natural resources in both villages (in terms of the proportion of households collecting them) were fuel wood, edible wild plants and shellfish (Table 26). With respect to water, this was sourced either from springs, rivers or streams, or from rain-water collected from roofs. Water scarcity arose during the dry winter months when many of the springs would dry up, leading to greater pressure on the few springs that were perennial (Chapter 4, Sections 4.2.3 and 4.3.2). Ownership of rain-water retention and storage facilities, such as guttering and water tanks, was unequally distributed between the two villages, largely because of differences in housing styles. Thus, households at Cwebe, where traditional rondavels tended to dominate (Section 8.2.2.2), were less able to make use of rain-water, and hence were more reliant on surface water sources which were more polluted (Chapter 5, Section 5.2.3).

Fuel wood was another key 'wild' natural resource used by nearly all households. This was not surprising given the absence of electricity and the costs associated with purchasing paraffin[39]. The use of fuel wood in the study area was considerably higher than the 59% found in a study of more inland sites conducted by Mander and Quinn (1995). This difference is likely to be related to the

[39] This is not to imply that paraffin was not used in combination with fuel wood. The majority of households listed paraffin as their most important secondary source of fuel.

increased amount of woody vegetation in the coastal districts as well as the increased depth of poverty among isolated coastal communities[40]. Most households at Ntubeni collected fuel wood from the *Acacia* woodlands and from the smaller pocket forests in and around their village, while at Cwebe, fuel wood collection was more evenly split between the pocket forests and the nature reserve (Timmermans, 2002). The woodlots were not valued as a source of fuel wood due to the inferior burning qualities of *Eucalyptus* species (Chapter 4, Section 4.2.5).

Numerous authors have attested to the high nutritional value of edible wild plants in the carbohydrate-rich diet of rural Africans (Rose and Jacot-Guillardmod, 1974; Nesamvuni *et al.*, 2001 cited in Kepe, 2002b), and it was, therefore, not surprising that over 90% of households reported collecting and eating them. Analysis of the data found no difference in the proportion of households using edible wild plants between the two villages, nor between income terciles. However, a more detailed study of wild edible plants conducted in a coastal area of Lusikisiki (to the north-east of Dwesa/Cwebe) (Kepe, 2002b), found that the realised value of this food source benefited people in different ways depending on their socio-economic position. For instance, wild edible plants were more important to poorer households as they were least able to afford commercial alternatives (such as cabbage and spinach), while cattle owning households were more likely to have edible wild plants growing in disturbed kraal sites (*ibid.*). Based on replacement costs, Kepe's study (2002) found that the gross annual value of edible wild plants could be as high as R756 for poor households (cf. Shackleton *et al.*, 2001).

Given the widespread poverty in the area, it was also not surprising that most households surveyed collected shellfish. The eating of shellfish by coastal indigenous populations along the Wild Coast dates back several centuries (Bigalke, 1973; Derricourt, 1977; Feely 1987), and today the practice continues to be widespread (Lasiak, 1993; Kepe, 1997). Being rich in protein, shellfish is considered an acceptable alternative to meat which itself is eaten only on special occasions. It is also cherished for its virility improving qualities, and as a supplementary protein source, especially for growing children (Timmermans, 2002). In addition, some households are able to derive income from selling shellfish to tourists, although the local trade is limited due to the depressed local tourism market (Chapter 5, Section 5.3). According to Lasiak (1993), local sales of shellfish generated in the region of R20 per month for collectors at Ntubeni, and this figure was likely to be higher at Cwebe due to the presence of a hotel, and a greater number of private holiday cottages. Despite greater poverty at Cwebe, and a potentially bigger market, fewer households here (61.5%) reported collecting shellfish than at Ntubeni (90.0%). This was probably related to the fact that

[40] The average household income in the Mander and Quinn survey (1995) was R754 per month, compared to the average at Dwesa/Cwebe of R596 per month.

there was less rocky shore adjacent to Cwebe than was the case at Ntubeni, and collection inside the marine reserve was prohibited (Chapter 4, Section 4.3.5). For the five other villages in the greater study area, access to shellfish was heavily restricted by their separation from the sea by the nature reserve. For example, only 5% of households at Hobeni reported collecting shellfish (Timmermans, 2002), and this figure is likely to be representative of the other 'landlocked' villages adjacent the nature reserve. The issue of access to shellfish inside the marine reserve is highly contentious, and despite the existence of a conservation co-management committee, acceptable solutions to this problem have yet to be found (Chapter 4, Section 4.3.5).

The fact that a greater proportion of households at Ntubeni reported collecting wood and sand for building than at Cwebe, suggests that there was more building activity taking place at Ntubeni than at Cwebe. In both villages the majority of wood for building was collected from the nature reserve (Timmermans, 2002). Collection from the nature reserve required the payment of forestry tariffs (Lieberman, 1997), and it is likely that Ntubeni households were better able to afford these tariffs as opposed to households at Cwebe. However, the difference in the proportion of households collecting building wood between the two villages cannot be explained purely in economic terms, as there was no difference in the proportion of households collecting building wood between the three household income groups. The greater use of sand at Ntubeni may be attributed to the greater use of cement bricks, as opposed to mud bricks, in the construction of houses at Ntubeni. However, while the different usage of building material between the two villages was clearly observable, it was not validated by the survey results.

Considering the absence of adequate health care facilities in the area (Chapter 5, Section 5.2.7), the proportion of households *collecting* medicinal plants was relatively low. However, in the case of medicinal plants, collection rates to not necessarily equate with use rates as many people that use medicinal plants acquire them indirectly from herbalists, or traditional doctors/diviners. Kepe (2002) found that over 84% of households surveyed in his study *used* medicinal plants, and, given the similar ecological conditions in the two areas, the proportion of households *using* medicinal plants at Dwesa/Cwebe is likely to be comparable. As Kepe (2002) points out, medicinal plants could also be a source of income for those people specialising in informal health care provision. Based on an average price of R20 per kilogram, Kepe (2002) calculated the in-kind gross value of medicinal plant usage to be R960 per annum for a household of five adults. For households that were involved in the bulk trading of medicinal plants to urban markets (Mander, 1998; Dold and Cocks, 2002), households had the potential to make R4 800 per annum net profit (Kepe, 2002b). However, the relative isolation of Dwesa/Cwebe in relation to urban markets meant that there was

little evidence of this kind of bulk trade at the time of the study[41], although with the rural-urban trade network increasing its reach into the Transkei - southwards from Durban (Kepe, 2002b), and northwards from East London (Timmermans and Rouhani, 2001) - extension of the network to Dwesa/Cwebe was likely to occur. While this could open up new supplementary livelihood avenues for households in the study area, the illicit nature of the trade (most of the valued plant species are protected by legislation) could damage relationships between the communities and state conservation officials. In addition, without management systems in place, bulk harvesting might threaten the ecological integrity of the nature reserve, as well as undermine local supplies of traditional medicines.

