Rural Livelihoods and Local Level Natural Resource Management in Peddie District

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EXECUTIVE SUMMARY

In post-apartheid rural South Africa, much attention is being focussed on the socio-economic and environmental legacies of skewed access to land and other natural resources. Given the prospect of countrywide land reform initiatives, it is particularly the implications of this access for people's livelihoods and for the optimal management of rural natural resources that have come under the research and policy development spotlight.

In 1995, the Land and Agriculture Policy Centre, in collaboration with the Stockholm Environment Institute, commissioned the Institute of Social and Economic Research at Rhodes University to undertake research into these issues as they pertain to the Eastern Cape. This report documents the findings of the study into the state of rural livelihoods and natural resource management (NRM) in six villages in the communal tenure areas of Peddie District, Eastern Cape.

The report provides a contextual overview of the Eastern Cape. Salient features of the political economy of the province are addressed, including the high indices of rural poverty, the lack of infrastructure in the rural hinterland areas and the noticeable degree of circular population mobility between rural and urban areas in the province. The lack of institutional coherence at the tiers of provincial, district and primary (local and village) government is scrutinised and discussed. The virtual collapse of agricultural support for rural people who are predominantly part-time farmers is also noted.

Given the high indices of rural unemployment, the livelihoods of many rural people in the Eastern Cape depend overwhelmingly on State transfers, especially old age pensions. This dependency has a number of implications for the generation of rural livelihoods and appears to act as a disincentive to local agricultural intensification and resource management efforts. The varying levels of dependency experienced and people's disparate sources of income reinforce socio-economic differentiation at village level which, in turn, undermines local collective action, including action directed at resource management. Government-sponsored drought relief-type programmes aimed at rehabilitating rangeland, erosion dongas and fencing, which employ local people for short periods, also tend to undermine the resource management efforts made by rural villagers on a voluntary basis.

The semi-arid conditions prevalent in Peddie District place restrictions on the types of agricultural activities that can be undertaken: the area is best suited to extensive livestock production, and then only 'moderately' so. This fact is reflected in the decline of agricultural production as a livelihood strategy of the majority of rural households in Peddie.

The demographic features of the District also inform the analysis of resource management patterns: the forced resettlement of people into bantustan areas and the retrenchment of people previously employed on white-owned farms in neighbouring districts have increased the number of people living in the 'reserve' areas under communal tenure regimes. This has resulted in rural overcrowding and landlessness and has placed the limited

resource base under considerable pressure. Migrant labour practices are shown to deplete rural village communities of their decision-makers, impacting on the institutional capacity of village committees to take and implement resource management decisions.

The study found that a wide range of natural resources available on the village commons is used by all rural households to varying degrees. A typology of households found that certain categories of economically vulnerable households are most reliant on water, firewood and the food supplements freely available on the commons. Wealthier households, including those who are in a position, for instance, to substitute paraffin for firewood, are more likely to exploit grazing and arable land resources.

Notwithstanding the dependency of a small minority of the rural population on these natural resources, no formal resource management regimes are in place and, as a result, deterioration in the state of the overall resource endowment is noticeable: deleterious changes in the vegetative composition of communal rangelands, high indices of gully erosion and the depletion of firewood reserves in some areas are symptomatic of this deterioration. The social and environmental costs of the deterioration of their resource base are being offset to some extent by the access rural people in these villages have to the resources on adjacent farms vacated by white farmers during the consolidation of the former Ciskei. This use is not officially sanctioned and, in the absence of local regulatory mechanisms, remains 'free-for-all'.

Consideration was given to the role of rural women in the management of natural resources. As the key resource users in rural villages, women should be well placed to contribute to the management of scarce resources. While the contribution of women to village affairs is increaingly recognised, this recognition has yet to be translated into mobilisation around issues that are of immediate concern to women and men. Rural women still experience difficulties in mobilising female as well as male labour and management inputs for the regulating and improving of the natural resources that are often key to household subsistence needs.

Institutional issues around NRM are dealt with in the report: the virtual vacuum in local government continues to have a negative effect on natural resource management practices, by blurring lines of local authority and jurisdiction over resources. These matters will remain unresolved as long as the activities of various provincial government departments and other stakeholders continue to take place in the absence of district-level co-ordination and planning. This co-ordination is seen as best undertaken by the Transitional Representative Councils, once their capacity has been strengthened.

During the course of the study, pilot NRM projects were initiated in two villages in the District. These projects provided valuable insights into some of the issues that had been generated during the questionnaire and participatory research phase.

The report concludes by making a number of both policy and practical recommendations that could be taken up by the various stakeholders in the

development of more sustainable natural resource management practices. These include meeting the needs for basic infrastructure in rural areas; the identification of economically vulnerable households and the need to provide this category with rural-based livelihood opportunities; the implementing of measures that institutionalise the full participation of rural villagers in resource management efforts at local level; the need to build the capacity of the TRepC to co-ordinate and oversee rural administration in general and local resource management initiatives in particular; the collaborative generation of local economic development policies and plans that stimulate rural economic activity; the need to link improvements in resource management efforts to tangible economic benefits for rural people as far as possible; the forming of alliances between local people and institutions on the one hand and NGOs in particular on the other hand, so that micro-level performance in more sustainable NRM can be nurtured and gain momentum; while central and provincial government subsidisation of rural local government bodies would appear to be essential in the medium term, these bodies should put mechanisms in place to begin to move towards being self-financing; mechanisms for the monitoring of ecological performance must be put in place and include an effective information management system, which is accessible to local people; processes should be set in motion to effect the redistribution of rural natural resources so that underutilised farms can be made available to rural people for the generation of sustainable livelihoods. Such processes should include the development of appropriate resource management regimes for all such rural areas.

Issues that require further investigation include: the changing role of migrant workers in the rural economy; the institutional dynamics of resource management at the village level, and particularly the reasons why people adhere to some resource-use regulations, but not to others; the formulation of mechanisms that allow for the participation of rural people in policy and planning processes at the district level; the involvement of women in village level decision-making processes and promoting the access of women to productive resources needs further attention; the further development of analytical tools that help to identify categories of economically vulnerable households.

FOREWORD

OVERCOMING CRITICAL CONSTRAINTS TO THE PARTICIPATORY MANAGEMENT OF RENEWABLE NATURAL RESOURCES

Participation - The New Orthodoxy in Development

Apartheid policies concerning renewable natural resource management in South Africa were characterized by the view that meeting the needs of the rural poor and environmental conservation were mutually exclusive goals (LAPC, 1994). To a large extent this reflected the dominant global paradigm in development thinking at the time. A series of expensive project failures and persistent poverty have shown that alienating people from their own resource base creates apathy and conditions which lead to overexploitation and degradation.

Participatory management is being hailed as an all-in-one solution for fulfilling several goals at once: conservation, poverty reduction, equitable development and efficiency. It promises to maintain or increase the productivity of the resource base, generate income and also minimize management costs through decentralization. The underlying assumption is that people will co-operate and participate in development if they have a stake in the process, have the relevant skills and can voice their concerns openly.

There is an expanding body of literature which establishes that a win-win situation can indeed be created by involving people in research, planning, evaluation and management. In the last five years the main international donors, policy research centres and NGOs have adopted a people-centred approach as an obligatory requirement in their development programmes (FAO, 1997; World Bank, 1997).

South African Policy Reform

The White Paper on all the major renewable natural resource sectors in South Africa demonstrate this fundamental shift to a more integrated and consultative planning process (DLA, 1997; DWAF, 1994; 1997). It is the aim of the new South African government to put in place the various elements which constitute a civil society such as the devolution of political control, an open decision-making process, security of tenure and democratic citizen rights to voice dissent. This comprehensive policy and legislative reform aims at creating the "enabling" government that is deemed necessary to make participation a reality.

For example, the White Paper on Land Policy emphasizes that the government has endeavoured to take account of the widely conflicting demands of various stakeholders and has sought the involvement of affected communities in land development decisions. The White Paper on Forests states that government forests will be managed through partnerships with local communities, recognizing the Department's legal responsibility to the nation. It pledges support for communities and local authorities to develop and implement management of this kind.

Building Local Capacity and Improved Data

At a more local level, an important task has been to complement macro-level policy reform with capacity building and improved data. This project has attempted to achieve these goals in a small area of the Eastern Cape. The main activities were participatory analysis as well as the development of a spatially referenced database which combines bio-physical data with participatory assessments of user needs, access conditions and resource quality.

As a direct result of involving rural communities we have a much better understanding of the complex historical, ecological and social causes which have led to resource degradation in the erstwhile homelands.[1] Social and economic engineering combined with a harsh climate and institutional chaos at the local and provincial level have left a countryside with eroded fields and few social sanctions.

A Lack of Incentives

A notable finding of the project is the near total absence of incentives to support the collective management of renewable natural resources at all levels within government structures as well as rural communities. Provincial and local government officials do not have any obvious benefits linked with engaging in participatory programmes. At the village level rich community members have less interest in conserving communal resources as they are able to procure substitutes through purchase or production. Although most affected by resource degradation, poor people lack the time and skills to participate in environmental projects. This is particularly true in the case of women. In addition, past policies have created a dependency culture where people feel that they should be compensated by the government for undertaking soil or vegetation conservation measures.

The Interface with Formal Research and Extension Structures

As the policy and legislative barriers to participation have been minimized, the interface between formal institutional structures and participatory initiatives continues to be problematic. Such problems have hampered participation elsewhere in sub-Saharan Africa. In a project on farmer participatory needs assessment and technology development research in Uganda it was found that several complex factors had prevented a genuine process of empowerment and client-focused research. These included researcher/farmer power relationships; the professional identity of scientists and the cultural, educational and institutional factors which reinforce it; the skills and human resources within the formal research system and the way in which it perpetuates weaknesses (Hall, 1996).

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[1] A similar study was conducted in the Northern Cape province under this project. The reader is referred to May *et al.* (1997) and Deshingkar and Cinderby (1998) for details of the key issues and project findings.

should be validated through participatory evaluation and impact assessment. Improved crop and livestock varieties, technical measures to enrich rangelands, water supply project design and energy efficient technologies must first be "passed" by the users before being implemented on a large scale. Another means of increasing the potential impact of R&D is to increase competition in the field. Hall (1996) suggests inviting proposals from NGOs and the private sector for basic and applied research.

Cost-Recovery

Another dimension to the participatory agenda is that it may be donor-given rather than people driven due to the direction of funding. Political leaders and government officials may quickly accept priorities set externally rather than seeking the views of their own constituents through time consuming methods because they are keen to attract donor funding. Cost-recovery for service provision, for example through water pricing, could result in more attention being given to soliciting people's participation and views. It could also give people more control over planning and how their money is spent. External funding, no matter how carefully organized, can have the effect of a disincentive by reducing people's motivation to bring their own resources together to act collectively.

Community Organizations as Intermediaries

It has been suggested that NGOs could be a more effective way of channelling outside funding because they are more attuned to the priorities of their constituents and less bureaucratic. Recent experience has shown that this approach is also not without its problems because not all NGOs represent the weaker sections of society (Hoben *et al.*, 1997). There is, however, an important role for community organizations such as church groups, funeral groups and rural women's movements which have formed spontaneously and have members on a voluntary basis. Such organizations, though ostensibly for another purpose, can provide a forum for people to voice their concerns openly. The possibilities of organizing finance, training and extension through such agents should be explored.

Improved and Easily Accessible Data

Apartheid's racial and physical segregation has made towns, cities and villages especially costly to service. The White Paper on Land calls for a national land use planning and management system co-ordinated between departments and between tiers of government. Such spatial and physical planning requires environmental data of the kind developed during this project. There are indications that the GIS developed in this project is in demand from the TRC in Peddie. The GIS is accessible and can be supplemented and updated from time to time. The availability of information on the quality and quantity of renewable natural resources could provide rural

communities, NGOs, grasssroots level organizations and local government with a powerful planning tool.

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1 INTRODUCTION

A. AINSLIE

1.1 The background to this study

The unbanning of the African National Congress (ANC) and other liberation movements in 1990, and the induction of a non-racial, democratically-elected government in South Africa in May 1994, focussed considerable attention on the skewed access to land and other natural resources (particularly water) throughout the country. Much of the current national research and policy formulation endeavour is aimed at providing data and developing the conceptual tools and mechanisms for redressing the past imbalances in respect of access to a range of economic and natural resources.

One of the first acts of the new government was to announce the Reconstruction and Development Programme (RDP), with an ambitious land-reform programme (DLA, 1996) as a key component. It has, however, become increasingly clear that the implementation of the three-pronged land-reform programme (restitution, redistribution and tenure-upgrading) will be much slower than anticipated and that the demand for land for redistribution, which was previously perceived to be great, is apparently quite moderate (ARDRI *et al.*, 1994). Apart from specific restitution claims, for which the mechanisms put in place for the application, adjudication and restitution of such claims appear to be functioning fairly well, the relative lack of demand for agricultural land by previously disadvantaged communities, and the bureaucratic red tape that needs to be overcome in meeting this demand, has knocked some of the wind out of the sails of the land reform programme (*Mail and Guardian*, 11/4-17/4/1997). Certainly, the programme does not currently command the high profile attention it did in government and ANC circles a year or so ago.[1]

It nevertheless remains critical that the different 'spheres' of government, at both national and provincial levels, gain and maintain a clear understanding of not only the dynamics of the rural economy and the way in which rural people gain their livelihoods, but also the way in which use and management of the natural resource base feature in this economy. This is especially crucial for the successful implementation of land reform initiatives, but it is also an essential ingredient for the broader project aimed at the sustainable economic development of rural South Africa.

