INTER-RELATIONSHIPS OF POVERTY AND ENVIRONMENTAL DEGRADATION IN SOUTH AFRICAN BLACK COMMUNITIES

by

CRAIG MICHAEL HARVETT

Submitted in fulfilment of the academic
requirements for the degree of
Master of Science
in the
Department of Geography
University of Natal
Pietermaritzburg
1994

ABSTRACT

The inter-relationships of poverty and environmental degradation in South African Black communities is analysed. A literature review investigates the definition, measurement and nature of poverty. It also identifies environmental degradation within these communities. Many of these communities are found to be characterised by high levels of poverty and environmental deterioration. International experience reveals a strong relationship between the impoverished and environmental quality. A downward spiral of poverty and environmental degradation is identified with various elements that aggravate this cycle. A case study analysis using participatory research techniques, conducted in the Mpumelelo settlement near Pietermaritzburg, investigated these relationships. A questionnaire survey using a systematic sampling technique, captured demographic features, socio-economic characteristics, local resource utilisation, prioritisation of "needs" as well as the local peoples' perceptions and attitudes regarding the environment. Levels of environmental degradation at the settlement are determined by comparative observation and objective assessment. Interviews with organisations actively involved with the community were also conducted. Both the literature review and the case study analysis give evidence of a downward spiral of poverty and environmental degradation in many Black South African communities; with high population growth rate, inequitable distribution of land, lack of resources, rapid urbanisation, lack of tenure, conservation conflicts and inappropriate development and administrative policy, fuelling this crisis. Socio-economic and political change, participatory and bottom-up planning and development that focuses on the poor are required, in order to reverse this process and achieve sustainable development.

DECLARATION

I declare that this dissertation represents original work by the author and has not otherwise been submitted in any form for any degree or diploma to any University. Where use has been made of the work of others it is duly acknowledged in the text.

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C.M.Harvett

14 January 1994

PREFACE

Previous research conducted in the Black communities of South Africa depicted tremendous poverty and a degraded environment, beckoning a positive relationship between the two. However, a review of the literature indicates very little concern with this association and a bias toward 'First World' environmental issues, of interest to the more privileged sectors of society. Recently, the international community has become more concerned with this relationship, indicating that the poor are caught in a downward spiral of impoverishment and environmental degradation, and that this catastrophe not only effects the survival of the less privileged but the survival of the entire planet. These issues and a belief in a democratic South Africa prompted this research.

The dissertation comprises a literature review and a case study analysis. The literature review investigates the nature and degree of poverty and level of environmental degradation in the Black communities of South Africa. Inter-relationships of poverty and the environment are explored, firstly with reference to international experience and then with special focus toward the black population in South Africa. A case study analysis investigates these inter-relationships in an informal settlement.

Chapter One introduces the research and briefly elucidates the important role geography plays in this examination. Chapter Two is concerned with the nature of poverty in black communities, whilst Chapter Three describes the extent of environmental degradation. Chapter Four examines the inter-relationships of poverty and environmental degradation, firstly with regard to the impoverished in other parts of the world and then with special focus toward the Black communities in South Africa. Chapter Five is a detailed case study, exploring these inter-relationships in an informal settlement, Mpumelelo, near Pietermaritzburg (Natal). The concluding chapter (Chapter Six)

propose some recommendations which are considered essential when attempting to reverse the downward spiral.

A few difficulties were experienced when conducting this research. The most significant was the abandonment of two case study areas due to political violence. The Mpumelelo settlement was one of the few areas free of violence, as the community is very seriously committed to peace.

I wish to thank the following organisations and individuals for the valuable support and co-operation that was received during this research:

My supervisor, Dr. D.G.B. Slade to whom I owe a good deal for helpful advice, criticism and support. I am most grateful.

Veli Mlangeni and Omega for the many hours they spent interpreting questionnaires in the case study survey.

Project Gateway for their interest and advice in this research.