In addition to human use, traditional plant-based medicines also played an important role in treating livestock diseases, particularly in the context of declining veterinary services (Chapter 5, Section 5.2.8). While little data exists for the study area, Dold and Cocks (2001) found that 16 of the 33 livestock ailments recorded in a study in Alice (in the former Ciskei homeland) were treated with traditional herbal remedies. Given the strong 'traditional' ethic, particularly at Cwebe, knowledge of medicinal plants usage for humans and livestock is likely to be high at Dwesa/Cwebe.

Given the proximity of the two villages to the sea, the proportion of households that had members that fished was relatively low. Fishing was, however, more common at Ntubeni than at Cwebe. This was partly as a result of the costs involved in purchasing equipment (rod, reel, tackle, etc.), and partly because of the greater levels of 'conservatism' at Cwebe (fishing was not considered a 'traditional' activity). Fishing was, however, an additional means of acquiring food and/or income, and the majority of those that fished were unemployed men. Returns varied depending on fishing conditions, but in 1998 a 'chest high' cob could fetch R40 in the village and R80 if sold to tourists. Certain rare fish, such as stingrays, could fetch between R200 and R500 for medicinal use, although buyers were often not readily available and storage was difficult (Timmermans, 2002).

From the above discussion it is apparent that 'wild' natural resources formed an important part of people's livelihoods, either as food, building materials, medicines, or as a means to acquire income. In addition to the 'wild' natural resources mentioned above, other important natural resources at Dwesa/Cwebe were bush meat, weaving grasses and sedges, and wood for handicrafts and technology (Lieberman, 1997; Timmermans, 2002). The questionnaire survey (Chapter 3, Section

[41] Small amounts of medicinal plants and bushmeat, were, however, finding their way to urban areas at the request of urban-based relatives. In these cases use was made of the long-distance bus service linking Ntubeni to Cape Town.

3.2.1) did not attempt to attach a financial value to the contribution of 'wild' natural resources, but some of the figures quoted above suggest that the potential value (cash or in-kind) to households is not insignificant. This is confirmed by a review of several studies across South Africa and Zimbabwe (Shackleton *et al.*, 2001) that puts the in-kind value of 'wild' natural resources to households in communal areas at between R2 300 and R7 200 per annum.

Kepe (2002b), and others (Cavendish, 1999; World Bank, 2002), maintain that it is the poorest households that are most dependent on natural resources, but this was not reflected in the survey results at Dwesa/Cwebe. This result requires validation however, as the survey instrument only captured the proportion of households in various income groups collecting various resources, not the frequencies of collection of resources, or the amounts harvested. In addition, in the section of the questionnaire on household income, households rarely mentioned income derived from 'wild' natural resources (apart from crafts), making it difficult to establish the value of trade in 'wild' natural resources between households. The absence of any relationship between income and natural resource use, as found in the survey, might simply be an indication of high rates of use of natural resources among *all* income groups, given that even households in the top income tercile were poor by national standards (Chapter 6, Section 6.3.1). Shackleton *et al.*, (2001) found that, with respect to the trade in natural resources, differentiation along income lines tended to increase with decreasing remoteness. While levels of commercialisation were generally low in 'deep' rural areas, in more 'developed' settlements, poorer households tended to specialise in certain areas of trade, with the richer households being the dominant consumers. However, with respect to in-kind income, Cavendish (1999) demonstrated that although better off households made greater use of natural resources in absolute terms, poorer households, by virtue of their limited income, were more dependent on natural resources in relative terms, and this was likely to be the case at Dwesa/Cwebe.

8.3.4 Ownership of physical assets

The low ownership rate of agricultural equipment and transportation assets was an additional indication of the impoverishment of households in the study area. The rates of ownership recorded at Ntubeni and Cwebe were, however, similar to those of the broader districts in which they occurred (ARDRI, 2001). Asset ownership appears to have declined considerably since the 1950's when Hammond-Tooke (1957:75), writing about Willowvale, observed that, "most families own a plough". This survey found that only 30.4% of households owned a plough, which is similar to the 34% found by McAllister at Shixini (McAllister, 1999). Declining asset ownership may be one reason for the decline in agricultural production observed in Willowvale since the 1950's (Andrew,

1992, Bank, 2001), although, as argued earlier with respect to the impact of increased migration, the direction of causation is unclear.

With respect to agricultural equipment, low rates of *ownership* did not necessarily imply a lack of *access* to equipment. This was because the existence of a high degree of social capital (Section 8.2.3) meant that households without equipment could count on assistance from friends, neighbours and/or kin that owned equipment. Evidence of inter-household cooperation is found in the differences between the number of households owning ploughs, and the number of households that said that they had used oxen for ploughing. For instance, at Cwebe only 23.5% of households owned a plough, but 97.0% of households reported having used animal traction for ploughing. At Ntubeni, 38.5% of households owned a plough, but 84.2% of households had used ox-drawn ploughs to plough their land. Add to this the fact that 32.4% of households at Cwebe, and 41.0% of households at Ntubeni did not own cattle, and the high rates of inter-household cooperation become self-evident (cf. ARDRI, 1989; McAllister, 1999). Possibly because of the sharing of assets between households, there was little difference in the proportion of households owning assets between the household income groups. Ownership of these kinds of physical assets may therefore not be as reliable an indicator of socio-economic differentiation between households, as is often implied in the livelihoods literature (Carney, 1998; Ellis, 1998; Scoones, 1998).

8.3.5 Housing infrastructure

Housing infrastructure, as represented by building styles, and by the degree of crowding within housing units, may be a better indicator of socio-economic differentiation, than ownership of agricultural equipment and transportation assets. The negative correlation between housing density and income was established and discussed in Sections 7.2.5 and 7.3 of the previous chapter. It was concluded that there was likely to be a demand for additional housing in the study area, particularly among poorer households. Data presented in this chapter further indicated that there was a clear preference for 'modern' houses constructed from cement brick, with commercial pine rafters and zinc roofs (Table 32). This represented a move away from the use of natural resources in house construction, by those that could afford to do so. It can be concluded, therefore, that with rising income, the kinds of houses built, and the materials used, are likely to change at Dwesa and Cwebe. Three potential implications of this anticipated trend are discussed below.