The study documented in this report forms part of a broader research programme entitled 'Sustainable Utilisation of Natural Resources in Semi-arid Areas of South Africa'. The programme is co-managed by the Stockholm Environment Institute (SEI) and the Land and Agriculture Policy Centre (LAPC). The programme consists essentially of two extended research and facilitation projects: one project, which is the subject of this report, was undertaken by the Institute of Social and Economic Research at Rhodes

[1] This is perhaps partly because the programme has moved from the planning and consultation phase into the implementation phase.

University, in the communal tenure areas of Peddie District in the Eastern Cape Province[2]; the second project was conducted by the Surplus People's Project in the semi-arid reserve areas of Namaqualand, Northern Cape and is documented elsewhere.

1.1.2 The objectives of this study

The four objectives of the study were:

(1) to systematically identify and analyse those factors which currently impact on the use and management of natural resources at four levels, namely the household, village, district and provincial levels;
(2) to investigate the relationships between environmental factors and a range of social variables which interact to have an impact on the management of natural resources in a specific rural area;
(3) to conduct research that can make a substantial contribution to the debate around natural resource management (NRM) policy formulation at national and provincial levels; and
(4) to make recommendations to Sida regarding approaches for appropriate and successful NRM/development interventions in semi-arid areas of rural South Africa.[3]

In achieving particularly the first three objectives, extensive use was made of both standard social research techniques, such as a thorough household questionnaire survey and the collection of life-histories, and Participatory Rural Appraisal (PRA) techniques. The latter were aimed at empowering rural residents through a process of knowledge pooling, as well as the joint generation, ranking and analysis of research data. Throughout the study, emphasis was laid on both the formal and informal training of residents' associations and village research assistants, in a variety of tasks related to natural resource management, such as data collection and assessment.

In achieving the fourth objective of study, a key intervention was to commit project resources to building the institutional capacity of village and district level administrative bodies through formal training courses and the workshopping of research findings. Pilot-NRM development projects were initiated in two of the sample villages, in order to generate insights about the constraints and opportunities that exist at this level of resource use and management and to build the capacity of institutions and individuals in the villages.

1.1.3 Changing perspectives in environmental management

The role of 'participation'

The social and economic failure of non-consultative and centrally planned

[2] This study is the follow-up to a regional study (Ainslie *et al.*, 1994) conducted by a multi-disciplinary and multi-institutional team of researchers in the Mid-Fish River zone in the Eastern Cape Province.

[3] Sida (Swedish International Development Co-operation Agency) who were the funders of the programme have since decided not to pursue NRM-related development interventions *per se* in rural areas of South Africa.

and executed (so-called 'top-down') development/environmental management initiatives in Africa is now well-documented. The voluminous literature on environmental management has, since the early 1990s, tended to focus on the role of institutions[4] and people at a 'local level', i.e. at village or 'community' levels, as a key entry point for these development and resource management interventions. Aimed at more sustainable resource management, concepts like 'community-based management', 'village-land management' and 'grass-roots resource management' have been popularised and adopted, often uncritically, in various parts of Africa and elsewhere (Van Den Breemer *et al.*, 1995; Cousins, 1995).

This recent trend in development and environmental management discourse argues for the full participation of local groupings in enterprises such as research (for example, through the use of PRA or similar methodologies) and development projects aimed at improving the quality of life of these groupings. It is the pursuit of this broad-based participation in all development arenas, which has been adopted in the State's service delivery discourse in South Africa, and which is widely regarded as a key part of the political, social and economic emancipation of the disadvantaged majority in the country, that is often so problematic in practice.

First, the notion of 'participation' begs the question of 'participation by whom and on whose terms'? The answers to this question underscore the difficulties involved in managing the processes of participation. Second, it has become clear that actually achieving and sustaining levels of participation in a development process requires the ongoing commitment of those 'in power' to make allowances for dissenting viewpoints and drawn-out consultative processes. With political pressure beginning to mount in the face of the sluggish pace of service delivery to disadvantaged sectors, there are signs that 'participation' might be considered a luxury to be waived in favour of more centralised, top-down processes that promise speedier delivery.[5] Third, it has become clear that outsider, 'expert' knowledge and skills remain a central component of any development initiative or environmental management process, particularly where the local skills-pool is shallow, largely as a result of the apartheid legacy.[6] In these contexts, situation-specific methods (operating within the procedural and operational frameworks and guidelines articulated in the RDP and elsewhere) of reconciling these outsider 'expert' skills with local insights and knowledge need to be developed and tested.

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[4] Institutions are complexes of norms and behaviours that persist over time and that serve collectively valued purposes. They include legal codes, tenure systems, kinship and other social relationships (Uphoff, 1992). Organisations are recognised bodies (with or without broad local support) such as village committees or government agencies, which pursue particular goals within an institutional framework of existing rules and norms (Cousins and Robins, 1993).

[5] The Development Facilitation Act of 1995, for instance, has been criticised on these grounds.

[6] This means that training and 'capacity building' of local structures should be a central concern.

Negotiations[7] over the nature of participation, the locus of authority or 'ownership' and control of development and environmental policy processes in post-apartheid South Africa remain highly politicised, contested and time-consuming. Moreover, this negotiation of authority and relative powers appears to permeate the relationship between the three spheres of government, namely national, provincial and local in certain areas. It is also apparent between departments within the spheres of national and provincial government. In these contested policy and planning arenas the goal of consultative, participatory delivery and governance seems to be a mantra that has an increasingly hollow ring.

How local is 'local'?

Another theme in development literature since the 1980s has been a concern with and an attempt to emphasise the centrality of the indigenous technical or 'traditional' knowledge of people at 'local' level or 'on the ground' with respect to sustainable environmental management practices (Chambers, 1993 quoted in Cousins, 1995). 'Local' people, it is argued, have age-old (or at least, pre-colonial) ways of relating to their immediate environments and of managing their natural resources on a sustainable basis, which all latter-day interventions would do well to study and take into account.

By directing the attention of planners and policy-makers to the indigenous skills, as well as the knowledge and value systems of local people, this approach has contributed to correcting an imbalance which until recently had meant the virtual neglect of these existing knowledge domains. An emphasis on the 'local' is, however, not without its own problems.

First, it is often difficult to decide what spatial and social parameters constitute the 'local'. Social parameters, based on ethnic, cultural or institutional features, are often used (sometimes implicitly) to distinguish one 'local' grouping from another. This approach is not always useful, especially where social parameters are not clear-cut or do not match the ecological parameters. Conversely, attempts to define the 'local' in terms of landscape features, such as river catchments or biomes, also fall short because the natural boundaries do not always match the existing social and institutional realities.

Second, attempts to take the 'local' (social and ecological) features into account in terms of planning and management are faced with problems of scale and scope. A very wide range or scope of variables (agro-ecological, socio-economic and institutional) interact to 'drive' the availability and management of resources in any particular landscape. Defining the scope refers to the selection of the key 'driving' or interacting variables in any specific case. It appears that, even if based on sound, multi-disciplinary inputs, this selection remains essentially a value judgement.

Given the large variation possible for factors interacting, it is difficult to standardise the variables pinpointed as 'driving' the environment-social interaction that hold beyond relatively small areas and that take into account

[7] Between government and other technical 'experts' on the one hand and the local authority structures on the ground on the other hand.

more macro-scale environmental and political-economic considerations. For the same reasons, it is difficult to generalise from one 'local' area to another with any reliability. Scale is thus a problem in respect of facilitating wider environmental management practices. This presents a formidable obstacle for environmental planners and managers, who do not have the resources to plan for the management of micro-environments.

Third, the romanticisation of the 'local', both in development theory and practice, can also be criticised for not dealing adequately with the complex social (specifically power) relations and heterogenous interests that exist in 'local communities'. Elsewhere in Africa, a largely donor-driven emphasis has being placed on the 'local' level for the successful implementation of development interventions. The negative effect of this is its endorsement of the failure of African governments to shoulder the fiscal and legal responsibilities of managing their country's resource endowments, by allowing them to espouse the same sentiments of decentralisation and 'local' control (Dorm-Adzobu, 1995).

Placing an accent on the 'local' can be counterproductive in other ways: in some instances, sections of these 'local' groupings may not have the capacity (education, skills or requisite levels of co-operative ethic) to make the key contribution to environmental management.[8] In South Africa, the legacy of forced removals, betterment and long-term migrant labour practices, means that many 'local' rural populations can no longer demonstrate age-old, established ways of understanding and interacting with their environments. The emphasis on the 'local' also tends to focus on the modification and management of present human-resource relationships and needs and often fails (or is unable) to take into account the future needs of people and resources in the area. This is especially so for semi-arid and arid areas, where these relationships are predicated on largely unpredictable environmental variables such as rainfall. In conditions of poverty, longer-term solutions to environmental problems are often overlooked in favour of short- and medium-term interventions that address immediate problems.

1.1.4 The contribution of this study

This study focuses attention on a particular set of natural resource management problems experienced in the Peddie District of the Eastern Cape Province in South Africa. Specifically, it links the generation of livelihoods in rural villages to observable patterns of natural resource management at the level of household and village. A central concern of the study is with the related notions of 'participation' and of what constitutes the 'local' with respect to resource management practices and policies. While contextualising the data in the broader framework of socio-economic and institutional trends at the provincial and district levels, the study uses the household as primary unit of

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[8] This does not mean that resource management cannot be improved through developing and supporting local capacity, but the point is rather that local practices are not necessarily or intrinsically aimed at sustaining environmental resources.

analysis. It argues for a nuanced analysis of the social, economic and institutional dynamics at this primary level, which will inform a clearer understanding of the ways in which rural people relate to each other (at village level) and to organs of the government (at the levels of district and province).[9]

1.2 Overview of the Eastern Cape Province

1.2.1 Physical conditions

The Eastern Cape Province covers an area of some 170 616 km² and comprises the eastern part of the former Cape Province, as well as the former Ciskei and Transkei bantustans. The province has an estimated population of 6.7 million people (*Daily Dispatch*, 4/5/1994).

The rainfall in the region increases from north-west to south-east. In the north-western districts, mean annual rainfall ranges between 300 and 400mm. In the coastal parts of the Transkei, this figure exceeds 1000mm (ARDRI *et al.*, 1994). A large part of the Eastern Cape experiences a water deficit for most or all of the year, as a result of low rainfall and high evapotranspiration. Thirty-eight per cent of the province has a mean annual rainfal of 600mm or more, while the remaining sixty-two per cent is considered too dry to sustain traditional rainfed cropping and is used mainly for extensive livestock farming.

For the former Ciskei portion of the Eastern Cape, Laker (1978) noted that the mean annual temperature is between 18°C and 20°C with extreme Summer temperatures reaching a maximum of 40°C. The latter temperatures lead to heat stress in crops. Winter temperatures are generally mild, with lows of 7°C to 9°C.

Generally, the topography of the Eastern Cape is steep (ARDRI *et al.*, 1994). Thirty-one per cent of the province consists of mountain ranges with large differences in local relief that are associated with shallow soils. Relatively level plains make up 11 per cent, while river valleys account for 4.6 per cent. The valleys are usually deeply incised and level; alluvial lands are limited and localised (ARDRI *et al.*, 1994).

Three altitude levels are identifiable with regard to topography in the province: the coastal plain reaches an altitude of about 500 metres above sea level; the mountain ranges separating this coastal plain from the midland plateau reach the altitude of about 1500 metres; while a second mountain range or escarpment separates the midland plateau from the highland plateau, the latter situated at approximately 1600 metres above sea level.

1.2.2 Socio-economic conditions

The Eastern Cape has a labour force of 1.3 million people, with an official unemployment rate of 45.5 per cent. Estimates of unemployment levels in smaller towns and rural areas suggest even higher levels on the 'platteland'.

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[9] This interaction is, of course, not unidirectional and it would be impossible to account for all the external factors that could colour it. It nevertheless remains essential to analyse the historical and current features of this interaction which have a key bearing on the future implementation of more equitable and sustainable natural resource management policies and practices.

Almost half of those unemployed are younger than 30 years. With 16.5 per cent of the population of the country, and a contribution of 7.5 per cent to the GDP of South Africa, the Eastern Cape is the second poorest province in South Africa.

The economy of the Eastern Cape is characterised by a comparatively weak industrial sector, which relies heavily on the motor-car manufacturing and related industries. There is no mining of any significance in the province, with the community and social services sector, followed by manufacturing, agriculture and transport, the main contributors to the GDP of the province (Kruger, 1994).

In the former Ciskei and Transkei areas, the former bantustan civil services provided the vast majority of formal employment, while in the rural areas of these former bantustans, sub-subsistence agriculture is the norm with migrancy, landlessness, low rainfall, high population densities and the widespread administrative disfunction acting as constraints on agricultural production.