My father, Mrs Amanda Myburg and Celeste Symington for their critique.

Vaughn Dutton for organising a fieldwork assistant.

Celeste Symington for her input in the compilation of the layout plan and her amiable nature.

Philippa Pietersman for her assistance with Harvard Graphics.

My family for their support in my many years of study.

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INTRODUCTION

There is a scarcity of literature documenting the causal relationships between poverty and environmental degradation, even though there is an implicit assumption of a strong relationship between the two (Kates and Haarmann, 1992). However, recent evidence does appear to denote a growing concern regarding this association and its implications for a sustainable future. This is reflected in the following statements:

> "Alleviating poverty is both a moral imperative and a pre-requisite for environmental sustainability. The poor are both victims and agents of environmental management." (World Bank, 1992, p.30)

> "The time has come for a massive attack on poverty. Poverty, environment and population can no longer be dealt with - or even thought of - as separate issues; they are interlinked in practice and must be linked in policy formulation." (World Commission on Environment and Development, 1992, p.11)

The objective of this dissertation is to investigate the inter-relationships of poverty and environmental degradation in South African Black[1] communities. Its goal is to identify and discuss the dynamic forces acting between poverty and the environment, investigate the possible presence of a downward spiral of poverty and environmental degradation and determine solutions to reverse this cycle.

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1 In this dissertation the terms Black, Coloured, Indian and White are in upper case, as they are the official terms used for legal race categories in South Africa. The use of upper case should not be taken to imply that the author approves of the apartheid system.

A review of the literature examines the cause and nature of poverty as well as the dynamics of environmental degradation within Black communities. The inter-relationships of poverty and the environment are then analysed. The case study component of the dissertation investigates these relationships at Mpumelelo, an informal settlement near Pietermaritzburg. In conclusion, recommendations are made which are deemed necessary to reduce both poverty and environmental degradation.

Before proceeding it is important to first and briefly discuss the significance of Geography in this research.

1.1 The Importance of Geography

This dissertation is concerned with the human-environment relationship. The discipline of Geography is considered to be most appropriate for the analysis of these features.

Gamble (1992) insists that geographers have a unique world view perspective, and are able to assist in co-ordinating and interpreting the socio-cultural and physico-biotic environment. She believes that more so than any other discipline the geographer includes people in perspectives of the environment. This ability to observe people-land relationships with a holistic and integrated approach, in time and space gives Geography an important place in the study of the environment.

Vogel (1992) also believes that South African geographers are well placed to address South Africa's environmental challenges. Integrated human-environment research is supported, to enable local geographers to unravel some of the complex environmental issues operating in the country. For example there is vast scope for geographers to investigate sustainable development in South Africa and the linkages between

declining economic development and accelerated degradation of the environment.

> "Soil erosion, for example, needs to be seen in the light of pressure on the land and why such pressures are being exerted, as well as being discussed in terms of its physical consequences. Similarly, urban environmental problems require an understanding of how the relationships between land-use planning, local services, and infrastructure impinge on the environment. Although such issues have received some attention, South African geographers are well placed to expand their contributions, especially by adopting stronger interactive research ventures. Results of such research will be of great significance to the broader scientific population, and equally important to local communities that daily confront environmental problems. An integrated geography embracing a human-environment approach beckons local geographers to this goal." (Vogel, 1992, pp.181-182)

Geography is therefore an important discipline for the study of environmental issues. The human-environment approach is best suited to the theme of this dissertation. It is, however, essential that research benefits not only science, but more importantly the affected communities. It is, therefore, important that geographers take careful cognisance of research with communities as is expressed by the participatory appraisal techniques, central to much work emerging in South Africa and elsewhere.

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POVERTY IN SOUTH AFRICAN BLACK COMMUNITIES

2.1 Introduction

This chapter will initially highlight some of the problems associated with defining and measuring poverty. It is then shown, in an analysis of the nature of poverty, that the majority of the black population in South Africa live in conditions characterised by high levels of poverty, and that there are racial inequalities in the access to the resources and assets of the country. Finally, some of the possible causes (contributing factors) of this poverty are investigated.