First, as commercial building materials cost a lot more than 'traditional' materials (Timmermans, 2000), the increased amount spent on housing is likely to affect other components of the livelihood system (Chapter 7, Section 7.1). This point was emphasised by Beinart (1992:187), when he speculated, on the basis of survey results in Bizana that found no correlation between income and

farm output, that the link between income and agricultural investment was breaking down. This he attributed to those earning above the average switching expenditure to food, consumer goods and housing. With respect to housing, he was of the opinion that houses were taking an increasing share of private income partly due to changing expectations and patterns of consumption, partly because of difficulties with farming, and because the natural resources for old-style housing construction were becoming less readily available. This fits with observations at Dwesa/Cwebe that younger migrant workers are increasingly investing their earnings in building 'modern' houses.

Second, the switch to 'modern' houses has the potential to impact negatively on those that derive an income from either collecting, or building, traditional houses. The building of a traditional rondavel can generate employment for a number of people of both sexes, all involved in different aspects of collection, or building. For example, it is not unusual for a household without its own labour supply to employ 7 women to make mud bricks, 1 man to do the brickwork, 1 man to cut the poles for the roof, 2 men to transport the poles from the forest, 1 man to build the roof, 6 women to collect thatch grass, and 2 men to do the thatching, thus creating employment opportunities for 20 people. In contrast, construction of 'modern' houses is unlikely to be as labour intensive, as most of the materials are sourced from outside of the area.

Third, the switch to 'modern' houses will potentially reduce the demand for local natural resources, thereby addressing fears that levels of resource harvesting, particularly of poles (Lieberman, 1997), are unsustainable. However, there is no indication that increasing income diminishes the demand for kraal wood and fencing material, and access to these natural resources is likely to remain an important livelihoods and sustainability issue in the area.

The above discussion on housing styles and building materials is, however, premised on a scenario of increasing household incomes at Dwesa/Cwebe. This scenario can of course not be assumed, as there is little to indicate that real incomes are likely to rise without specific development intervention. Poorer households, will for the foreseeable future, remain dependent on 'traditional' housing. With marginal increases in income, poorer households are also more likely to extend their homesteads using traditional housing styles, rather than to convert to more expensive 'modern' housing.

8.3.6 Human capital

Key features of human capital in the study area were the large household sizes (mean 8.5), the high rate of absenteeism of the adult population (42.4%), the high unemployment rate (65.5%), and the low levels of per capita education (5 years). Dwesa/Cwebe is not uncommon in this regard as these

features have long characterised the rural population in the Transkei more generally (Hawkins Associates, 1980; Andrew, 1992; Bekker *et al.*, 1992).

From a livelihoods perspective, large household sizes have both positive and negative features. On the positive side, large households mean a greater household labour pool, increasing the scope for diversifying livelihood activities (Ellis, 1998). In the context of a depressed labour market, a greater number of adults per household increases the chance of one or more adults finding employment, and becoming the 'breadwinner' for the household. On the negative side, large household sizes mean a greater number of dependents, with limited income having to be shared by a greater number of unemployed adults and children. At Dwesa/Cwebe, children outnumbered adults by more than 2:1.

With 65.5% of the adult population in search of employment, the ability to labour is the biggest *potential* human asset at Dwesa/Cwebe. However, the quality of the labour pool is compromised by the relatively poor health status of the communities (Chapter 6, Section 6.2.2.3), and by low levels of education, skills and knowledge (cf. Hawkins Associates, 1980). For instance, only 9.2% of the adult population had a post primary education, with 15.6% having received no education at all. These low levels of education (including literacy, knowledge and technological skills) considerably narrow the range of livelihood options that are available to households.

Ironically, in the context of a relatively wide-reaching social welfare system, and the high rates of unemployment, the biggest *real* human assets that households in the study area have, from an economic perspective, are old people and disabled people. These kinds of human assets (predominantly old people) were found in the majority of households (58.9%). However, with an average life expectancy among black males of 62.7 years, and black females of 68.3 years (Byrnes, 1997), the duration of which a household could realise the economic benefit of this kind of human asset was limited. In addition, life expectancy is expected to erode further with the impact of HIV/AIDS [42] (cf. SLSA Team, 2003a).

Levels of human capital differed considerably between the two villages. Key differences were the proportion of adults and children present and absent, the levels of unemployment, and the mean levels of education per household. These differences in human capital between Ntubeni and Cwebe contributed to the greater levels of poverty at Cwebe relative to Ntubeni and are important considerations in development planning in the area (Chapter 9, Section 9.4).

[42] According to a projection study by the University of South Africa's Bureau of Market Research, life expectancy in the Eastern Cape is predicted to decline to 37 years by 2015 (Daily Dispatch, 2003).

The poorest households were generally those with the greatest number of people present (as opposed to absent), the lowest levels of education, and the highest unemployment rate. While the distribution of old people among the different household income groups did not differ, the poorest households were least likely to be deriving an income from pensions. This was probably as a result of poor households not being able to afford the costs of travelling to pension registration points, and a lack of literacy skills required for filling in application forms. In addition, a number of households were excluded from the social security system due to their inability to secure a South African identity document. These households form part of the 15% of households nationally that qualify for State pensions but fail to receive them (Department of Social Development, 2002).

8.3.7 Financial capital

While remittances have for many years formed the 'back-bone' of the Transkeian rural economy (Southey, 1982; Muller and Tapscott, 1984), the results presented here indicate that, in more recent years, they have been supplanted by State welfare grants[43]. This is a result of the trend of declining remittances since the 1970's (Beinart, 1992) and the increase in the real value of pensions for black pensioners since 1993 (Schlemmer and Moller, 1997; Sagner, 2000). State welfare grants formed a particularly valuable income source as, unlike remittances that could be irregular, they were paid on a bi-monthly basis. Income from welfare grants could therefore be counted on for meeting day-to-day consumption needs.

Saving of income represented an important way of deferring income until a later date, with informal rotating credit associations being an important local method of saving (27.0% of the households surveyed used them). Buijs and Atherford (1995) found that rotating credit associations represented an adaptation of poor households to the inaccessibility of formal savings institutions. The annual payout from these schemes was an important way of raising capital for cash strapped households, enabling them to meet extraordinary costs such as extensions to homesteads, travel to distant urban centres, or payment of education costs.