Poverty features prominently with regard to the socio-economic situation in the Eastern Cape province. Recent press reports indicate that, based on the United Nations Human Development Index, 4.1 million people in the Eastern Cape, or 64 per cent of the provincial population, live in poverty. This constitutes nearly 23 per cent of the poverty-stricken individuals nationally (Whiteford *et al.*, 1995). Whiteford also notes that over two million (70 per cent) children in the Eastern Cape live in poverty. Other indicators also point to the predicament of the Eastern Cape: it has the highest infant mortality rate (58.2 per 1000) and the lowest life expectancy (59.6 years) of all the provinces (*Daily Dispatch*, 4/08/1995).

Overwhelmingly, those who fall into the poverty categories are black rural residents, with black rural households headed by women being the category worst affected by poverty. One reason for this is the fact that rural women enjoy fewer income-earning opportunities than men. The 1994 October Household Survey (OHS) figures released by the National RDP Ministry indicate that 56.3 per cent of the rural Eastern Cape people and 64.1 per cent of women are unemployed (*Daily Dispatch* 9/05/1995).

With regard to dependency levels, De Wet *et al.* (1992) found in Keiskammahoek in the former Ciskei that the average wage earner supported 8.5 people. Another study (DBSA, 1991) using data collected in Keiskammahoek and Middledrift Districts gave the average number of dependants as 6.9 people. Given that the Eastern Cape population is largely rural in character, these poverty indices have serious implications for planning, service delivery and development initiatives.

In rural areas of the former Ciskei, for which there are some case-study data available, the main sources of household income are pensions, civil service salaries, migrant remittances, local agricultural production and self-employment in the informal sector (De Wet *et al.*, 1992). Only about 13 per cent of households earn more than R1 000 a month, with the average being approximately R640 (Kruger, 1994).

The October Household Survey (1994) notes that 92.9 per cent of the occupants of rural dwellings in the Eastern Cape do not have electricity for cooking, lighting or heating. A total of 37.7 per cent of these people have no access to sanitation, while 76.3 per cent of the rural population do not have access to telephones.

1.2.3 Population mobility

There is a long-standing trend of migration by people out of the hinterland of the Eastern Cape to other areas, notably to Gauteng and the metropolitan areas of the Western Cape, where employment opportunities are regarded as more attractive. These out-migrations make the province a significant net supplier of migrant workers (Kruger, 1994). A recent report (*Daily Dispatch*, 9/05/1995) claims, however, that in the 12 months from November 1993 to October 1994 more people migrated from the Western Cape to the Eastern Cape (11 469) than the other way around (7 383). In the same survey, 46 per cent of the African population of the Western Cape who provided their place of birth said that they were born in the Eastern Cape.

Bundy (1979) argues that, since 1890, it has been primarily the men who have migrated from the rural areas in question in search of work. This pattern continued for a century, until the 1970s when push factors, such as the levels of rural agricultural decay and pull factors in the form of vastly improved urban wages and the inevitable collapse of Influx Control legislation and enforcement, saw increasing numbers of women also begin to leave for the urban areas to enter wage employment (May, 1990). Nattrass (1988) reported that women make up 19 per cent of the migrant labour force for South Africa as a whole. This figure has increased throughout the 1990s.

Population movements orchestrated by the Apartheid State have had a significant effect on the demographic and socio-political situation in the former bantustans of the Eastern Cape. The forced resettlement of people under apartheid legislation from outside the bantustan areas (especially evictions from white-owned farms) into the bantustans meant that the population of, for instance, the former Ciskei grew rapidly throughout the late 1970s and 1980s (SPP, 1983). This led to the overpopulation of many rural areas which were unable to support (both physically and institutionally) often drastically increased human and livestock populations.

Another observable pattern with regard to population movements in the province is that of urbanisation - as opposed to cyclical labour migration - particularly to the main economic centres, namely Port Elizabeth/Uitenhage, East London/Mdantsane and King Williams Town/Bisho/Zwelitsha. Many of those urbanising are farm workers dismissed from 'white-owned' commercial farms during the droughts of the late 1980s and early 1990s (Kruger, 1994). These predominantly employment-seeking movements to urban areas are placing the stagnant provincial economy under increasing pressure, particularly with regard to the backlog in service delivery to historically black urban residential areas.

The process of urbanisation is not confined only to industrial centres, as other smaller towns in both the former Ciskei and Transkei are also experiencing

a rapid influx of people and growth of informal settlements. Research suggests that these smaller towns are being used as 'stop-over' points before further permanent migration to urban centres (Kruger, 1994; Higginbottom *et al.*, 1995). These influxes simply increase the pressure on financially and institutionally crippled local authorities in small towns to provide services for residents.

Aspects of population mobility which are beginning to enjoy more attention include the specific patterns with regard to population movements, particularly in relation to urban-rural connections within the province. Important issues concerning the frequency of urban-to-rural (and *vice versa*) movement of people and financial transfers and the degree and nature of rural investments by urban-based individuals and households, still need to be thoroughly investigated and understood.

Both migrancy and urbanisation affect the rural political economy. The depletion in the number of able-bodied men who, as heads of households, were also the decision-makers concerning the household and village economy, has a deleterious effect on the levels of agricultural production and the institutional capacity of community structures in rural areas of the Eastern Cape. The out-migration of women from the rural areas, particularly since the 1970s, has also impacted negatively on garden agriculture in many areas in the former bantustans. Positive effects of urbanisation include the substantial cash transfers which historically have taken place from urban to rural sector.

1.2.4 Agriculture

As with the rest of South Africa, the Eastern Cape agricultural sector exhibits a 'dualistic' nature, with a well-organised and well-supported white commercial sector and a resource-poor, disorganised 'communal' sector, the latter comprising 74 per cent of the agricultural land in the former Ciskei and 84 per cent in the Transkei (ARDRI *et al.*, 1994).

According to a recent report (*Mail and Guardian*, 3/08/1995), the Eastern Cape has a mere 5 per cent of the arable land in the country. ARDRI *et al.* (1994) note that only a small portion of this area (6 per cent of the area of the province) meets the requirement for rainfed cropping but that even here the distribution of sufficiently deep and well-drained soils is limited. Added to this is the argument (SPP, 1983) that, by 1980, 39 per cent of the Ciskei was overgrazed and 47 per cent was classed as moderately to severely eroded.

The remaining 96 per cent of the surface area of the province available for agricultural use is suitable only for extensive livestock production. The economic viability of extensive livestock production systems depends to a large extent on farm size and sound management. Not surprisingly then, the contribution of agriculture to the GDP is relatively low. The contribution of agriculture to the GDP of the former Ciskei in 1989, for example, was 8.1 per cent (Antrobus *et al.*, 1994).

In the white commercial sector, most of the arable land which is irrigated is used for lucerne production. Citrus and vegetable production also occur under irrigation. Rainfed cropping, predominantly wheat and maize, occur in the north-eastern areas, while pineapples, chicory and wheat form the

Table 6.6 shows that men in Crossroads engaged in women's activities, except for cooking. Women also engaged in men's activities. This village, too, had minimal field cultivation. One reason for the agricultural inactivity in this village was that many households did not have access to arable land.

Table 6.6 Gender division of labour in Crossroads

Participants	Gender roles					
	Cooking	Water collection	Firewood collection	Gardening	Cultivation (fields)	Looking after livestock
Women	8	9	10	10	15	9
Men	0	3	6	4	3	6
Men and Women	15	16	12	18	3	15
TOTAL	23	28	28	32	21	30

Table 6.7 shows that men were helping in cooking, water and firewood collection. There were few of them who carried out these activities on their own. In KwaHoyi, women were more involved in men's activities, particularly field cultivation, than in their own responsibilities. This could be attributed to the high labour migration in the district of Peddie. There were few able-bodied men in KwaHoyi and, as a result, women had to assume men's tasks, such as field cultivation. They also engaged in agriculture to supplement their income.

Table 6.7 Gender division of labour in KwaHoyi

Participants	Gender roles					
	Cooking	Water collection	Firewood collection	Gardening	Cultivation (fields)	Looking after livestock
Women	8	9	10	10	15	9
Men	0	3	6	4	3	6
Men and Women	15	16	12	18	3	15
TOTAL	23	28	28	32	21	30

6.4 Discussion of results

6.4.1 Gender division of labour

The gender division of labour and the distribution of responsibilities and work between groups of individuals are central to the functional structure of rural communities in Sub-Saharan Africa (International Fund for Agricultural Development, 1995). There are specific obligations assigned to men and women. For example, women are still generally associated with the domestic sphere, whereas a man's role is beyond the house.

Even though the tables above show that men were involved in women's activities, and *vice versa*, division of labour in the sample villages was still based on gender. In almost all the villages, it was mostly women who cooked, collected water and firewood. The few men who indicated that they cooked in their households were those who were living alone or cooked when their

wives and children were not around. Some men also indicated that they collected water and firewood by using donkey carts. However, they did not do this often. They usually engaged in those activities during the dry season and sold the resources to the community. Where money is involved, the men generally take over and push the women out.

During the PRA exercises in the sample villages, it was observed that men were more involved in drawing the external of the house than the interior. Comments such as "everything in the house is women's business not ours" also came from the men's side. When a man indicated that he cooks in his household, others would tease and laugh at him. This shows clearly that men are distancing themselves from the domestic sphere. To them, their role is beyond the house.

Although there is still gender division of labour in the sample villages, the advent of male labour migration in the district of Peddie has led to a reorganisation of roles. On top of their time-consuming and labour-intensive activities, the wives of migrants had to assume the tasks of the absent household heads. Evidence of this was the active involvement of women in gardening in almost all the sample villages. Women were also involved in field cultivation where this was still practised. This was particularly the case in KwaHoyi (see Table 6.7). Women were often helped by their children to deal with their heavy workload. Those who could afford it, hired men in the village to do the physically strenuous activities, such as looking after the livestock and fencing.

In support of the above discussion, two case studies are presented in the following section. The case studies are indicative of gender division of labour in the sample villages. They also distinguish between male-headed and female-headed households which is an important theme in the analysis of gender roles.

6.4.1.1 A male-headed household

Bheka was the head of a household in KwaHoyi. He lived with his wife, Agnes, and five of their nine children. Of the four children who were absent, only one was employed. She had just started working as a fashion designer in Port Elizabeth. Her parents did not expect any financial assistance from her at this time. They felt that she should look after herself in the meantime. Bheka and Agnes were pensioners and this was the only source of income in this household.

Activities such as cooking, cleaning, water and firewood collection were Agnes's responsibilities in this household. She was helped by her two granddaughters in these activities, though they were still young. Bheka and his sons also cooked but they only cooked when Agnes was not around.

Bheka and his sons were mainly responsible for physically strenuous activities such as looking after livestock, fencing and gardening. In addition, Agnes engaged in gardening.

6.4.1.2 A female-headed household

Nobantu, a 59-year old widow, was the head of a household in Mankone. She stayed with her four sons, all schoolchildren. Her other children, Zola and

Nozuko, were absent. Zola was searching for employment in East London and Nozuko was doing standard ten in Cape town. Nobantu was a pensioner and her pension was the only source of income in this household.

Every school day Nobantu woke up early in the morning to prepare for her children. After she had sent them off, she cleaned the house. At the same time, she had to see to it that there was food so that her children could eat when they came back from school. Nobantu did not have a rain water tank; therefore collecting water was one of her daily routines. She also collected firewood, but she did not do this every day. Nobantu had a few goats and she was the one who looked after them.

It was only when her children came back from school that Nobantu had less to do. After school the children would take over the work. Boys collected water and looked after the goats. They were also responsible for preparing supper and washing the dishes afterwards. Nobantu was very active in gardening. She was often helped by her children in this.

6.4.2 Decision-making processes

One fact that must be emphasised is the changing status of women in places such as the District of Peddie. The old established pattern of women who remain at home and look after their households is still predominant. In many respects this affects the position of women in their rural households. According to Manona *et al.* (1995) the wives of migrant labourers have to shoulder the whole responsibility of running their homes and this enables them to decide many issues since their husbands are often away. The migrant husbands are often not completely conversant with day-to-day problems of running a home, such as making a living from limited resources, budgeting and making decisions about many problems which confront the home.

Women also tend to display a good measure of entrepreneurship (Manona *et al.*, 1995). They exploit whatever opportunities become available. In spite of the many difficulties they encounter, they participate in informal economic activities. The small shops which are operated in the homes are almost invariably run by women. Some of the women constantly travel between the district and the towns to buy and sell whatever can provide them with income. Also, the role of women in community affairs is prominent. They constitute the bulk of membership of the voluntary associations which have an important social function. Some women are active members of committees of local schools and pre-school centres.

The change in the socio-economic status of women in the Peddie District had implications for the decision-making processes both at household and at village level. Household studies in the sample villages show that household decision-making about matters such as how and where to spend money, sending children to school and selling livestock, was a joint effort. Matters associated with domestic activities were decided by women, whereas men decided about circumcision and rituals. Women in female-headed households could also decide on their own. They only consulted their in-laws or their eldest sons in serious matters such as rituals.