2.2 Definition and Measurement

The main purpose for poverty estimates is to mobilise resources to combat poverty. It is therefore important that estimates are accurate so as to ensure effective resource allocation at international and national levels (Beckerman, 1984). However, defining and measuring poverty raises many conceptual and practical questions. A few of these are discussed, illustrating that a concise analysis of poverty is both difficult and needed.

Poverty is often defined in terms of Gross National Product (GNP). Hattingh (1992) challenges this narrow conception of poverty as it gives precedence to economic institutions and products of the economic system. Other national activities and achievements such as the redistribution of wealth and the development of social services are given a smaller value. An alternative conceptualisation is concerned with basic physical and cultural needs. However, there are also problems surrounding this type of approach.

Beckerman (1984) identifies the following:

- Poverty lines are commonly used to determine poverty levels. These lines are supposed to correspond to a minimum subsistence line. How do we interpret what a subsistence level is? Is absolute poverty defined in terms of some objectively determinable minimum level of consumption that is necessary for continued survival?

- Measuring national income and nutritional levels requires the use of statistical methods. There are statistical problems of bringing the concept of subsistence needs into line with available data. For example: large individual variations exist around average needs.

- Two commonly used measures for indicating poverty are nutrition and income. A major weakness in poverty estimates based on nutritional requirements is that scientists are still revising their views about the nutrients that are needed for the body's biochemical reactions.

- With regard to income levels it is customary to adopt a household unit rather than a family or smaller unit, as resources are shared and an estimate of poverty on the basis of income per person could exaggerate poverty. On the other hand, the household unit may lead to an under-estimate of poverty, as income or resource sharing within a household may be low or zero at certain times.

- It is difficult to set poverty lines for different sized families and for families who have different needs.

- Over what time period are people's incomes measured? A person might be well below the poverty line for most of the year, but may generate income that places him/her above it at the end of the year.

The issue of basic needs must be carefully considered. An important question cited by Streeten (1984) is who determines basic needs? There is conflicting evidence regarding the connection between the choices actually made by the poor and the basic needs as determined by the nutritionists and doctors. There is also further evidence that people in spite of adequate incomes, do not buy the products that would keep them well nourished and healthy.

The above highlights a few of the difficulties encountered when attempting to define and measure poverty. When measuring poverty in South Africa, cognisance should be taken of these and other possible disparities. It must also be realised that there are many dimensions to poverty. Ellis (1984) for example identified economic poverty, social poverty, political poverty, legal poverty, psychological poverty and ideological poverty. The dimensions of poverty are strongly inter-related and are discussed in the **"Nature of Poverty" (2.3).**

A further complication is that large categories of data pertaining to the well-being of the Black population are neither readily available, reliable, nor collected at all (Eberstadt, 1988). Nevertheless, an understanding of poverty in South Africa can be gleaned by carefully analysing the available information and relevant debate surrounding this phenomenon.

2.3 Nature of Poverty

South Africa is characterised by an inequality in terms of colour-caste. It is in the majority of the 'Third World' sector (Black population) where the greatest degree of poverty is found. Alexander (1991) claims that six million Blacks live just above the breadline, fifteen million live below it and six million are unemployed. The rural Black areas (especially the 'homelands') appear to be the worst in terms of the degree of poverty, but the peri-urban and urban areas cannot be excluded as they are also characterised by high levels of poverty.

The occurrence and degree of poverty experienced by Black people in South Africa is clearly illustrated in the following categories: population distribution, rural areas, housing, wages and other sources of income, unemployment, education, health, nutritional status and powerlessness.