Despite the remoteness of the study area, a number of households (20.3%) made use of banks and insurance policies as a means of savings, although the proportion of households doing so was considerably higher at Ntubeni than at Cwebe. Rates of savings were understandably lowest among the poorest households, further aggravating their vulnerability status.

[43] Studies by Statistics South Africa found that in the late 1990s pensions constituted approximately 40%, and remittances 23.4%, of household income in the Eastern Cape (Stats SA, 1999; 2002).

8.3.8 Social capital

Social capital in the study area was differentially situated with respect to types, and levels, of social organisation. Generally speaking, social capital was stronger in those types of social organisation that were considered 'traditional' (e.g. inter-household ethics of mutual cooperation and assistance) or familial (e.g. extended family networks), in the sense that they were part of the Cape Nguni cultural heritage and had a proven history. It was weaker, however, in those types of social capital that were considered more modern (e.g. working together through formal associations, such as committees). One exception, however, was the large amount of social capital exhibited by Christian church groups at Ntubeni, although Christianity at Ntubeni is not exactly 'modern' as the missionary influence in Willowvale district dates back to the 1880s (Chapter 5, Section 5.2.6).

Pat McAllister has reported extensively on the various forms of inter-household cooperation that continue to exist in rural Transkei (McAllister, 1981; 1992; 1999; 2001) and has emphasised their critical role in supporting the economy of the rural areas. McAllister argues that the importance of these forms of social capital is not adequately reflected in rural development policy discourses (McAllister, 2001).

8.3.9 Livelihood Strategies and Outcomes

Given the high rate of unemployment among households in the study area, it was not surprising that the most commonly pursued livelihood strategies were those based on welfare, and those based on a combination of welfare and agriculture (Table 38). Households that invested a portion of their welfare income into agriculture were, however, better off than those that relied on welfare income alone. Households that were able to derive income from welfare, agriculture *and* employment had the most successful livelihood strategy in terms of financial return. However, the proportion of households with this income profile was relatively low. Households with this livelihood strategy tended to have a greater than average number of adults, enabling them to diversify their livelihoods across these three economic sectors.

There is no denying the importance of employment - livelihoods based primarily on wage employment and self-employment had the second and third highest mean annual returns. Not surprisingly, access to these forms of employment income is what separated households in the top income tercile from households in other income groups. Greater access to local employment opportunities was also one of the reasons why wage income formed a greater proportion of overall income at Ntubeni relative to Cwebe (Table 40). With respect to agriculture, households at Cwebe

derived a greater proportion of their income from livestock, than those at Ntubeni, whereas those at Ntubeni did better with respect to cropping.

Real differences emerged in the livelihood strategies of households in the different income groups, and these differences appeared to follow a successional gradient based on access to welfare and employment income (Table 41). Households at the bottom end of the income scale typically do not have access to welfare or employment income. They consequently relied most heavily on income (cash and in-kind) derived from agriculture, particularly through keeping livestock (although, as mentioned earlier, there was much variation within the group). Households that had access to a social welfare grant were generally better off and these households dominated the middle income group. Households with access to employment income, in addition to welfare income, were clearly the best off of all households, and these households dominated the top income tercile.

Comparing the relative income returns from different livelihood activities does not, however, reveal much about the *resilience* of these strategies (Carpenter *et al.* 2001). For example, a household that is wholly dependent on wage income may be well off by local standards, but its lack of diversification across sectors makes it vulnerable to sudden changes in its employment status. Livelihood diversity is, therefore, a critical element in ensuring the longer-term security of livelihoods (Scoones, 1998; Ellis, 2000b). The livelihood income portfolio for the entire sample revealed a good spread between the three main livelihood sectors: welfare, employment and agriculture. This was a strength of the local livelihood pattern in the study area and can be interpreted as households spreading their risks in an effort to avert the impact of a disturbance in any one sector. However, as with many of the other variables analysed, the consolidated data set masks certain important differences between the two villages and between income groups. An important finding was that livelihoods at Ntubeni were clearly more diverse than those at Cwebe, both in terms of the mean number of income sources, and in the spread of income between sectors. In contrast, households at Cwebe were overly dependent on welfare and agriculture, with little participation in the employment sector.

No significant relationship between income and diversification was found when using the method of calculating diversity indexes (Table 42). However, examination of the income portfolios of the respective income groups (Table 41), as well as of their respective livelihood strategies (Table 38), revealed a distinctly better spread of income between sectors among the top income tercile, than other income groups. On the basis of this evidence it can be concluded that the livelihoods of the poorest households are likely to be less resilient, and more vulnerable, than those of better-off households.

8.4 Conclusion

This chapter has documented the household assets, livelihood strategies and livelihood outcomes found at Dwesa/Cwebe. Variations in these components of livelihoods were found to occur between the sites, between income groups, and even within income groups, adding weight to the proposition that livelihoods in the rural areas of Southern Africa are complex, varied and differentiated (Campbell *et al.*, 2002; SLSA Team, 2003a).

Valuation of the in-kind contribution of subsistence agricultural activities represented a departure from the norm of basing analyses of household production on cash income alone. While it was pointed out that refinements to some of the methods used may be required, e.g. in calculating crop yields, the inclusion of in-kind income revealed the degree to which households, particularly those in the poorest income group, were reliant on cropping and livestock husbandry, in addition to welfare and employment income. The in-kind value of 'wild' natural resources was not included in the analysis, but the high frequencies of use together with secondary data sources, suggested that access to a diverse and productive natural resource base formed a critical aspect of rural livelihoods at Dwesa/Cwebe.

Social capital, in the form of inter-household cooperation, stood out as a key enabling asset in the study area. Group work, and the sharing of assets between households, was important in that it broadened access to land-based livelihood opportunities, allowing households to supplement the limited returns from other income sources.

Finally, the analysis in this chapter emphasised the crucial role of state welfare grants and employment in the livelihoods of the rural poor. While the subsistence contribution of agriculture, particularly livestock, may be higher than previously thought, few households can survive on land-based livelihoods alone. As a result, access to a welfare grant, and/or to a wage, is what separates the 'chronically poor' from the better-off. The implication of this finding is that those concerned with the development of Dwesa/Cwebe will need to i) improve access to social welfare grants, and ii) find ways of increasing opportunities for employment in the area. With respect to the latter, the income portfolio of Cwebe suggests that this area should be prioritised for employment creation, so as to reduce the vulnerability resulting from a skewed dependence on welfare and agriculture.