Women in the sample villages were also involved in village decision-making processes. Gone are the days when women would not be allowed to attend village meetings and voice their opinions, ideas and interests. In the past, women were not allowed to make decisions about the very resources they use in their daily lives. It was men who decided where and when to collect water and firewood. Men were also likely to be chosen as spokespersons when it came to dealing with government or development agencies.

In all the sample villages women attended meetings. They were represented in the village committees. In the village meetings, it has been observed that women were listened to; it did not matter whether the subject under discussion is traditionally known to be of concern to men. From observations in the village meetings in Gwabeni and KwaHoyi, there was no apparent difference when women were meeting on their own and when in general meetings. They were free to voice their ideas without fear of being marginalised. In fact, women tended to be active participants in these meetings. Women were thus active in community affairs but instead of being acknowledged and appreciated, their active involvement in village decision-making processes seemed to pose a threat to men. Evidence of this was the lack of their participation in the village meetings. They also tended to withdraw easily when their ideas were objected to, particularly when the objection came from the women's side. Some men in Gwabeni and KwaHoyi even voiced how they felt about the matter. They said they could see that they were being disrespected and, as such, they were losing their dignity.

6.4.3 Access to resources

One aspect that the changing socio-economic status of rural women in Peddie has not improved is their relationship with land. Household studies show that women in the sample villages could own residential land but, with arable land, the case was different. Women in these areas had no direct access to arable land of their own. The majority of women interviewed reported that the arable land belonged to the head of the family (the husband). Even in *de jure* female-headed households, the land was registered under the name of the husband, even though he was not there. The women could use the land but they did not have their own rights to the land. Similar findings were found by Mini (1995) in his study of gender relations of production in four villages of the Eastern Cape.

6.4.4 Women as sectorial users of natural resources

It is mostly women who provide domestic water, firewood and food for the family. It is activities such as these that make them intimately involved with the environment. The following section is concerned mainly with the problems faced by rural women with regard to the use and management of the natural resources they use in their daily work chores. Emphasis has been placed on two resources, namely water and forests for firewood collection.

In many rural areas of South Africa water is very scarce. As a result water collection is time-consuming and frequently takes up to 2-3 hours of a housewife's time, which could have been far more profitably spent. This is

typical of a situation in the rural areas in Peddie. In Gwabeni, the majority of households used dams as their source of water and in Cisira people collected water from dams and windmills. Dams usually dry up, particularly during Winter season. Windmills, on the other hand, were always not functioning. The poor quality of water from the dams was another problem faced by women in the two villages. The water was said to be very dirty, with livestock that used the same source of water exacerbating the problem. Ground water from the windmills was also reported to taste sour. Besides its scarcity and poor quality, long distances to the water sources was another problem facing women in these villages. It took them hours to get to the water sources, time which could have been used more profitably. They also had to wake up very early in the morning to collect water.

In Gwabeni, there was a pump not far away from the homesteads. Its proximity did not make the situation better. People had to wake up as early as 4 a.m. in order to avoid a long queue and the temporary depletion of the water.

As with water, the scarcity of firewood was a serious problem in these villages. This was particularly the case in Cisira where there were forests nearby. Those who collected firewood stole it from private farms. Otherwise, the scarcity of firewood in this village forced people to buy it from the local merchants. Firewood was often sold at high prices, for example a full tractor load was sold at R140.

In these villages, the management of the resources in question varied from poor to non-existent. First of all, water sources were not fenced and there were no rules applied to water collection from these sources. It was concerning firewood collection where there were rules such as not to use an axe and to collect dry wood only; but those rules were no longer obeyed. The lack of management of these resources could be attributed to the collapse of village institutions (see Chapter 3). Another contributing factor could be the fact that some people had rain-water tanks and alternative fuels such as gas or generators. They might therefore not see the need for sustainable management of these communal resources. This indicates that women's interests in the management of the resources in question could also be influenced by socio-economic status (see Chapter 4 for more details). Moreover, women might not find time to manage the resources due to their tight work schedule.

There was nothing done by women in these villages to improve the availability of the resources in question. All they need is for the government to provide them with clean and accessible water and electricity. Women are not the only group who hold the attitude that 'government must do this and that for us'. This was what people in general had in mind. This is not a good attitude, bearing in mind that the Reconstruction and Development Programme (RDP) should be people-driven. The former Ciskei government has to take the blame for the attitude people held, in that it had been paying people in natural resource management projects such as donga rehabilitation and removal of bossies.

Men in these villages also needed water, but they did not seem to be as interested in tapped water as the women. They were concerned with water

As food providers, rural women are active in agriculture. They engage in agriculture to supplement their incomes, yet they are more disadvantaged than men in this sector. Due to landlessness, low rainfall, high population densities and the widespread disfunction of government institutions, women are limited to subsistence agriculture. In the former Transkei homeland, Wilson and Ramphele (1989) found that, among the poorer households in the area, home production amounted to only 3 per cent and that these families were almost entirely reliant on remittances from urban areas and pensions from the government. The shortage of labour due to the high rate of male labour migration is another serious problem facing women's agricultural production.

These factors, and patriarchy (discrimination on the basis of gender) in general, place women in an unenviable position relative to men, being reliant on natural resources available on the commons, but finding themselves marginal to the formal decision-making structures in the village. They also mask other realities and fail to recognise current major changes in women's role with regard to common property resources. The changing status of women has been observed in many areas of the Peddie District. Women's changing status is evident not only in their education but also in their changing relationship to land. Rural women in the district of Peddie can own land in their own right even though there are some areas where this right is restricted. In some areas, women, particularly in female-headed households, have no direct access to arable land in their own right. They attain such right only by virtue of a prior relationship with a man. They also do not inherit land. However, there is an increasing number of adult women who have residential sites of their own (Manona *et al.*, 1995). They also own livestock and thus make use of grazing land. Additionally, women generally tend to display a good measure of entrepreneurship and their role in community affairs is prominent.

Historically, women have been and are still more adversely affected by development interventions than men. By and large, natural resource management programmes in developing countries have failed to address the needs of women and involve them in planning (Deshingkar, 1995). It is therefore felt that using participatory techniques to study gender and natural resource use and management in the villages in question would give an understanding of how resources are allocated in the rural areas of the Peddie District. Such information could serve as guidelines in policy formulation and development intervention to avoid repeating the imbalances of the past.

6.2 Methodology

In order to determine whether gender is impacting on the use and management of natural resources in the sample villages, gender roles, decision-making processes and the allocation of resources in the sample villages have been assessed. As mentioned previously, the findings of the assessment will contribute to policy formulation and development interventions.

In trying to promote research participation in the villages, a Participatory Rural Research method has been used to collect data in the sample villages.

Participatory Rural Research is a three-pronged process involving social investigation with the full and active participation of all parties in the entire process, an educational process of mobilisation for development and a means of taking action for development. There are two methods of Participatory Rural Research, namely Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA). Examples of Rapid Rural Appraisal are secondary data review, direct observation, semi-structured interviews, diagrams (maps and transects) and workshops. There is no sharp dividing line between Rapid Rural Appraisal and Participatory Rural Approach. The difference between the two is not in methods but more in roles, attitudes and behaviour. In Participatory Rural Appraisal, much more than in Rapid Rural Approach the local people choose the methods relevant to the issue at hand, draw the diagrams and maps, and decide on indicators for observation and run workshops. This method also aims at sharing knowledge, techniques and experiences (Van Vlaenderen, 1995).

In this Chapter a Participatory Rural Appraisal (PRA) has been chosen over Rapid Rural Appraisal (RRA) because it is participatory in nature, it has been proved to be particularly useful in creating awareness about gender issues and it has given women a chance to voice their concerns. Four techniques of PRA have been used. These are PRA mapping exercises, in-depth and semi-structured interviews, observations and workshops, particularly with women. Firstly, two PRA mapping exercises have been done to ascertain gender division of labour in the sample villages. In the first exercise, participants were asked to draw a typical rural house with furniture inside. They were then asked to indicate, using stones, their roles inside the house. Three kinds of stones were used for this purpose; one representing women, one representing men and the other one representing both men and women. After every indication of roles, records were taken. In the second exercise, participants were asked to draw the exterior of the house (starting from the yard to the entire village). The procedure similar to the one used in the first exercise was then used. In the end both exercises were evaluated. Participants were asked to comment on the exercises.

Secondly, different households were studied closely (in-depth interviews). The aims of the interviews were threefold. They were to look at gender division of labour, to determine decision-making processes at household and at village level and also to assess the allocation of resources between men and women in the sample villages.

Thirdly, workshops were held with women in two villages, namely Gwabeni and Cisira. The main focus of the workshops was water and firewood. The theme was around problems experienced by women in the use and management of these natural resources. Suggestions and solutions to the problems were also discussed.

In all the techniques mentioned above, observation was done. It was important to do this because people might not always tell what they actually do in reality.

6.3 Results

6.3.1 The profile of participants

The profile and quantitative results of the PRA mapping exercises are presented in the form of tables. The numbers in the tables should not be taken as absolute because participants made errors in the exercises. Another reason is that the last category of participants (men and women) as seen in the tables does not differentiate between adults and children. The results in the tables are simply trends to give an idea of gender division of labour in the sample villages.

Table 6.1 above shows PRA workshops attendance in the six villages. There were no significant differences in attendance by men and women in Gwabeni and KwaHoyi, while in Mankone and Crossroads men exceeded women by 8 and 10 respectively. In Rura and Cisira women exceeded men by 10 and 8 respectively. Although there were more men than women in some of the villages, it was the women, in almost all the villages, who were the most active participants during the exercises.

Table 6.1 The profile of participants

Participants	Village					
	Mankone	Rura	Gwabeni	Cisira	Crossroads	KwaHoyi
Women	12	15	12	23	10	16
Men	20	13	9	15	21	19
TOTAL	32	28	21	38	31	33

6.3.2 Gender division of labour

Presented in the tables below are the results of the PRA exercises on gender division of labour in the sample villages.

Table 6.2 shows gender division of labour in Gwabeni. In this village men were also involved in activities traditionally known to be those of women. The activities were particularly cooking and water collection. Co-operation between men and women is also noticed in physically strenuous activities such as gardening and looking after livestock. There was absolutely no cultivation taking place in this village.

Table 6.2 Gender division of labour in Gwabeni

Participants	Gender roles					
	Cooking	Water collection	Firewood collection	Gardening	Cultivation (fields)	Looking after livestock
Women	7	5	9	3	2	0
Men	0	1	1	8	6	11
Men and Women	5	12	8	10	5	9
TOTAL	12	18	18	21	13	20

Table 6.3 shows that men in Mankone were also participating in women's activities. Only a few men were doing this on their own. Women were also involved in men's activities, such as field cultivation. No women were responsible for looking after livestock on their own.

Table 6.3 Gender division of labour in Mankone

Participants	Gender roles					
	Cooking	Water collection	Firewood collection	Gardening	Cultivation (fields)	Looking after livestock
Women	8	9	10	12	7	6
Men	3	4	3	6	9	12
Men and Women	7	9	3	9	8	8
TOTAL	18	22	16	27	24	26

Table 6.4 shows that men were involved in women's activities and *vice versa*. Unlike inhabitants of other villages, people in Rura were agriculturally active, with women more involved in gardening than in field cultivation.

Table 6.4 Gender division of labour in Rura

Participants	Gender roles					
	Cooking	Water collection	Firewood collection	Gardening	Cultivation (fields)	Looking after livestock
Women	8	23	21	5	3	10
Men	0	6	3	3	5	6
Men and Women	6	0	1	8	6	0
TOTAL	14	29	25	16	14	16

Table 6.5 shows that water and firewood collection were mainly women's task in Cisira. There were few men involved in women's tasks and none of them did any cooking on their own. The reason for this could be the proximity of this village to town (Peddie). Cisira is closer to town and, as a result, men spend most of their time in town (Peddie Bar and other shebeens). Because they were always in town they did not have time for housework. Another reason could be that, due to high male labour migration in the district of Peddie, there were fewer men than women in the village. Women were also involved in men's activities, such as cultivation and looking after livestock. There was minimal field cultivation in this village.

Table 6.5 Gender division of labour in Cisira

Participants	Gender roles					
	Cooking	Water collection	Firewood collection	Gardening	Cultivation (fields)	Looking after livestock
Women	10	9	8	14	2	3
Men	0	5	4	5	4	15
Men and Women	4	12	16	6	3	9
TOTAL	14	26	28	25	9	27

that people with small residential holdings were not allowed to own any arable land. Now that the situation has changed many households do own arable land but Nomvulo's household does not have access to it.

They dispose of their garbage by burning and for a toilet they use a pit.

Group Five (n=68)

This group consisted of average-sized families and was male dominated (approaching 60 per cent of resident family, particularly old men with very few children). There were high levels of absent family members in work (and presumably remitting) and the highest numbers of pensions of all the groups. Therefore it can be assumed that income was relatively good supporting small families of old people (usually men). With high-income levels, this group also had the highest standards of hygiene and material assets and made the greatest use of arable land (with fencing). Livestock numbers were also higher than average (goats, sheep and cattle, but less so for "women's" animals - poultry and pigs). Given the preponderance of elderly males in these households, it was not surprising that only a very modest use of natural resources was found.