2.3.1 Population Distribution

The distribution of the population by race and geographic location can provide an initial indication of 'poverty contours' in South Africa. The urban sector in the White areas is the principal place of economic opportunity. This was illustrated by the University of South Africa's Bureau of Market Research who estimated in the early 1980's that the disposable income was about three-and-a-half times as great for Blacks living in the metropolitan regions, as for those in non-growth areas (especially in the 'bantustans'). (Eberstadt, 1988)

With the Government (National Party) policy of influx control there was an actual decrease (with an associated increase in the proportion of Blacks living in the 'homelands') of Blacks living in the 'White' urban

areas, between 1960 and 1985. The effect of this controlled urbanisation preserved or even widened the differences of material well-being between the urban and rural populations. (Eberstadt, 1988)

2.3.2 Rural Areas

As indicated above the Black rural areas in South Africa are characterised by high levels of poverty. However, they have been neglected by the Government who have lifted restrictions on land ownership but have been slow to upgrade the conditions in the rural areas. The African National Congress (ANC) also appear to have had little concern for the remote rural areas, as most political campaigns have focused on the urban centres. Therefore, the willingness of a post-apartheid government to make a difference to the marginalised rural people is questioned. (Wren, 1992)

A different perspective contends that there has been too much focus in the rural areas, with the perception that we need to invest in these regions (for example: incentives for the establishment of border industries) so that the migration of rural people to the urban areas can be slowed or reversed. This viewpoint takes cognisance of the 'push factors' but underestimates the 'pull factors' - the lure to the cities. There should be investment in the rural areas, but urbanisation must be identified as a main challenge for environmental management. We must recognise it, learn to use it and manage it properly. (Siegfried, 1992)

2.3.3 Housing

There is inadequate formal housing for the Black sector of the population. This is particularly evident in the urban areas, which has

witnessed a prolific establishment of informal and squatter settlements. Black people simply cannot afford formal housing and services.

> "There are few sights quite as overwhelming as the densely-packed informal housing which sprawls over mile after mile of unserviced land outside major cities like Durban. At a glance it seems to negate all South Africa's hopes of prosperity. Here are hundreds of thousands of people who have had to turn to cardboard and corrugated iron, anywhere, anyhow, to shelter body and soul. Backyard shacks; forlorn pockets of squatter communities always on the move; sprawling slums without water, sewerage disposal systems or electricity; these are the new suburbs which, like it or not, have come to live on our doorsteps. This is a reality no thinking person can or should avoid. How we respond to the needs of these communities is one of the major challenges facing South Africa for the remainder of this century and into the next." (Joubert, 1990, p.62)

2.3.4 Wages and Other Sources of Income

Wilson and Ramphele (1989) believe that in South Africa one of the main causes of poverty is the fact that the wages earned by most Black men and women are insufficient to cover basic needs for themselves and their dependants. The inequalities in terms of income are clearly indicated in the findings of a survey conducted by the South African Advertising Research Foundation during the period August 1988 to April 1989 in which 16 400 urban and rural households were interviewed. The average monthly household incomes of Blacks, Coloureds, Indians and Whites are R521, R1 059, R1 604 and R3 297 respectively (South African Institute of Race Relations, 1990).

2.3.5 Unemployment

The highest levels of unemployment are found in the Black sector of the population. The Development Bank of Southern Africa has

estimated that 85% of the unemployed are Blacks (Keet, 1991). Wilson and Ramphele (1989) contend that the 'political economy of apartheid' has exacerbated both its magnitude and its consequences. A Black worker comments:

> "When you are out of a job, you realise that the boss and the government have the power to condemn you to death. If they send you back home (and back home there is a drought) and you realise you can't get any new job, it's a death sentence. The countryside is pushing you into the cities to survive, the cities are pushing you into the countryside to die." (Stewart, 1981 cited in Savage, 1984, p.50)