Chapter 9 Conclusion

9.1 Introduction

Having addressed the research questions posed in Chapter 1, two questions remain to be dealt with. They are: i) How does the preceding analysis of livelihoods at Dwesa/Cwebe inform our understanding of livelihoods in rural areas, and, ii) what are the implications of these findings for local development strategies at Dwesa/Cwebe? Before addressing these questions, however, it is necessary to revisit the main findings of the core chapters, i.e. Chapters 4 – 8, and to discuss some of the main methodological lessons that emerged.

9.2 Summary of main findings and methodological lessons

From the examination of natural capital in Chapter 4 it was found that, despite the study area being relatively well-endowed with a rich and diverse natural resource base, the value of this natural capital to livelihoods was not being fully realised. Reasons for this included: a lack of access to the forests and shoreline within the nature reserve, restrictive conservation legislation reducing the scope for trade in natural resources, the under-development of tourism, and the existence of various environmental constraints (such as poor soils, 'sourness' of the veld, prevalence of ticks, bushpigs, etc.).

Chapter 5 focused on physical capital. It was found that key infrastructure and services, such as roads, electricity, water, communications, public transport, health care facilities, agricultural extension, and markets were either completely absent, or woefully inadequate. These factors contributed to the area's remoteness and its exclusion from the mainstream economy. Investment in the upgrading of infrastructure and services was seen as critical, both in terms of meeting basic needs, and in terms of increasing the scope for livelihoods.

In Chapter 6 an attempt was made to better understand the distribution and extent of poverty, and the nature of vulnerability, in the study area. Poverty levels were found to be high throughout the area, but they were particularly acute in the villages north of the Mbashe River, i.e. Hobeni and Cwebe. Factors contributing to the vulnerability status of the communities were: population pressure and land scarcity (although this was differentially situated), exposure to climatic shocks, poor health status (including rising levels of HIV/AIDS), job losses related to the under-performance of the macro-economy, and corruption and inefficiencies among agents of local

governance. The chapter ended with a number of suggestions for reducing the community's vulnerability in the context of these factors.

Chapter 7 used a systems approach to better understand the nature of the inter-relationships between various components of the general livelihood pattern in the study area. It was established that the system was highly complex, with a large degree of complementarity, as well as substitutability, between asset categories. Key determinants with respect to income, agricultural production, education and living conditions were identified. It was emphasised that livelihood patterns need to be viewed as holistic, integrated systems, and that development interventions based on sectoral approaches need to be avoided.

Chapter 8 provided an in-depth analysis of household assets, livelihood strategies and livelihood outcomes in the study area. Key findings were the high degree of variation in asset holdings and livelihood strategies between groups, the relatively high levels of dependence on agriculture and 'wild' natural resources (particularly among the poorest households), and the crucial importance of social capital, welfare grants and employment income.

9.2.1 Methodological lessons

The sustainable livelihood approach was useful in providing a means of organising the complex mix of factors that characterise rural life. In addition, the deconstruction of livelihoods into various inter-relating, yet distinct, components allowed for a broad and holistic analysis. The equal attention given to the five forms of capitals meant that, unlike in conventional micro-economic assessments, non-monetised assets, such as natural resources and social networks, received greater recognition. The approach was also useful in drawing attention to linkages between micro and macro economic factors as well as to the nature of rural-urban linkages.

Use of the livelihoods framework was not without its problems however. First, rural livelihoods are complex and focusing on the inter-relationships between components tends to unravel further levels of complexity. This is because everything appears to be related to everything else, making it increasingly difficult to identify causality between factors.

Second, there remains ambiguity with respect to the placement of various livelihood features. For example, livestock could be conceived of as either natural capital (a natural stock enabling livestock husbandry), financial capital (livestock are important means of saving), or as a livelihood outcome (for many people increasing the number of animals owned is a key livelihood objective). It is also not always clear what criteria should be used to decide on the placement of institutional

issues between 'social capital' and 'transforming structures and processes' (cf. Campbell *et al.* 2002).

Third, due to its all-encompassing nature, the sustainable livelihoods approach requires access to wide-ranging data of sufficient depth. This is not always easy to achieve in the context of constraints placed by tight project cycles and limited funding. In its intention to be 'people-centred' the approach places a strong emphasis on participatory research, using techniques such as Participatory Rural Appraisal (PRA) (Chambers, 1983). The question arises concerning the degree to which livelihoods research can take place using more conventional research instruments, such as household surveys, as was the case in this thesis. The most obvious draw-back, and one highlighted in this thesis, was the inability to adequately capture the potentially varying livelihood objectives of different households. The absence of this knowledge forces one to base analysis on the blanket assumption that income maximisation is the key livelihood objective when this may not be an accurate portrayal of the reality.

The limitations of household surveys have been exposed by a number of researchers (McAllister, 1999; Campbell *et al.*, 2002; Cavendish, 2002), and it would be misleading to imply that the quantitative data presented in this thesis was beyond reproach. Particular areas of concern relate to livestock, yields and income data. With respect to all of the above, it is well documented that rural people tend to under-report these aspects of their relative 'wealth'. This may be because they associate the researcher with future developmental or employment activity and feel it is in their interest to portray themselves as poorer than what they really are (household members are well aware that the poorest households are often targeted for dedicated development support). People may also under-report the number of livestock owned and yields achieved for fear of taxation (of which they have had experience in the past). The method of capturing income and expenditure data in one sitting, as was done in this research project, was also not ideal as it was difficult for people to recall accurately their income and expenditure over a twelve-month period. This was particularly problematic were household heads had low levels of numeracy. The methodology of using recall data based on repeat visits throughout the year is obviously preferable, but is not always feasible given project time constraints. Furthermore, identification of livelihood and natural resource trends requires access to longitudinal data and in many rural areas this kind of information does not readily exist. Longitudinal data is also required to capture the dynamic nature of household poverty status over time. Once-off household surveys can only capture 'snap shots' of livelihoods at any particular time and are inappropriate in capturing information on the longer-term trajectories followed by individual households. It is precisely these changes in livelihood trajectories that have the potential to inform a deeper understanding of the dynamic relationships between the many factors influencing livelihoods.