CASE STUDY FIVE Male Headed Household

Ndaba, a 74-year-old pensioner is the head of this household. He lives only with his wife (Ncumisa). They have three sons and two daughters. All their children are studying and Ndaba's brothers and sisters are migrant labourers and presumably remitting. Ncumisa hopes to get the pension grant next year when she turns sixty. They recently moved to Gwabeni extension which is a new settlement area in the village.

Although Ndaba still holds the traditional beliefs that a woman's role is inside the house, there is a great deal of co-operation in their home. He considers activities such as cooking, dish washing and cleaning of the house as solely a woman's task. However, he does cook, wash the dishes and other domestic tasks. Though he helps his wife, he does not feel obliged to do so. They both collect water and firewood. Ncumisa helps her husband with gardening, repairing of the fence and in looking after livestock.

This household has access to arable land but because of drought and other related factors, they are not using it. Ndaba told the interviewer that when he passes away Ncumisa will have full rights on the land and would not need to consult her brothers-in-law or anyone in the family; she will do as she pleases with the land. They are making great use of mud and, to supplement their diet, they use imifino, itolofiya (prickly pear) and honey. Ndaba hunted while he was 'strong' but these days because of his age he no longer hunts.

They dispose of their garbage by burning or disposing in a zinc drum and for a toilet they use a pit.

CASE STUDY SIX Male Headed Household

In observing the situation of this household the head, Lionel, is always intoxicated. This might be related to the fact that his mother who is 93 years old is blind and partially deaf and the wife (Regina) has had a stroke and is

diabetic. There are eleven members in this household, of which three are still at school, three have degrees and are employed, three are pensioners and two are employed in firms. Regina's condition compels her to hire a person to help around the house. She helps in cleaning and cooking. Lionel's duty is to look after livestock but because of his drinking habit he admits that he lost one of his sheep that needed attention since it was sick.

Lionel complains that his children who are professionals with degrees are extravagant. He asked them to extend the house in which they lived in Port Elizabeth (Port Elizabeth, approximately 124km from their village, Rura), but they refused preferring to stay in houses which he anticipated they will not afford. He pleaded with them for a long time but they refused. They stayed in suburb areas around Port Elizabeth's black location and also went on to stay in town which is more expensive. This was beyond his control and it went on to affect his household at large. He hoped that after educating them they would give assistance to the family but that was not so. Lionel is financing his other sons' education and is fencing his yard. He feels the pressure is too much for him. He is thinking of staying in an old age home if all fails but the interviewer's concern is that he is not thinking of taking his wife with him.

The children have since decided to move back to their father's house in Port Elizabeth and they are thinking of extending it but Lionel is concerned that they are not sending any remittance home. One of his sons has a house in the village but since his wife passed away he left the village leaving his children with their grandparents. He does not communicate with his parents and that concerns Lionel because this behaviour started after his son lost his wife. His wish is for his children to support in the education of their younger brothers and sister. He also accused Regina of misappropriation of their money.

His wife portrays him as useless. This might result from the fact that he drinks too much. She visits her family in Port Elizabeth and finds her visits very relaxing and comforting because, from what she said, "everything is within reach; when you need water you don't have to walk for miles to get it".

Lionel is concerned about the management of the commonage in his village. He realises that the village need rules around natural resources. He foresees government as not being able to offer such assistance. In common with most other villagers who have been interviewed, he does not want any changes around Tyhefu location (he does not want boundaries though he is well aware of the rate of theft in the area). He accused the Sebe regime of not properly maintaining a dam that was built in 1937. He said that the dam contained water even in drought because it was managed, i.e. cleaned and extended to hold more clean water when it rains. He wants the dams to be cleaned and extended so that the capacity of the dam to hold water would be more than before.

He is angry with the present government because in the past it used to assist in wool production but today does not involve itself in such activities. This means it is costly to shear because presently there are no subsidies from government and it is difficult to find a market. In the past extension officers would visit villages around September for shearing. This job was done by

villagers who were remunerated. The government would take the wool and make payments for it.

Presently he has 17 sheep and 2 chickens, which is different from what is indicated in the questionnaire. They last used their arable land 15 years ago but are making much use of their garden plot.

They dispose of their garbage by burning and for a toilet they use a pit.

Group Six (n=52)

This group consisted of the second largest families, with balanced gender ratios, and many children but only average numbers of older people. Income sources are about average, though these households experience poor hygiene and material assets. Arable land seems to be used more than average and the same can be said for garden cultivation. Livestock numbers are average. What seems to distinguish this group was its heavy use of natural resources - wood for cooking and heating. This is probably the group most dependent on natural environment.

CASE STUDY SEVEN Female Headed Household

This household is rather complicated. In the questionnaire it is indicated that the head of the household is a female which is partly true. The house has two rondavels (huts), one is where the person (Nosayini) referred to as the head in the questionnaire stays and the other is where his son and his wife with their two children are staying. According to Michael (Nosayini's son) who was interviewed during the in-depth study, what happens in their rondavel does not concern his mother.

His mother is a pensioner but it is not her responsibility to see to it that her son's family is fed since Michael is unemployed. He was last employed in the mines in 1989. It was in that same year that he married. Since then he has never been employed on a full-time basis; in the past he was temporarily employed in removing 'alien' species that are not suitable for livestock. These jobs come once in a lifetime.

In other matters in the family that need men, he is the one who is responsible. His responsibilities as a man are performed for the entire homestead, not only for his wife and children. In these communities there are certain tasks that cannot be performed by women e.g. to make arrangements for boys to go to initiation school.

There are three other men in the household (not included in the questionnaire) who are Michael's brothers. One is working in Gauteng and another in Ginsberg. The last of the three is not working and is staying in the village. He is also married. The ones who are employed do not remit anything home.

It was hard for the interviewer to ask anything about NMR and other related issues because the cry of this household is starvation and hunger. They make use of whatever they can find at their disposal.

Michael briefly mentioned past attempts made by village members to clean the dams. Another water project was also started in the village but collapsed through lack of funds. The project was on improving the condition of the dams

and the materials bought are now under-utilised. These included wheelbarrow, shovels and picks.

He has lived with his wife since they were married. They have been looking for employment but because they do not have money to travel to towns or cities, it is hard for them to seek jobs in areas far away. According to Michael, the Chamber of Mines recruiting offices have closed down.

They dispose of their garbage by burning and for a toilet they use a pit.

Group Seven (n=16)

This was a small group of livestock specialists, with stock levels well above average. These were medium-sized families, with more males than females and low overall dependency levels (few children and even fewer older people). Monetary income came from remittances rather than pensions. These seemed to be relatively wealthy households, with expensive energy systems, good quality hygiene and material assets and, apart from mud (for floors) and the collection of imifino, a less than average use of natural resources (including woodfuel)

CASE STUDY EIGHT Male Headed Household

Edward is married with six children, of whom one is adopted. He is a school inspector in Peddie and his wife is a teacher also in Peddie. His two youngest children are at primary school, two at high school and the oldest of the children is a technician.

He ploughs arable land (on a lease) when conditions are suitable. At first Edward attempted to borrow land from a member of his village but this man stole most of his produce. He now has fenced a piece of land leased to him by his cousin. The land is in another village. He is not concerned about the investment he has made in fencing the land. When his cousin decides he wants his land returned his investment will still be kept within the family. This suggests that the 'favour' will be reciprocated sometime in future.

He is concerned about the management of natural resources, such as rangeland and livestock water sources (dams). The village has 'inherited' a farm which was properly managed, the manner in which people are now using the farm is harmful. The farm has water points and fuel and people are using these resources. He said people were stealing the fence and there are no rules/laws around the use of natural resources. Since he owns 60 goats, 17 chicken and 74 cattle, the interviewer observed that he is most affected by the depleting natural resource base.

This household owns material assets such as a television set and kitchen appliances. Human resources are not a hindrance to this family as was previously indicated; both parents are educated and earn fixed income

They dispose of their garbage by burning and for a toilet they use a pit.

5.5 References

Johnston, R.J. (1978). *Multivariate Statistical Analysis in Geography*. Longman, London.

6 GENDER AND NATURAL RESOURCE MANAGEMENT IN THE PEDDIE DISTRICT - EASTERN CAPE

T. PETSE

6.1 Introduction

Also impacting on the use and management of natural resources is the question of gender relations. Gender and natural resource management has been of particular concern in the economically less developed countries in recent years. Why this concern about gender and natural resource management? Men and women in Third World societies have different roles (Moser, 1989), they have different rights to natural resources and they are affected differently by the outcome of policy intervention and environmental degradation. This therefore means that they have different needs, interests and priorities with regard to natural resource use and management.

As opposed to men, women in rural areas are directly dependent on their environment and their own skills in using them for the basic necessities of life. Women's responsibilities can be categorised into survival tasks (providing food, water and firewood), household tasks (cooking, cleaning and taking care of children) and income-generating tasks (trading of agricultural products and handcrafts). Some of these tasks are labour-intensive and time-consuming due to poor or nearly non-existent infrastructure for supplying basic needs, the harsh climate and the increasingly degraded natural resource base.

Despite the fact that women spend a great deal of time in direct contact with their environment, they generally have little impact, relative to men, on decision-making processes concerning the management of the common property resources in the village. This is the case even though many rural households are female-headed (Deshingkar, 1995). Women are also regarded as the poorest of the poor (Rural Poverty Alert, 1992). This is particularly the case with women in female-headed households. They rely heavily on old age pensions and remittances for survival. A life built around remitted income is not a safe one (Deshingkar, 1995). It is not uncommon for the migrant husband to start another family in the city. Obviously, one cannot be able to support two families at the same time and it usually the family in the rural area that suffers.

The question of women's access to arable and residential land in their own right also impacts in the use and management of natural resources by women. Rural women have no direct access to arable land in their own right; they attain such right only by virtue of a prior relationship with a man (Mini, 1994). Female-headed households are the most disadvantaged in this regard. Women have rights to land as long as they remain married. In the case of a deceased husband, a widow may retain the use of the land, but merely as a custodian for the eldest son of the deceased. Without direct access to land, women's alternative means of land use and production, such as share-cropping, are constrained and opportunities for investment are limited.

random 'noise' and spurious relationships. Subsequent analyses use these factors for further examination.

(d) For example, three factors were created from a combination of eight indices (which themselves were derived from the raw questionnaire data): FAMSIZE, CHILD, YOUTH, MATURE, OLD, DEPY, DEPO and DEPALL. The derivation of these indices is as follows:

FAMSIZE	: size of resident family	DEPY	: (CHILD + YOUTH) / FAMSIZE
CHILD	: no. resident under 6 years	DEPO	: OLD / FAMSIZE
YOUTH	: no. resident between 6 and 19 years	DEPALL	: DEPY + DEPO
MATURE	: no resident between 19 and 55 years		
OLD	: no. resident over 55 years		

The details of the factoring process by which these indices were converted into three new factors are explained below and in Tables 5.1 and 5.2.

Table 5.1 Factoring statistics (rotated solution)

factor	% of variance	cumulative % of variance
1	36.1	36.1
2	24.9	61.0
3	23.5	84.5

Table 5.1 shows the percentage of the original variance which was contained among the eight indices that has been 'extracted' by the analysis. In this instance a total of 85 per cent of the original variance is accounted for within the three new factors. Thus in reducing eight indices to three factors, only 15 per cent of the original 'information' has been effectively rejected - as showing no relationship among the indices. In other words, this 15 per cent can be regarded as random 'noise' that has no bearing on the relationships between the variables which are being sought. It just muddies the waters and is better left aside.

Table 5.2 Rotated factor matrix

variable	Factor1	Factor2	Factor3
DEPY	0.9193	-0.1924	-0.2605
YOUTH	0.8067	0.0412	0.1856
FAMSIZE	0.7467	0.1806	0.6372
CHILD	0.6640	-0.0846	0.0758
OLD	0.0234	0.9441	0.0448
DEPO	-0.3353	0.8177	-0.3786
MATURE	0.0849	-0.1805	0.9417
DEPALL	0.5343	0.5707	-0.5837

The rotated factor matrix shows the contribution of the original indices to the new factors. These values are effectively correlation coefficients between the indices and the new factors. Thus the correlation between DEPY and Factor 1 is 0.92. The equivalent data for YOUTH, FAMSIZE and CHILD are 0.81, 0.75 and 0.66 respectively. In contrast, OLD and DEPO have low (and insignificant) correlation with Factor 1, but, instead, are high for Factor 2 (0.94 and 0.82 respectively). Finally, MATURE and DEPALL relate well to Factor 3, at 0.94 and -0.58. Note that the last index, DEPALL, is negative correlated,

(b) Various measures by which the initial set of 379 households can be assessed for their similarity can be employed. In this instance, Squared Euclidean Distance has been used. This measure of (dis)similarity has become universally accepted as a good 'robust' measure. Fusion strategies - the procedure by which the least dissimilar (i.e. most similar) households are sequentially merged - can be varied (there are a number of methods, all with their respective advantages and disadvantages). Just as Euclidean measures

have become generally favoured, so too have 'centroid' sorting strategies come into increasing popularity. In this particular case, a variant of a centroid method, that proposed by Ward, has been used.