It is important to realise that there are also very serious social and psychological side-effects experienced by people who are unemployed. The newly unemployed go through various phases such as shock, pessimism and fatalism. They are deprived of certain categories of experience which are vital to their self-concept and sense of well-being. People are filled with a sense of shame and fear loss of respect from those who are employed. The unemployed are aggressive, making them a destabilising force for collective action, especially in a situation where deprivation caused by unemployment is mixed with the racial discrimination of the past. (Anon, 1993a)

So far the Government's response to Black unemployment in South Africa has been unsuccessful. The following issues cited by Keet (1991) illustrate this:

- In August of 1991 the Government announced that 1 billion Rand would go to selected projects for socio-economic upliftment. This is an 'insignificant' amount of money against the scale of the unemployment problem - and against the total national budget for 1991 of R86 billion.

- Another 'failed' attempt to reduce unemployment is reflected by the Government's 'Special Employment Creation Programmes' which were in operation between 1985-1990. A sum of R7.9 million was spent by the State to train the unemployed. This training was done on-the-job through private contractors. These programmes were a failure because:

  - no permanent employment opportunities were generated and no physical assets or social infrastructure were created; and

  - many permanent workers were actually replaced by what amounted to cheap labour for the contractors.

It is the Black sector of the South African population who are most effected by the high levels of unemployment. The Government's response to this desperate situation has been ineffective, and it appears that they are "more concerned with the PR for consumption abroad and political vote catching at home...." (Keet, 1991, p.41).

2.3.6 Education

Figure 1 shows the different levels of illiteracy for each racial group in South Africa (1980), clearly depicting that the Black population is the most illiterate racial group.

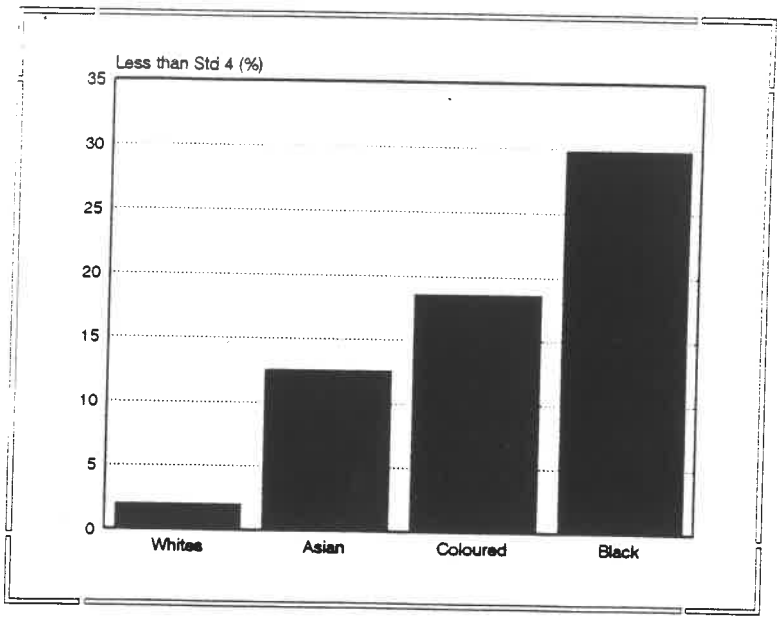

Figure 1: Illiteracy levels in South Africa by racial group (age - 20+ years) - 1980.
Source: Wedepohl, 1984, p.5.

Eberstadt (1988) also mentions that there are large differences in the illiteracy levels in Black urban and rural areas, with the rural areas having a much larger proportion of the Black people indicating that they have no education. Figure 2 reveals the State's expenditure per pupil for 1983/1984, showing the racial discrimination of state funding for education.