Lastly, although the sustainable livelihoods approach profiles the importance of qualitative aspects of livelihoods, it is not always clear how one goes about capturing appropriate data on these. Participatory poverty assessments have demonstrated that aspects such as well-being, quality of life, enhanced social status, spiritual fulfilment, etc. are important aspects of poverty, but their subjective nature means that they are inherently difficult to 'measure' (World Bank, 1995). This makes direct comparison between different components of the framework, e.g. the different kinds of capitals, problematic. Invariably, analysis will tend to highlight those factors that lend themselves to 'measurement', potentially undervaluing the contribution of social factors.

9.3 Implications for livelihoods research and development policy

Two main issues emerged from the research that are relevant to discourses on rural livelihoods and development policy.

First, it was discovered that there were considerable differences in the livelihood profiles of the two villages chosen for in-depth examination. This was surprising given that the two villages were less than 15 kilometres apart, were equally remote in terms of distance from the nearest centres, had similar levels of infrastructure and services, and shared similar ecological and weather patterns. As these villages represent the northern and southern-most villages in the greater Dwesa/Cwebe area, a broader level assessment could easily have assumed a high degree of homogeneity between living conditions and livelihoods in the area. The fact that this was not the case illustrates the need for caution when generalising across sites, even when, on the surface, conditions appear to be very similar. The results of this study and others (Hawkins Associates, 1980; Andrew, 1992; Baber, 1998; Ellis, 1998; Bank, 2001; Campbell *et al.*, 2002) suggest a high degree of heterogeneity both within, and between rural communities living in communal areas. Policy prescriptions based on 'broad brush' assumptions of homogeneity in rural areas are, therefore, inappropriate, and policy development processes need to be informed by, acknowledge, and cater for, the varying needs of different rural residents.

Second, this case study found that livelihoods in coastal Transkei deviate from the pattern generally observed in sub-Saharan Africa, where agriculture and associated assets are found to be key variables differentiating the poor from the better-off (Ellis 2000a; Campbell *et al.*, 2002), and where diversification into productive non-farm activity is considered a more recent trend (Bryceson, 2002). Without understating the importance of agriculture, when compared to other sub-Saharan countries, agricultural production played only a limited role in the livelihoods of the communities at Dwesa/Cwebe, while non-farm activities, in the form of labour migration and

receipt of welfare benefits, had been a dominant feature of livelihoods for many years. The reasons for these differences related to the particular historical and structural forces associated with the creation of 'homelands' in South Africa, the existence of a well-developed social welfare system, and declines in the labour absorption capacity of the national economy (SLSA Team, 2003a). Thus, assets which are usually considered to be productive assets differentiating the rich from the poor in other African country contexts, e.g. labour, education, agricultural assets, etc., play less of a role in determining the livelihood outcomes of rural households in the Transkei.

For many households in the Transkei, the difference between achieving livelihood security, or remaining extremely poor, is the chance outcome of an economic migrant finding fixed employment (against tremendous odds), or having a member of pensionable age within the household. Neither of these factors can be controlled in any significant way, nor can they be meaningfully influenced by external project intervention. This implies that the conceptual link between assets and outcomes, a central feature of the livelihoods approach, may in fact be limited to particular country contexts, and that assets shown to be productive in one geographical setting may have little relevance to livelihood outcomes in another geographical setting. The application of the framework under structural conditions such as those typifying the former homelands may, therefore, be of limited use. This suggests that greater attention should be directed towards identifying the factors that limit the transferability of the framework between different socio-political and structural domains.

9.4 Implications for local development at Dwesa/Cwebe

Four years have passed since the fieldwork for this project took place. The interim period has been characterised by i) increasing rural poverty and declining prospects for the creation of viable livelihoods (CIETafrica, 2001; Bank, 2001; SLSA Team, 2003a)[44], and ii) an increasing range of development actors and interventions in the study area, largely as a result of the land restitution settlement (Chapter 1, Section 1.1).

A number of these development interventions are addressing the critical areas identified in this thesis. For example, infrastructure in the form of roads, potable water supplies, telephone network coverage, health and education facilities have all been significantly upgraded. Various initiatives to boost tourism, and more importantly to increase tourism benefits to the communities, are underway

[44] Scoones and Wolmer (2003) maintain that increasing vulnerability in Southern Africa's rural areas has reached crisis proportions over the last decade,

and local employment prospects have increased through various 'poverty-alleviation' projects. Lastly, the compilation of a reserve management plan and the entry of a German donor agency, are beginning to broaden the scope for livelihood benefits that can be derived from the area's rich and diverse natural capital (although see discussion under Section 9.4.1 below).

Problems, such as a lack of coordination between projects, and a low degree of real community participation, remain, but levels of commitment to addressing poverty in the area are high and, as demonstrated in this analysis of livelihoods, are broadly covering the correct bases (although support to local agriculture remains conspicuously absent). In addition to the above interventions, the insights emerging from this analysis of livelihoods, suggest that greater attention needs to be given to the issue of spatial differentiation in the distribution of poverty and vulnerability, as well as to the differentiated nature of livelihoods across income groups.

For example, given its relative poverty status, as well as its over-reliance on welfare and agriculture, there is a need to ensure that Cwebe receives preferential treatment in decisions concerning the location of employment creation projects, particularly those carrying a fixed wage. Due to the low skills base, labour-intensive projects that do not have high skills requirements will be appropriate in this village. Projects requiring entrepreneurial skills, such as community-based tourism enterprises, on the other hand, will be better placed at Ntubeni.

With respect to income groups, it has been shown that housing programmes will be of greatest benefit to the poor. These could include elements such as the direct subsidy of building materials, or the indirect subsidy of housing through housing grants. State housing grants to the value of R17000 were introduced into urban areas after the change in government in 1994, but the programme has rarely been extended to rural areas. Housing projects have the additional advantage of generating opportunities for employment and skills development. Depending on the materials used they may also have the effect of reducing reliance on scarce or vulnerable natural resources.

The quickest and most effective way of targeting the poorest households will be to ensure that all those qualifying for social security grants actually receive them. Of particular concern is the small proportion of households benefiting from child support grants, special distress grants and foster care grants. These welfare grants are likely to become increasingly important as a means of survival for households with members suffering from HIV/AIDS. A three-pronged strategy involving local awareness raising campaigns, decentralisation of registration points, and the weeding out of petty bureaucratic corruption, should be considered in this regard.

Interventions aiming to support agriculture should, *inter alia*, be designed to assist farmers in cushioning the impact of climatic variability. This could be achieved through improvements to food storage infrastructure (allowing existing food stocks to last longer), the establishment of rural credit facilities, and the extension of markets for livestock (giving households the opportunity to raise cash by selling during lean periods).