Table 5.3 Results of the final factor analysis (rotated solution)

	factor 1	factor 2	factor 3	factor 4	factor 5	factor 6	factor 7	factor 8
FEMFAC	0.940	-0.036	0.070	-0.013	-0.100	0.010	-0.050	0.036
PENSFAC	0.894	-0.026	0.047	0.283	0.198	0 044	-0.012	0.027
YOUNGFAC	0.745	-0.046	0 117	0.134	0.037	-0.073	0.070	-0.048
COWFAC	0.011	0.949	-0.026	0.014	0.081	0.109	0.024	-0.037
GOATSFAC	-0.120	0.906	0.051	0.103	0.058	0.016	-0.020	0.048
ENERGFAC	-0.103	-0.013	-0.906	-0.124	0.066	0.038	0.010	0.055
WOODFAC	0.119	0.008	0.892	0.069	-0.029	-0.013	0.152	0.023
MALEFAC	0.152	0.071	0.096	0.840	0.203	0.027	0.062	-0.041
MATFAC	0.267	0.101	0.093	0.740	-0.154	0.145	-0.071	0.056
SHEEPFAC	0.122	0.262	-0.103	-0.374	0.155	0.370	0.146	-0.190
OLDFAC	0.187	-0.001	-0.125	0.123	0.800	-0.057	0.032	-0.008
WORKFAC	-0.089	0.145	0.025	-0.087	0.770	0.120	0.079	-0.007
LANDFAC	-0.088	0.041	0.072	0.142	0.075	0.790	0.238	0.120
ASSETFAC	0.043	0.105	-0.260	0.041	-0.081	0.596	-0.497	-0.102
GRASSFAC	0.018	0.026	0.090	-0.034	0.099	0.174	0.832	-0.016
HONEYFAC	0.046	0.062	-0.144	0.148	-0.189	-0.080	0.240	0.742
MUDFAC	-0.038	-0.070	0.132	-0.132	0.234	0.158	-0.340	0.692

Interpretation:

Factor 1	selects for female-dominated households with more than average children and dependence on pensions (FAMILY)
Factor 2	livestock factor (COWGOAT)
Factor 3	woodfuel factor, high loading on wood use, low on modern energy (LOWENERGY)
Factor 4	male-dominated households with mature, working age people (MALEMATURE)
Factor 5	households dominated by elderly, with absentee family members working away (OLDWORK)
Factor 6	selects on land holding and use, investment in hygiene and material assets (ASSETS)
Factor 7	low on assets, high on natural resource use (grass roofs, use of tree wood for building, but not mud for floors) (GRASS)
Factor 8	high on other natural resources (HONEY)

(c) Ultimately, of course, the logic of the fusion strategy is that all households eventually coalesce into one 'global' group, with the least similar subgroups joining towards the end. Thus it is possible to view all households as distinct - as different, individual units (the base of the dendrogram), or as one unified, whole (the top of the dendrogram). Because there is a hierarchical structure to the dendrogram, the possibility exists to 'truncate' the tree at a suitable point, thus yielding neither a collection of many unique households, nor an indigestible whole; but a small number of groups within which internal variation among households is minimised (i.e. there is a significant degree of similarity between all households residing in any given group), whilst, at the same time, differences between groups are maximised. Choosing a cut-off point (and thus the number of 'final' groups) is always arbitrary, and has to be based on the experience of the observer. In the final analysis, the choice of the number of groups depends on the extent to which they are recognisable both conceptually and in the field. If such a typology of households contributes

towards a greater understanding of their specific problems, then the choice of the position of the cut-off point can be justified.

(d) Deciding on the final number of groups can be eased by examining the statistical base of each group. Descriptive statistics of the initial variables (by group) can provide an extremely useful way of specifying the 'identity' of each group. In the present case 7 groups were determined and their essential characteristics, as indicated by the mean values obtained by the variables and factors, and discriminant function scores, are shown in Tables 5.5, 5.6a and 5.6b and 5.7.

5.3 Discriminant analysis: the typology confirmed

Discriminant analysis is used to refine the classification, by testing the final groupings against the factors, variables and indices that contributed to their definition. It can thus be used to 'check' the strength of the classification. The purpose here is to rectify a weakness of hierarchical classifications which agglomerate from the base. These tend to suffer from 'drift'; a process by which the centre of gravity of each proto-group moves away from its initial position as more and more new members are added. The mean values of the group (of the factors, variables and indices) will slowly change, such that the original members may well depart markedly from the final mean. In this case, these, first-fused members may be better located in a different group. Effectively, discriminant analysis extracts each household from its parent group and compares it to other groups. If it finds that the household is in fact closer to the mean (centroid) of another group, it is re-assigned. This cross-checking proceeds for each household until the final allocation stabilises.

During discriminant analysis, a number of discriminant functions are calculated, which effectively capture the information contained in the factors or variables which have been used as inputs to the analysis. These functions are then used to discriminate amongst the cases, checking to see if they have been correctly allocated to the groups. Using 'regression' type equations with these functions, group membership can be predicted. These predictions then form the basis for a second analysis. Final groupings are decided when this iterative process stabilises. The resulting functions can be interpreted in much the same way as factors. Table 5.4 shows the discriminant functions, and their relationship to the factors.

Table 5.4 Correlations between second generation factors and discriminant functions

	function 1	function 2	function 3	function 4	function 5	function 6
LOWENERGY	0.815	0.100	-0.349	0.108	0.406	-0.155
GRASS	0.105	0.594	0.539	-0.165	-0.149	0.267
COWGOAT	0.172	-0.479	0.615	0.539	-0.236	0.113
ASSETS	-0.067	0.278	0.063	0.456	0.194	-0.098
HONEY	0.042	0.167	-0.256	0.320	-0.599	0.348
OLDWORK	-0.059	-0.008	0.031	0.149	0.577	0.660
FAMILY	0.091	-0.106	0.084	-0.440	-0.133	0.556
MALEMATURE	0.030	0.048	0.241	-0.157	0.093	-0.485

Table 5.4 can be interpreted in the following way. Function 1 reflects collected (rather than purchased) woodfuel-based energy provision. Function 2 identifies the GRASS factor as important, on which those households which rely on natural resources score highly, picking out households which, in particular, use grass for roofs and saplings for buildings. This function is also negatively associated with livestock (i.e. one would expect households that score high on this function to have few, if any livestock). Function 3 is the livestock axis, selecting households with good stock levels, but also modern, or expensive energy systems (negative loading for LOWENERGY). To a lesser extent it also loads negative for HONEY, the factor which represents marketable natural resources. Function 4 focuses on good assets (radio, TV, generator, water tank along with good hygiene provision) and also marketable natural resources (honey, aloe sap, medicinal plants, etc.). Significantly it also has the second highest loading for livestock and the highest negative loading for FAMILY - implying that these are households with few children and not necessarily dominated by females. Households that score well on this function would therefore be relatively 'rich' with few resident dependants. Function 5 is characterised by low collection of marketable natural resources and a moderate dependence on low cost energy supplies (woodfuel) - linked to 'old' families with absent workers. Function 6 focuses on family composition, highlighting households with dependent children, elderly people and women. Mature men are working away.

Further details of discriminant analysis can be found in Johnston (1978).

Table 5. 5 Groups means for selected variables

GROUPS	1	2	3	4	5	6	7	all
SIZE	55	49	70	69	68	52	16	379
FAMSIZE	4.10	4.11	3.76	6.86	4.25	5.52	5.52	4.78
GENDERF	49.17	60.20	51.72	63.17	41.87	49.67	36.57	51.42
GENDERM	50.83	39.80	48.28	36.83	58.13	50.33	63.43	48.58
SEXRATIO	-0.02	0.20	0.03	0.26	-0.16	-0.01	-0.27	0.03
CHILD	0.46	0.65	0.51	1.34	0.40	1.10	0.43	0.71
YOUTH	1.25	1.29	1.07	2.44	1.12	1.75	1.70	1.48
MATURE	1.88	1.44	1.40	2.41	1.47	1 92	2.48	1.78
OLD	0.50	0.73	0.77	0.68	1.26	0.77	0.91	0.81
DEPY	35.47	41.74	34.30	55.42	29.91	47.33	35.21	39.88
DEPO	15.76	19.33	29.89	9.63	35.81	13.67	14.60	21.17
DEPALL	51.23	61.07	64.20	65.05	65.73	61.00	49.81	61.06
PENSION	0.58	0.60	0.73	0.69	1.22	0.88	0.74	0.79
ABSENT	2.21	3.15	2.77	1.66	5.53	3.81	3.78	3.27
WORKAWAY	0.69	1.16	1.19	0.86	2.35	1.35	1.52	1.32
HYGIENGE	2.75	2.84	3.43	2.44	3.29	2.85	3.04	2.97
MATERIAL	2.10	2.42	3.23	2.08	2.91	2.19	3.09	2.57
CASHFROM	1.65	1.60	1.60	1.44	1.18	1.24	1.65	1.46
WATERZ	0.19	0.47	0.93	0.10	0.74	0.21	0.57	0.48
LANDZ	1.67	1.18	1.66	1.22	1.67	1 73	1.49	1.56
GARDUSE	2.21	0.73	0.89	0.53	1.16	1.67	0.87	1.15
STOCK2	4.37	2.85	4.39	3.47	4.28	4.27	9.83	4.31
GOATS	5.00	2.24	3.90	4.39	4.31	3.69	19.87	4.90
SHEEP	2.23	0.29	2.30	0.63	2.81	1.10	10.43	2.16
CATTLE	1.42	0.42	1.66	0.97	0.97	1.73	18.39	2.24
PIGS	0.77	0.91	0.94	0.75	1.28	1.15	1.35	1.00
POULTRY	4.56	2.09	2.76	1.97	3.25	3.85	9.48	3.43

Table 5.5 (continued)

GROUPS	1	2	3	4	5	6	7	all
DONKEYS	0.25	0.15	0.07	0.20	0.18	0.33	0.09	0.18
ENERGY1	1.06	1.07	2.43	1.03	1.13	1.38	1.09	1.37
ENERGY2	1.96	1.95	2.04	1.93	1.99	1.88	2.00	1.97
ENERGY3	1.19	1.27	2.54	1.14	1.53	1.65	1.39	1.57
WOODWHERE	2.38	2.27	4.91	2.08	2.40	2.44	2.39	2.80
WOODTIME	3.29	2.89	0.06	3.27	2.46	2.63	2.78	2.36
WOODSEX	2.00	2.05	2.00	1.98	1 86	1.75	1.95	1.93
WOODRULE	1.64	1.51	1.50	1.22	2.15	2.35	1.59	1.75
NATRES	5.54	3.48	3.03	4.35	3.53	6.27	3.94	4.24
SAPLING	0.62	-0.11	-0.07	0.24	0.18	0.93	0.24	0.27
MUD	0.94	0.64	0.56	0 88	0.79	0.92	0.83	0.78
GRASS	0.38	0.02	0.20	0.08	0.31	0.88	0.13	0.29
IMIFINO	0.88	0.93	0.83	0.98	0.82	0.88	0.87	0.88
OPUNTIA	0.88	0.78	0.53	0.88	0.72	0.81	0.70	0.75
ALOE	0.33	0.22	0.14	0.20	0.03	0.40	0.13	0.20
MEDICAL	0.81	0.51	0.39	0.58	0.44	0.90	0.57	0.58
HONEY	0.69	0.49	0.47	0.49	0.24	0.54	0.48	0.47
TREEPLAN	0.62	0.45	0.56	0.34	0.56	0.56	0.57	0.52
HUNTWHO	0.23	0.07	0.09	0.25	0.10	0.10	0.26	0.15

Table 5.6a Group means by factors

GROUPS	1	2	3	4	5	6	7
SIZE	55	49	70	69	68	52	16
FEMFAC	-0.271	0.075	-0.262	0.930	-0.397	0.144	-0.303
MALEFAC	-0.108	-0.441	-0.314	0.257	0.082	0.275	0.734
YOUNGFAC	-0.283	-0.068	-0.301	0.817	-0.358	0.346	-0.102
PENSFAC	-0.399	-0.178	0.064	-0.144	0.603	-0.139	0.034
OLDFAC	0.015	-0.284	-0.329	0.396	-0.079	0.108	0.621
WORKFAC	-0.418	-0.143	-0.127	-0.538	0.881	0.119	0.180
ASSETFAC	-0.303	-0.156	-0.285	0.731	-0.112	0.206	-0.088
MATFAC	0.470	-0.782	-0.489	-0.310	0.020	1.432	-0.202
LANDFAC	0.652	0.988	0.093	-0.589	-0.397	-0.543	-0.207
SHEEPFAC	0.470	0.075	-0.069	-0.043	-0.610	0.442	-0.116
GOATSFAC	-0.013	-0.123	0.010	-0.164	0.075	0.074	0.327
COWFAC	0.021	-0.339	-0.082	-0.100	-0.032	-0.230	1.885
ENERGFAC	0.537	0.443	-1.843	0.671	0.223	0.268	0.347
WOODFAC	-0.517	-0.451	1.518	-0.575	-0.229	0.062	-0.359
HONEYFAC	-0.318	-0.130	0.514	-0.464	0.306	-0.230	0.273
MUDFAC	0.805	-0.653	-0.069	-0.744	0.323	0.515	-0.260
GRASSFAC	-0.076	-0.410	-0.109	-0.232	-0.133	-0.160	2.837