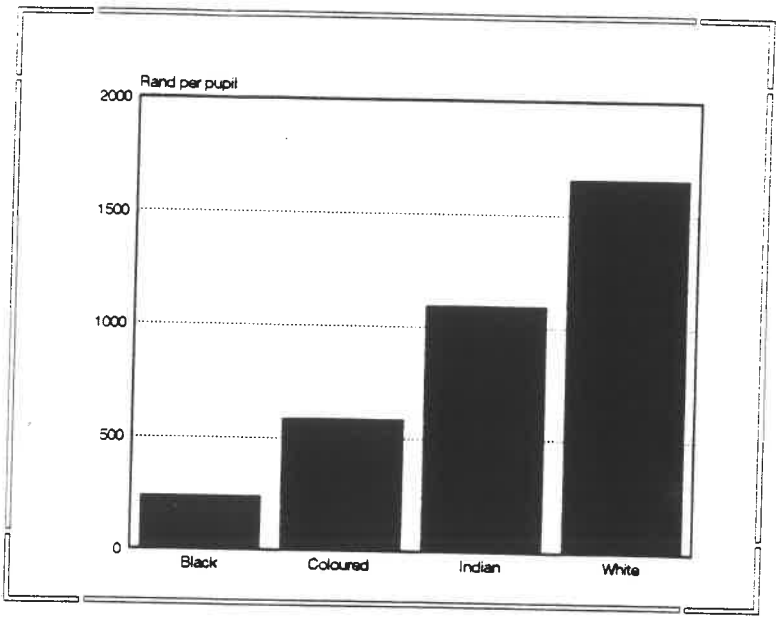

Figure 2: State expenditure per pupil for 1983/1984.
Source: Wilson and Ramphele, 1989, Figure 7.03, p.142.

Figures 1 and 2 illustrate the great racial inequalities that occur in the education system. There needs to be a more evenly balanced education system, so that Black people can have a greater chance of escaping from the rigours of poverty.

> "Exceptional individuals may rise to affluence without the ability to read or write, but entire societies cannot." (Eberstadt, 1988, p.30)

Wilson and Ramphele (1989) believe that these problems experienced in the education system should not only be analysed in terms of their contribution to poverty, or become prone to academic debate. They insist that it should become a 'battle ground' for the future of the country and for those wishing to be involved in the search for a more just and humane society.

2.3.7 Health

Within society there is often a close relationship between ill-health and poverty, as good health is associated with standards of living that only affluence can bring, i.e. proper nutrition, good hygiene and housing, medical care and education (Eberstadt, 1988). Infant mortality rate (number of babies to die in the first year of life per thousand born) is one measure of health in a society.

Table 1 depicts the high infant mortality rate for Black people in South Africa between 1981-1985 (important to note that the above figures exclude the 'TBVC' States where the infant mortality rates for Blacks is probably even higher than elsewhere in the country). Wilson and Ramphele (1989) also show that the incidence of Cholera, Typhoid, Dysentery and Tuberculosis is rampant within many Black communities.

IMR *	White	Asian	Coloured	African
National	12	18	52	94-124
10 Major Peri-Urban Areas	12	17	26	39
Rural and Peri-Urban	12	20	66	100-135

Table 1: Infant Mortality Rate (IMR) in South Africa, 1981-1985.
* Figures exclude Bophuthatswana, Ciskei, Transkei and Venda (the so-called 'TBVC' States), where the IMR for Africans is probably higher than elsewhere in South Africa.
Source: Wilson and Ramphele, 1989, Table 5.02b, p.107.

There are however 'pockets' within the Black population where health progress has occurred. Soweto is cited as an example where, by 1980 there had been a 90% drop in infant mortality rates over three decades. However, Soweto is an exception to the rule of Black health within South Africa (Eberstadt, 1988). The reality is that there is a desperate need for improved health services in Black communities.

2.3.8 Nutrition

Nutritional status is difficult to assess as many of the easiest and most conventional measures may be misleading. However, there are some measures which do give insight into the prevalence and severity of malnutrition.

Table 2 shows the nutritional status of children (1-5 years) in South Africa for 1981/3 and 1985. The categories used to illustrate this are stunting, under-weight and wasting. The appalling nutritional status found amongst rural Black children and the extreme racial inequalities found in South Africa are highlighted.