To improve the health status of communities at Dwesa/Cwebe, there is an urgent need for improved health facilities together with education programmes on primary health care. Family planning education programmes need to be introduced to address the high infant mortality rate. For instance, it has been shown that spacing the timing of children to above two years can reduce a child's chance of dying by 50% (Hobcraft, 1987). Other measures to improve the infant mortality rate include delaying first births until women are at least 18 years old (according to Hobcraft (1987) this would reduce the risk of death for first-born children by up to 20%), and discouraging childbirth after the age of 35 years. In addition, the potential for improving child immunization programmes needs to be investigated. The extent and impact of HIV/AIDS in the study area is poorly understood and research into this area should be a priority.

While the performance of the macro-economy may be outside the control of development practitioners, interventions can be designed so help households buffer the effects of some of the symptoms. For example, alternative livelihood opportunities need to be found for retrenched migrant workers, and poor households need to be cushioned against the effects of rampant inflation.

Much room exists for improving the efficacy of provincial and local governance. The focus here should be on rooting out petty corruption, resolving the conflict between traditional and elected leaders, and, as concluded in Chapter 5, ensuring that minimum acceptable standards of service provision and infrastructure are maintained.

Lastly, development agencies need to take cognisance of the fact that rural livelihoods are complex, varied and differentiated - this thesis found that not even the poorest households could be considered to be homogenous in terms of their asset holdings or livelihood strategies. Added to this is the fact that both broader social, economic, political and environmental conditions, as well as livelihoods themselves, are constantly undergoing change (Bank, 2001; Scoones and Wolmer, 2003). Broad-based consultation and ongoing research, with a view to better understanding the varied interest groups within communities, is likely to become increasingly important in this dynamic context.

9.4.1 Role of the Nature Reserve

The villages forming part of this study are exceptional in the sense that they occur immediately adjacent to a protected area, and in the sense that the land in the nature reserve now officially belongs to them. However, apart from those employed directly by the conservation department, the nature reserve remains poorly developed in terms of its support for local livelihoods. Of particular concern is the closure of the reserve to harvesting of natural resources in 2001. The prohibition on resource use, the underdevelopment of tourism, and the lack of any community-based secondary industries means that the nature reserve remains poorly integrated into the surrounding local economy. In this final section, the focus is on what could be done to optimise sustainable livelihood benefits from the protected area, the barriers that would need to be overcome, and the strategies that would be required to overcome them. It should be pointed out, however, that the almost complete lack of market linkages, the poor infrastructure and the area's remoteness limits the potential for 'nature-based' development replace social welfare grants as the mainstay of the rural economy. At best, income derived from the sustainable development of human and natural resources, will constitute a supplementary source of livelihood to social welfare grants.

Greater access to, and sustainable use of, natural resources

For local people the nature reserve is a highly valued source of natural products for securing the domestic and agrarian aspects of their livelihoods. Without access to the resources contained inside the reserve, households are forced to either purchase alternatives (which few can afford), or collect resources from the smaller pocket forests and grasslands outside of the reserve. Closure of the nature reserve in the past led to the over-concentration of collection effort in these areas with the result that stocks of species of utilitarian value declined. The current closure of the reserve suggests that these areas will continue to be over-harvested, to the detriment of the local ecology and undermining the sustainability of people's livelihoods. Preliminary research (Timmermans, 2000) suggests that the Dwesa and Cwebe forests may be of sufficient size to sustainably meet the domestic and agrarian resource needs of neighbouring residents, and potentially to provide the basis for a limited amount of commercial activity (e.g. controlled sale of reeds, medicinal plants, etc.). Furthermore, opening of the reserve to harvesting would act to decrease the pressure on the outside pocket forests, allowing them a chance to recover. However, little research on resource stocks in the nature reserve has taken place to date making it impossible to make an informed decision regarding the potential for resource utilisation. It is recommended that an ecological audit, or stock assessment, of the nature reserve take place as soon as possible to determine the potential for resource utilisation.

Resources that could potentially be made available to neighbouring communities include: fuelwood and construction wood, marine resources, medicinal plants, bush meat, grazing and thatching grass. Secure access to these resources (based on principles of sustainable utilisation) would contribute positively to a strengthening of livelihoods in the study area. In addition, the unofficial convention of making the grasslands in the reserve available for emergency grazing during droughts needs to be retained. Given the importance of livestock to local livelihoods, access to the grazing in the reserve would enable livestock farmers to achieve a greater degree of resilience to climatic shocks. Owing to the multiple benefits and services associated with keeping livestock, greater stability in herd sizes will translate into greater stability in other livelihood activities, such as savings and, in the case of cattle, cultivation.

Developing the income-generating potential of the nature reserve

There is a need for a greater focus on developing the income-generating potential of the nature reserve, with a view to redirecting income towards the development of the surrounding area. The most obvious development opportunity lies in promoting tourism. This would require upgrading, and potential expansion, of existing tourism infrastructure, increasing both the number and quality of tourism products, and effectively marketing the area. The absence of the private sector in developing tourism in the area is conspicuous. Neither government nor the communities have the skills and/or resources required to develop a tourism to market standards. Outside support, in the form of donor funding or private sector investment, will be required. To optimise community benefits, consideration should be given to tourism development that is based on community-public-private partnership (CPPP) models. These models are usually based on joint equity arrangements ensuring that communities receive revenue from ventures for as long as they remain profitable. Other mechanisms for community benefit, such as the outsourcing of supplementary services (guiding, laundry, provision of fresh produce, etc.) should be investigated, together with the potential for 'community-based' tourism activities such as overnight hiking, horse trails, craft-work and cultural entertainment facilities.

The role of wild game, particularly introduced game requires assessment in terms of both its conservation, social and economic role. The issue of wildlife management within the nature reserve is complex and its existence brings with it a number of advantages and disadvantages. This suggests that cost-benefit analyses need to be carried out under different scenarios. Such an assessment might find, for example, that the economic benefits associated with controlled hunting outweigh those of maintaining game for game-viewing purposes, or that pasturage within the reserve might be better conserved under a system of limited cattle grazing than under non-endemic wildlife. Such an analysis should also consider the social opportunity costs involved with each scenario. For example, hunting and public access to natural resources are likely to be incompatible

forms of land-use, thus hunting would bring with it the foregone opportunity of natural resource use. Likewise nature-based tourism and natural resource use may be incompatible unless ways can be found to market resource use in a way that is acceptable to tourists. The issues of wildlife, access to natural resources and tourism development are closely intertwined with the result that different scenarios would require different trade-offs. There is, therefore, a need for potential development scenarios regarding these 'sectors' to be made explicit, and for them to be fed into local development planning initiatives.