Table 5.6b Group means by second generation factors

GROUPS	1	2	3	4	5	6	7
FAMILY	-0.489	0.079	-0.252	0.693	-0.422	0.336	0.248
COWGOAT	-0.104	-0.346	-0.106	-0.109	-0.115	-0.406	2.780
LOWENERGY	0.646	0.586	-1.767	0.500	0.221	-0.295	0.405
MALEMATURE	-0.091	-0.572	-0.134	0.324	0.127	0.328	0.225
OLDWORK	-0.410	0.002	-0.037	-0.380	0.870	-0.028	-0.057
ASSETS	0.577	-0.326	0.027	-0.828	0.535	0.232	-0.235
GRASS	0.519	-0.940	-0.504	-0.035	-0.072	1.490	-0.080
HONEY	0.877	0.460	-0.037	-0.513	-0.681	0.032	-0.199

Table 5.7 Group means by discriminant functions

	1	2	3	4	5	6	7
function 1	1.212	1.047	-4.453	1.868	0.017	0.493	2.356
function 2	1.074	-1.041	-0.578	-0 309	0.396	2.392	-3.963
function 3	-0.210	-2.007	-0 050	-0.862	0.513	1.284	3.220
function 4	-1.589	-0.437	-0.171	1.022	1.201	-0.151	-0.674
function 5	-0.350	-0.512	0.366	1.301	-1.358	0.640	0.135
function 6	-0.413	0.369	-0.042	-0.188	-0.083	0.373	0.063

Function 1 reflects woodfuel-dependent energy provision (collected rather than purchased)
Function 2 households which rely on natural resources, particularly grass for roofs and saplings for buildings and with poor stock holdings
Function 3 households with high livestock holdings (both cattle and goats/sheep) that use modern forms of energy and take little advantage of marketable natural resources (honey, medicinal plants, aloe sap)
Function 4 good assets (radio, TV, generator, water tank along with good hygiene provision) and also marketable natural resources (honey, aloe sap, medicinal plants, etc.), livestock and households with few children and not necessarily dominated by females
Function 5 households with little interest in collecting marketable natural resources, but a reliance on collected woodfuel, linked to 'old' families with absent workers
Function 6 households with dependent children, female-dominated, with elderly family members, but, lacking mature, working age men, who are working away from the homestead

(c) By examining the final groupings, it is possible to identify those households which are most typical of the group as a whole; those which are closest to the group mean (or centroid). This approach has been used to select households for in-depth studies. The value of this approach is that if it is known that a certain group of households represents a known number of all households, the results from more detailed studies can be extrapolated to the group as a whole.

5.4 Household typologies

A follow up and more in-depth study of socio-economic conditions in 28 households across the six villages was conducted. The focus was on the following variables: income, expenditure, material possessions, resource use, livestock ownership and household structure and composition. Other important issues covered were: decision-making processes, the division of labour at household level, village level institutions and gender roles around NRM as well as NRM initiatives.

The statistical analysis produced seven household categories with a number of identifying characteristics. For each group, one case study reflecting these characteristics will be given below.

Group one (n=55)

This group consisted of small, more or less nuclear families (husband and wife plus one or two children/or old age person), with some local employment, but low pensions/remittance income. These were rather poor families, with low quality of water supply, few material assets, limited use of cultivable land, except for the fact that they were the most active gardeners of all the groups.

Livestock levels were lower than average and there was heavy dependence on woodfuels (with a great deal of time spent in their collection), along with other natural resources, particularly honey and opuntia and hunting (but also saplings for building, mud for floors, imifino (wild vegetables) and medicinal plants). Perhaps the more marketable products (honey, opuntia, aloe sap and medicinal products) were sold to compensate for the low income from alternative sources.

CASE STUDY ONE Male Headed Household

Nora lives with her husband (Dlomo) and both are without jobs. They have three children of whom two are still at school and one a graduate (their son) is working in East London. A close relative financed his education until he received a bursary. Originally they were from the village and in the past they spent most of their time in Port Elizabeth where the husband worked for the Ford motor manufacturing industry prior to becoming unemployed due to the firm moving from the area. It was a tragedy because every labourer lost his job. The labourers were informed of the situation in time, and Nora decided to find a place for them to live whilst the husband was still looking for another job. She went back to the village to find a site (where their house is presently built). Dlomo could not find work and decided to return home as well. Preparing for the building of their home, Nora lived with her parents-in-law until their house was completed.

Their source of income is piecework obtained in the village such as washing clothes for people and looking after infants of working mothers. Their son remits money to his home.

The concern of this family is water, because the dams are drying up. The demand for water by the community and livestock is vast, and there is competition between livestock and the community. There is a dam in the village which people believe might be haunted because somebody drowned in it. Due to the great demand for water the community is thinking of making use of the dam but everybody is still frightened.

This family owns arable land but, because of drought and other related issues, no ploughing has been done for quite some years. Nora cultivates her garden when conditions are suitable. She would like to see management of resources taking place especially that of dams.

Their livestock is different from what was recorded in the questionnaire; they now own three goats, five sheep, one pig and four chickens.

They dispose of their garbage by burning and for a toilet they use a pit.

Group Two (n=49)

This group consists also of small families, with more females than males. The level of absentee mature men was average. Hygiene standards were also just below average (water, garbage disposal and toilet facilities) as were material possessions (TV, radio, generator, water tank, etc.). Land and gardens were accessed/used less than the norm and livestock holdings were poor, particularly for cattle. These households had the lowest poultry ownership. Similar to group one, there was heavy dependence on woodfuels but, apart from

collecting imifino, little use was made of other natural resources. In summary, this was an undistinguished, poorly resourced group, with apparently little going for them and no sign of turning to natural resources to compensate. It was close to the global average.

CASE STUDY TWO Male Headed Household

Belinda stays with her husband Thobile. Their son Qhama is unemployed and their daughter Zinziswa lives in Mdantsane and is looking for a job. Their granddaughter is still at pre-school and lives with her grandparents.

Belinda worked for the past 13 years for a wealthy man in Mdantsane. Due to her poor eyesight she had to retire from her job. Their family's source of income is Thobile's pension. They stayed at eMazizini (same village) before moving to the present site because of trust laws.

'Trust' laws were implemented by the government and resulted in villages being demarcated with residential, arable and range lands. Those living in non-residential areas were forced to move and had to live without shelter during the transition. The government had demolished people's houses with no compensation made to those who had homes considered to be 'priceless'. The issue of not being compensated was unfair to Belinda. They had to take down their home and use the same material (which was in good condition) to build where they were given 'Trust' law sites.

She told the interviewer that when the 'trust' system was properly in place, starvation was a 'myth' in the village to most people meaning that the system benefited their village. She is concerned for the depleting natural resource base but said they need assistance to improve the state of their village. Though they have access to both arable land and garden plots, they seldom use them especially the arable field, which was last in use a long time ago.

It is apparent that if some form of assistance can be offered to these villages, the prevailing situation would improve. The enlightenment that people had about the use and management of natural resources is enormous. It is now that they are realising the benefits from proper use and management of their resources, especially in the eastern side of the district. To implement what has been researched to their benefit needs resources e.g. fencing.

As in the case of other villagers they buy wood. Belinda also reported cases of people stealing wood since they cannot afford to buy it. The interviewer deduced that she saw nothing wrong with stealing firewood. The village in its entirety revised the past laws and found some to be productive.

At the time of the interview, they owned one pig and eight chickens.

The Ciskei government offered the family jobs removing blue bush. Belinda and her son both carried out the weeding. However, his mother's condition will not allow her to finish the area demarcated to her. Immediately after school her son will help her so that she can earn a reasonable amount of money for her family. She complained that such jobs are not offered and was sympathetic to her husband that he is providing for the entire family from his pension.

They dispose of their garbage by burning and for a toilet they use a pit.

Group Three (n=70)
This group consisted of the smallest families (mean of 3.6 resident members), with an even gender balance and fewer than average absentee family members (although some are in work and presumably remitting money). Pension-based income was rather low. Despite this apparent lack of income, this group shows high levels of hygiene and material assets, good quality water supply (rain tanks) and a reliance on modern energy sources (paraffin and purchased woodfuel in particular). There was marginally less-than-average use of land and gardens and fairly low stock levels (scarcely any cattle at all being similar to group two). This group had the lowest use of natural resources; households seem to be buying in all needs.

CASE STUDY THREE Female Headed Household
Shiela, the head of this household, has a son, five daughters and nine grandchildren. She is a pensioner and has arable land, which is unfortunately not used. Three of her daughters are employed but according to the head their remittances are inconsistent. They only give packages of groceries for their mother if the children visit and sometimes money.

She is concerned that arable land is not fenced and the fact that there is drought. She ploughs her garden often and the interviewer observed that there is produce. In all households the team visited, people had left their fields bare.

At age seventy-three she still manages to work around the house and collect wood for firelighting. Her grandchildren assist her in collecting water because she is unable to carry heavy objects. They buy wood in bulk at R50/ R60. A donkey cart brings the load. Though this village is on the western side of Peddie District where there is no betterment the community has rules around collection of wood. For example, one must refrain from using an axe, and villagers must pull dry wood by hand. The Residence Association is expected to enforce such rules. Sheila told the interviewer that she had heard Mr. Sondile owned the farm but she was not sure. Another person told the interviewer that a white farmer owned the ground. Irrespective of who owns the farm, the resources are being managed and utilised by the community. It was not clear to the interviewer why the farm owner allowed the community to operate the farm without sufficient institutional capacity and a lack of understanding of sustainable natural resource management as its resource base was being degraded.

Shiela shared her concerns about the need for new water sources and proper management of the existing water points. She is greatly concerned about sharing the available water with livestock, which means she has to use dirty water for drinking and washing her family's clothes. There was a water scheme initiated in the village by Independent Development Trust but it collapsed with the pipelines not completely installed. She owns a rain water tank and uses the water for cooking and drinking.

Her son is unemployed, but observing the situation his contribution in the house is minimal. Shiela shared difficulties she encounters if she did not ask

her grandchildren to collect water on time. Looking at this situation, it is evident that her son is passive because he could give succour.

She uses an outside heap to dispose of their garbage and for a toilet she uses a pit.

Group Four (n=69)

This group consisted of the largest families (mean of 6.8 members), and similar to Group 2 was female dominated (greater than 60 per cent) with many children and youths and a preponderance of working age (rather than elderly) adults. There were very few absent working members (a feature that separates this group from the rest) and, with few pensioners, these households suffered from a poor income stream. Perhaps because of this there was a correspondingly low provision of quality hygiene systems and general material goods. Little agricultural use was made of land or gardens and there were only modest livestock holdings (particularly low poultry). Energy provision was reliant on woodfuels (again with time spent collecting). Otherwise, only a modest use of natural resources was found except for a higher than average level of hunting. Rather like Group 3, this group has little going for it and, in addition, suffers from low monetary income.

CASE STUDY FOUR Female Headed Household

This household in Cisira is headed by a 54-year-old widow, Nomvulo, who stays with her children - three daughters, two sons and her grandchild. All her other children are still at school except for her elder son (Mongezi) who works in Johannesburg. Mongezi seldom comes home and remits nothing to his mother. The source of income for this household is Nomvulo's pension from which she buys groceries, pays fees for her children and uses the remainder for her personal expenses.

She is responsible for almost all her household's activities - cooking, washing and cleaning her house. Collection of firewood and water is done mainly by her children when they come back from school. Water and firewood sources are not far from this household so they do not take much time to collect. She complained of the sour taste of the water. The fence around the house has collapsed and because her other two sons are still very young, the job of rebuilding the fence is left undone. She is not keen to hire labour to do the job.

She is a sole decision-maker around her household even in matters regarding rituals. At village level all members of the village, both men and women, are involved in decision-making and rules on NRM. Rules are mainly on the collection of firewood where members of the village are told to refrain from using an axe and to collect dry wood only. The rules were set by the past Ciskeian regime via the Tribal Authority and many people still abide by them though the authority structure is no longer recognised. Lawbreakers were fined by headman at the village level.

This household does not have arable land. This is a result of 'betterment' planning. Through betterment the amount of arable land each household could hold was specified, as was the number of livestock. It was also stated,

In our sample, an average of 34 per cent of landed households did not use their arable land. The 10 per cent of landed households that used their available land were doing so for subsistence purposes only. There was a high probability that the 56 per cent of landless households were more recent settlers in the sample villages. Even garden cultivation had been abandoned in some villages in the eroded and drier north-western section of the district.

Table 4.9 shows clearly that drought (which 26 per cent of households indicated to be a contributory factor), fencing (25 per cent of households), labour and inputs (8 per cent and 20 per cent respectively) were the major factors influencing households not to make use of their arable land. Adverse soil characteristics as well as other social and institutional issues also contributed to decline in arable production.