	Stunting *	Under-weight #	Wasting ▪
Rural African	41	43	3
Urban African	12	28	7
Urban Coloured	20	49	11
Urban Asian	6	35	15
Urban White	4	16	8

Table 2: Nutritional status of children (1-5 years), South Africa, 1985 (expressed as percentages).
* <90% height-for-age.
# <80% weight-for-age.
▪ <80% weight-for-height.
Source: Wilson and Ramphele, 1989, Table 5.01, p.103.

Table 2 raises additional issues that could be addressed. For example, stunting indicates that children have grown up in environments of food and resource scarcity over long-term conditions, whilst wasting refers to present nutritional status. These issues are beyond the scope of this dissertation but are recommended for future research.

More information regarding the nutritional status of South Africa's population may be captured from consumer spending patterns, as they can reflect the needs of the households. Eberstadt (1988) remarks that with affluence, families tend to buy tastier, high cost calories rather than 'basic food'. Even though studies relating to personal consumption expenditure were carried out by the University of South Africa's Bureau of Market Research in the mid 1970's, the general trend discovered is still of relevance. This showed that of all the racial groups, it was the Black sector of the population who spent the highest percentage of their 'Personal Consumer Expenditure' (PCE) on 'basic food'. However, one should view such statistics with caution and be aware of the difficulties

in assessing nutritional values (see **2.2 -"Definition and Measurement"**).

2.3.9 Powerlessness (Disempowerment)

Black South Africans, particularly those who are poverty stricken, have for many years lived in a state of powerlessness. This has emerged from an inadequate social, economic and political environment which has been exacerbated by the State's apartheid policy (Wilson and Ramphele, 1989).

This powerlessness has made it difficult for Blacks to escape from poverty:

> "Poverty creates a culture of despair and creates a mind set of helplessness, self-worthlessness and powerlessness. The resources of dignity, self-respect and the capacity to participate in decision-making relating to their lives can be given by the church and community organizers and social welfare agents. The strengthening of the capacity for action through organization is the only way that the poor can change their state of poverty and that of their children." (Simons, 1984, p.12)

2.4 Contributing Factors

Determining the cause of the poverty found within the Black population is difficult. This is clearly reflected by the different conflicting views regarding the origin of the problem. Some of the contributing factors are identified and discussed below.

2.4.1 Historical Roots

Certain early events (pre 1948) have affected the ongoing process of impoverishment in the Black sector of the population. These events have had a cumulative impact on the shape of income distribution and the

pattern of poverty and are divided into "Conquest", "Slavery" and "The assault on the industrial labour movement and the public sector". This section draws heavily from Wilson and Ramphele (1989).

Conquest

From the mid 17th Century Black farmers and pastoralists were gradually dispossessed of most of their land. In the 19th Century hard wars were fought against the White invaders, who were backed by the British imperial power. Ultimately industrial Europe proved too powerful for the pastoral Blacks and the land was finally conquered.

This long process of conquest was formalised in the Land Act of 1913, which restricted Black land ownership to 7% of the total and the 1936 land act which limited the Black people to 13% of the total land available. Under these acts no Black could purchase land outside the designated 'reserves'. It is often contested that the land occupied by Blacks is inferior (in terms of potential agricultural productivity) to that occupied by Whites:

> " The land set aside for africans consisted of fragments scattered throughout the country and was with few exceptions barren and unproductive." (Ramphele, 1991, p.3)

However, others claim that this is not so. Lyne and Nieuwoudt (1991) for example ascertain that in rural Kwazulu arable land is available, but it is underutilised.

Slavery

This occurred during and after the conquest. In 1760 slaves were required to carry passes when moving between rural and urban areas. By the 19th Century many more pass and vagrancy laws were established,

inhibiting the movements of Blacks even more. These developed the 'scaffolding' which was to characterise the migrant labour system in South Africa (Wilson and Ramphele, 1989).