Barriers to achieving livelihood benefits

A number of barriers will need to be over-come if the full potential of the nature reserve and surrounding landscape is to be realised. A key barrier appears to be the lack of willingness on the part of conservation officials to explore alternative options. This is partly the result of i) overly 'purist' conservation orientations resulting in resistance to consumptive forms of natural resource utilisation, ii) a lack of confidence in working with rural communities, and iii) structural constraints concerning the capacity of conservation organisations. With regard to the latter, the conservation directorate in the Eastern Cape has been considerably downgraded in recent years and many professional staffers have left the organisation. This is evidenced by, *inter alia*, an almost complete lack of research capacity within the organisation. There is thus a tendency for officials to concentrate, under enormous pressure, on maintaining the existing conservation estate under existing land-use and management systems, rather than exploring new, and potentially risky, ventures.

However, as explained in Chapter 4 (Section 4.3.1) the conservation organisation is not the only party involved in the management of the nature reserve. Since the coming into being of the Dwesa/Cwebe Land Trust and the Co-management Committee, community members have achieved a platform for negotiating reserve policy, and are, therefore, theoretically in a position to influence decisions. The fact that development options for the reserve are rarely discussed at Co-management Committee meetings suggests that community representatives are not effectively using their positional advantage. This is partly because of a lack of skills and exposure, but is also due in part to complacency. In the past, community structures were boosted by active and effective outsider advocacy in the form of a land NGO. With the settlement of the land restitution claim, the NGO withdrew, and it appears that community representatives have been unable to engage effectively with the post-restitution development phase.

A barrier to the achievement of private-sector participation in the development of tourism infrastructure appears to be disillusionment with the provincial government. In 1998, as part of the SDI process, various tourism development concessions in the provincial reserves were marketed to

potential private-sector investors. However, a dedicated international marketing conference held in East London later in the same year failed to raise much interest. Despite the obvious tourism potential of areas like Dwesa/Cwebe, it would appear that investors were discouraged by the not inconsiderable constraints. At the time these included unresolved land claims, poor road infrastructure, a lack of potable water and no electricity. Investors were clearly not swayed by the provincial government's assurances that they would attend to these issues.

With respect to utilisation of natural resources, conservation legislation inherited from the former Transkei homeland administration posed a constraint. In terms of the Transkei Environmental Decree (No 9 of 1992), no utilisation of fauna or fauna was permitted from within a nature reserve. In addition, strict regulations were in force that circumscribed entry to the reserve for local people. Legislation concerning the marine protected area also forbade any exploration of possible harvesting quotas. However, more recent legislation such as the new National Forest Act (Act 84 of 1998), the Marine Living Resources Act (Act 18 of 1998), the National Environmental Management Act (Act 107 of 1998), and the National Environmental Management: Protected Areas Act (Act 57 of 2003), provide the legislative foundation necessary for reorientating conservation in support of rural livelihoods. However, as Turner and Meer (2001:v)) argue, the new policy statements have not yet been translated into a coherent, internally consistent legislative framework, and experience with implementation remains poor. It remains to be seen if the pending provincial legislation, which will combine the out-dated and disparate sets of inherited conservation legislation in the Eastern Cape, will promote the cause of rural livelihoods.

Since 2000, local economic development (LED) has become the prerogative of the new local municipalities, and takes place under the LED portfolio. LED planning forms part of the integrated development planning process (IDPs) - a process through which a local municipality charts a 5-year action plan for its area. Development opportunities linked to the Dwesa/Cwebe Nature Reserve should, therefore, form part of the broader IDP and LED planning process. Municipal councillors, however, appear reluctant to become involved in discussions concerning the future of Dwesa/Cwebe. This has largely to do with the fact that due to the land reform process, residents at Dwesa/Cwebe have theoretically had their land ownership upgraded from 'communal land' to 'communal property' status. As land registered in terms of a 'communal property association' is a form of privately owned land akin to a body corporate, the municipality sees little role for itself in the development of the land. In addition, the formation of the Land Trust, tasked *inter alia* with coordinating the development of the land; and a history of competition and bad working relationships between key individuals on the trust and at the municipality, has further alienated the municipality from the area.

Action required to overcome barriers

Can these barriers to the development of the nature reserve be over-come? The answer to this question lies in the level of political and practical commitment that can be mustered among the various key parties, i.e. the conservation organisation, the trust and the local municipality. Given high levels of real commitment, the following suggested strategy should be achievable.

1. The arrangement of 'study tours' for key individuals to visit successful integrated conservation and development projects elsewhere in the country. This kind of exposure will alert those involved to the potential opportunities and the various models for reserve development that are in existence.
2. The establishment of a specialised unit within the provincial conservation organisation to address the issue of livelihood support and local economic development. This would be akin to the Social Ecology Unit established in the South African National Parks Board. Such a unit would need adequate funding and the political power to carry out its mandate.
3. The establishment of specialised research capacity within the provincial conservation organisation, or the capability to out-source research projects to qualified individuals/agencies. Access to research expertise is essential in order for an informed discussion on development options to take place.
4. Building the capacity of the Dwesa/Cwebe Land Trust. At present, there is too much reliance on the conservation organisation in setting up and running Co-management Committee meetings. Trustees are currently ill-equipped to participate in the often technical discussions that characterise these meetings and participation levels are low.
5. The Trust needs to go out of its way to woo back the local municipality who in turn need to play a more proactive role on the Co-management Committee. Relationships need to be restored and the issue of competing, and overlapping, institutions needs to be resolved.
6. The Eastern Cape government needs to build a working relationship with successful private-sector tourism operators and to commit themselves to improving the bulk infrastructure in the area.
7. Outdated legislation, such as the Transkei Environmental Decree, needs to be replaced by legislation that reflects the more recent progressive shifts in conservation and rural development thinking.

9.5 Conclusion

This thesis has examined the livelihoods of two rural communities living in one of the poorest regions of South Africa. It has approached the analysis by describing the area's natural and physical capital, investigating the nature and distribution of poverty and vulnerability, identifying a

number of key livelihood determinants, and analysing household assets and livelihood strategies among different households. In so doing it has contributed both theoretically and empirically to the growing literature on rural livelihoods, and to development planning in the study area.

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