Table 4.9 Reasons why households do not use arable land to which they have access

Reason	Village						
	Mankone	Rura	Gwabeni	Cisira	Crossroads	KwaHoyi	Total (%)
drought	33	51	39	30	0	0	26
bad soil	0	6	9	4	67	0	14
no labour	4	6	9	30	0	0	8
no inputs	26	0	9	11	0	75	20
no fences	37	37	34	18	0	25	25
other	0	0	0	7	33	0	7

There were sound agro-ecological reasons why arable land was underutilised: unfavourable agro-ecological conditions militated against investment in cultivation. Except for the coastal belt and the south-eastern section of the district, which was suitable for pineapple production (and where subsistence maize and vegetable cultivation was more common) and the alluvial basins of the Fish and Keiskamma rivers, the district had a low arable potential. As Mini (1995) argues, '[the] underutilisation of arable land in rural villages [in the Eastern Cape] represents rational household economic behaviour: constrained access to agricultural capital and inputs combined with limited marketing opportunities, poor quality of land and high opportunity cost of agricultural labour precludes high agricultural productivity'.

Arable land in these areas thus had practically no productive (even subsistence) value and, since there was no market in land[6], it could not serve as collateral against which to raise a loan. Of course, 'ownership' of even a small, unused piece of arable land conferred social status on its owner[7] by powerfully reinforcing his claim to membership of that particular community. Arable land thus had social value in that it signified generational continuity, defined group membership and tied individuals and households into social

[6] Even the commercial farms in the 'released' areas on which the former Ciskei government tried to settle 'emerging black commercial farmers' were subject to a moratorium on land sales at the time of the study.

[7] In most areas under communal and Trust tenure, 'owners' of arable land are not in possession of title and 'legally' have only rights of usufruct to the land. The owner is always male, except in the case of widows who hold land temporarily.

relationships that were rooted in a particular space. These 'social' motives accounted at least partly for the considerable increase in capital investments made by many urban-based people of rural origin particularly in housing in rural villages throughout the Eastern Cape.

(c) Livestock[8] and grazing resources

The use of the grazing resources of agricultural land was a very important component of local livelihoods. An estimated 57 per cent of the district was under extensive livestock farming. This was the case even though the grazing resources of large tracts of land, comprising 'released farms' which were formerly 'white-owned' but which passed to the former Ciskei government, remained underutilised. In some instances, the residents of adjacent villages had begun to encroach on these resources, and the available grazing (and other resources, such as firewood) had essentially become 'open access' resources. Clarification of the status and use of this commercially viable farmland remains a matter which should receive the urgent attention of the relevant provincial and local government structures.[9]

One of the central features of the 'safety net' provided by the communal system was the access it afforded all members of the village, free of charge, to the livestock grazing resources on the village commons. In theory, this allowed even the poorest households to benefit from running a small number of livestock, if they had the necessary labour available to do so. In practice, a significant degree of differentiation was noticeable at village level in respect of *inter alia* relative wealth in livestock holdings. While most of the households had few or no livestock, the herd sizes of some households exceeded one hundred livestock units. Clearly, therefore, the wealthier households in many villages had, to a large extent, captured the grazing resource on the commons, while the poorest households were not able to capitalise on the availability of free grazing.

The system of rights and obligations regarding livestock grazing which supposedly existed under the headmen and Tribal Authority (although there is no indication that this was a particularly successful system) had broken down. This seemed to be the case especially in the villages of Tyefu Location. Some livestock herded in the villages belonged to people living in urban centres. Informants confirmed that this hampered attempts to manage the village commons. In the current circumstances, where physical inputs (such as fencing) and institutional inputs including the rules, as well as land use regulations, enforcement of rangeland management and stock inspection from the State for the managing of the grazing resources had all but broken down, many of these communal grazing resources were effectively 'open access' areas.

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[8] Livestock are not natural resources *per se*, but have been included here because they rely on a natural resource, namely natural grazing.

[9] The current state of the Ulimocor-managed pineapple estates in Peddie represents a serious waste of resources in this under-resourced area (see *Daily Dispatch*, 25 June, 1996).

The conventional argument that follows this scenario is that these areas face overexploitation and a downward spiral of returns for livestock owners. In many areas, this did in fact appear to be the case: the encroachment of vast areas of the 'overgrazed' commons by species of noxious, unpalatable weed such as *Pteronia incana* (commonly known as blue bush or 'bossies') adversely affected the grazing resources of these areas and was proving to be almost impossible to eradicate. Many villagers made 'unofficial' and thus unregulated use of the grazing available on adjacent farmland which was underutilised. The spread of erosion could be linked to the removal of plant cover through overgrazing, but also to injudicious ploughing on steep slopes in the past (see Chapter Two).

The dilemma of high livestock numbers was that, while agricultural officials might regard the absolute numbers of livestock for the available area as too high, the mean numbers of livestock owned by individuals across the six villages were low. Perceptions of 'overstocking' had thus to take account of the high human population and the overcrowding experienced in these marginal rural areas. These perceptions should make allowances for the concentration of livestock holdings referred to in Tables 4.10-4.13.

Table 4.10 Household percentages of livestock ownership

Livestock owned	Village						
	Mankone	Rura	Gwabeni	Cisira	Crossroads	KwaHoyi	Total (%)
yes	86	87	84	81	68	59	78
no	14	13	16	19	32	41	22

Although 78 per cent of the households in our sample owned at least one livestock unit, ownership patterns are skewed. One should bear in mind that the percentages not only refer to cattle, sheep and goats but also to chickens, pigs, donkeys, mules and horses.

A series of detailed disaggregations of these various types of livestock holdings is given in Tables 4.11 to 4.13.

Table 4.11 Household percentages of cattle ownership

No. of cattle owned	Village						
	Mankone	Rura	Gwabeni	Cisira	Crossroads	KwaHoyi	Total (%)
0	74	62	73	71	66	61	67
1	3	4	4	3	2	2	3
2	3	0	7	6	2	8	4
3	5	6	0	3	4	6	4
4	2	9	0	0	4	6	3
5	2	4	7	7	5	8	6
6	2	0	4	4	0	6	3
7	0	4	2	2	4	0	2
8	0	7	2	1	0	0	2
9	0	0	1	0	4	0	1
10+	9	4	0	3	9	3	5

The above table shows that 67 per cent of households did not have a single large livestock unit. The 5 per cent of households represents those people

who had most cattle. There was a case in the sample villages where a household owned seventy-eight head of cattle (the case is from Mankone). The owner was understandably interested in the management (i.e. control) of the rangeland to a larger extent than the rest of the villagers, who were interested mainly in management of water sources and fuelwood.

Table 4.12 Household percentages of sheep ownership

No. of sheep owned	Village						
	Mankone	Rura	Gwabeni	Cisira	Crossroads	KwaHoyi	Total (%)
0	82	73	60	87	98	86	82
1	0	0	4	1	2	2	1
2	2	2	4	0	0	0	1
3	5	0	0	1	0	0	1
4	2	2	2	5	0	0	2
5	0	2	6	0	0	4	2
6	0	2	4	2	0	0	1
7	2	0	4	0	0	0	1
8	2	2	2	0	0	0	1
9	0	2	2	0	0	0	1
10+	5	15	12	4	0	8	7

Eighty-two per cent of the households did not own sheep. Seven per cent owned at least plus ten sheep with the highest percentages found in the drier areas of Rura and Gwabeni with 15 per cent and 12 per cent of households respectively owning sheep here.

Table 4.13 Household percentages of goat ownership

No. of goats owned	Village						
	Mankone	Rura	Gwabeni	Cisira	Crossroads	KwaHoyi	Total (%)
0	32	32	31	50	54	53	43
1	0	2	6	1	5	4	3
2	5	9	9	9	5	6	7
3	9	9	6	8	4	0	6
4	8	11	7	4	4	6	6
5	8	6	13	5	0	4	6
6	6	4	0	2	9	4	4
7	2	0	7	3	0	2	2
8	7	2	4	4	0	2	3
9	0	4	2	1	2	4	2
10+	23	21	15	13	19	15	18

Forty-three per cent of the households did not have a single goat and 82 per cent of the households in the sample villages owned less than ten goats. The table shows that at least 57 per cent of households owned goats as opposed to 18 per cent of households which owned sheep and 32 per cent households which owned cattle. Overall, these livestock ownership patterns show the significant socio-economic differentiation of households which exist at village level.

Although the total numbers of livestock units across the district are considered by the Department of Agriculture to be more than the 'carrying

capacity', based on rangeland condition this assessment has been challenged by ecologists with extensive experience in the area (T. Palmer, personal communication). This is particularly so since it is argued that the condition of the rangeland was probably more sensitive to differences in rainfall than to livestock numbers.

As has been recorded for other rural areas livestock, particularly cattle and goats, fulfilled multiple functions in the rural household and should not strictly be considered as tangible assets. In fact, many households preferred to buy livestock from neighbouring farmers to fulfil ritual and other socio-cultural obligations. Only rarely would households sell livestock to pay for education or similar expenses. It appears that the investment by urban-based people in livestock was another way of reinforcing their claims to membership of a particular community. It also served as a store of wealth and enhances the prestige of the owner. There were several positive spin-offs for the rural economy in this: by strengthening their ties to these rural networks, urban-based people contributed monetarily and in kind to the local economy: the presence of their cattle created jobs and may have provided milk and (some) calves for the household responsible for the herd. The investment translated into increased concern on the part of the livestock owner about the well-being of individuals and households in the village and served as one entry point into the urban economy for that particular village.

(d) Firewood and timber resources

As firewood was freely available close to most villages, it was the cost of the labour needed for its collection that was important. As with water, the collection of firewood was done mostly by young girls or women and their time could ostensibly be made available for more productive tasks if other fuels were readily accessible. Men were only involved in the collection and sale of firewood by the bakkie-load as a source of employment or where their domestic situation demanded that they expend their labour in this way (i.e. there were no women or children in their households). Only 11 per cent of households bought wood to meet their fuel requirements.

Although ESCOM planned to provide electricity to all the households in Peddie District, this will not necessarily help the poorest households who will probably not be able to afford the costs of electricity on a regular basis and will continue to rely on local firewood supplies. In some areas of the district this reliance on firewood had led to deforestation and was increasing the chances of soil erosion. In other areas, bush encroachment of the rangeland by *Acacia karoo* was held back by the use of this wood as fuel (and by the browsing of goats). The aggregate loss of indigenous hardwoods for fuel purposes was more problematic in terms of the long-term conservation of biodiversity in these areas. No examples of tree resource management were recorded in any of the villages. The sources of fuel used by households are detailed in Table 4.14.

Table 4.14 Sources of fuel by households in the villages

Source	Village						
	Mankone	Rura	Gwabeni	Cisira	Crossroads	KwaHoyi	Total (%)
gathered wood	83	82	80	54	89	88	79
purchased wood	9	7	4	29	0	0	8
paraffin	8	11	16	16	11	12	12
gas	0	0	0	1	0	0	0.17

Most households in our survey cited paraffin as their primary fuel for lighting purposes. A large proportion of households (79 per cent) used firewood for cooking purposes and had woodpiles close to their homesteads. Prices for firewood for those households buying it ranged from R80 to R120. It was mainly pensioners and government civil servants who could afford to buy wood. In villages where there were rules around the collection of firewood, some members opted to ignore rules and thus to bear the consequences if found acting contrary to these regulations. However, even those enforcing the rules were apparently not monitoring whether members of the village adhered to what was stipulated. In all the villages, a small percentage of households owned gas stoves but they used their gas sparingly because of its high price.

Some wealthier households owned portable electrical generators which were used to power lighting, television sets and music systems. Marginalised households were most reliant on firewood collected in the surrounding areas for their cooking and heating needs. They generally used paraffin for lighting but in times of financial distress they were forced to revert to the use of candles for this purpose.

Besides its use as fuel, wood in the form of other timber resources was used to construct and repair cattle byres (kraals) and, to a limited extent, in the construction of housing and as fencing poles. A key aspect of the use of these resources was the piecemeal employment it offered to the unemployed men from the poorer households in the village. Small cash transfers were made in payment for the completion of these tasks and this helped to keep the marginalised households from absolute destitution.

(e) Other wilderness resources

Other natural resources found in the proximity of village settlements in Peddie were particularly important for the marginalised households: wild vegetables (**imifino**) which 88 per cent of households collected and consumed; fruits, such as prickly pear (**tolofiya**) which 75 per cent of households consumed; and honey (48 per cent of households showed that they use honey). All these were significant, if seasonal, supplements to the diets of these households. The hunting of wild animals was an irregular source of sustenance for some households, especially those living close to the Great Fish River Reserve Complex. The collection of natural medicines (amayeza) was done mainly by herbalists (for sale) and by livestock owners (for use as livestock remedies).

Another natural resource prevalent in the area was the aloe (*Aloe ferrox*), which was tapped for its sap. This sap would be processed for use as aloe vera in the cosmetics industry. Local people were employed to cut the fleshy aloe leaves and to tap off the sap, which was then collected in drums and sold in bulk (by a farmer from the Albany District in one case). In some villages, resistance to doing this work had developed as people were (apparently mistakenly) convinced that the job was the cause of respiratory problems.

The value of all these resources did not lie only in the fact that they were accessible and free, but that some of them could be converted into cash. For example, women sold prickly pears to passers-by, while certain parts of hunted animals were sold to ritual specialists such as traditional healers (**amagqira**). This created small opportunities for marginalised households to exploit the available natural resources and convert these into cash to augment their incomes.

4.3 References

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