The assault on the industrial labour movement and the public sector

In the 'early' years the lines were clearly drawn between capital and labour. Employers were opposed to both Black and White trade unions. The White workers were able to 'arm' themselves against the attacks from their bosses through strike action, combined with the political and social power the vote gave them. The Blacks had very little political and social power, therefore their trade unions remained powerless. The lack of political power wielded by Black workers also led to a definite bias (favouring the White population) in terms of public expenditure in the fields of education, housing, health, agriculture, job creation and energy.

2.4.2 Apartheid

In the 1930's and 1940's the Afrikaner nation was regarded as the poorest element of the White population. It was this distress that the Afrikaner Nationalists set out to eradicate, once they came to power in the 1948 elections. This was the beginning of the apartheid era which not only devised new policies and intensified existing elements of colonial policy (Eberstadt, 1988), but more tragically lead to a 'crushing' assault on the Black population (Wilson and Ramphele, 1989). The State adopted various measures to maintain their unique engineering process. These strategies created vast socio-economic and political inequalities between Whites and Blacks, effectively impoverishing the Black population.

The maintenance of apartheid

Firstly, the Nationalist Party programme included wage preferences in favour of the Whites and restrictions against Black labourers when competing for work and business (Eberstadt, 1988).

Secondly, there was the creation of the 'homelands' which was initiated with the establishment of the independent 'homeland' - Transkei in 1976. Today there are 10 'homeland' areas which have excluded many Black people from the industrial economy (except for migrants) where most of the jobs and the wealth of the country are generated. Wilson and Ramphele (1989) mention that there is fear that the States practice of 'hardening the boundaries' (i.e. allowing less migrant workers into South Africa) of Malawi, Mozambique and Lesotho, will lead to a similar policy with regard to the South African 'homelands'. This would further alienate Black people from the economic core. However, with the possible emergence of a new democratic Government in South Africa in 1994 it is likely that the 'homelends' will be incorporated into South Africa.

Thirdly, the State prevented Black urbanisation through an intense anti-urbanisation policy. The three main steps that the Government took to enforce this exclusion are listed below:

- the pass laws (abolished in 1986);

- limitations on housing construction; and

- the destruction of urban Black communities (forced removals).

Fourthly, there was the belligerent removal of Black people and communities. The intensity of the 'forced removals' is clearly illustrated by the estimation that 3.5 million Blacks were moved by force from one

place to another between 1960 and 1983 (Platzky and Walker, 1985 cited in Wilson and Ramphele, 1989). These removals are characterised by the expulsion of people from urban areas to the homelands, 'black spot' removals or 'bantustan' consolidation removals (movement of Blacks from one rural area to another, in an attempt to consolidate the 'homelands'), 'betterment programmes' (the consolidation of Black villages) and the compelled movement of Black people off White owned farms.

Fifthly, as has already been shown, the State's educational policy has been totally imbalanced and favoured the White population. This has given White people an advantage over Black people in the acquisition of jobs, especially in the more skilled professions. Finally, apartheid's most crucial 'blow' against the Black population was the keeping of their political power to a minimum. This involved the banning of any Black political organisations that posed a threat to the State.

Inequalities

The apartheid system is therefore instrumental in establishing most of the racial inequalities between Black and White people. The most significant inequalities described above and in other parts of the dissertation are political, economic, educational and access to resources (physical resources - for example: land, water; access to energy - electricity and financial assistance - for example: farmer assistance and support). The Whites have benefitted from this system - the Black people have become destitute and impoverished.

2.4.3 Economic Forces

South Africa's lack of economic growth, measured by an annual growth in Gross Domestic Product (GDP) of only 2.3% is a major cause of the present social crisis, with too much unemployment and not enough job

creation (Parker, 1992). This has been exacerbated by an unfavourable political climate for private investment by local or foreign firms (Wilson and Ramphele, 1989).

To alleviate this crisis, Parker (1992) insists that South Africa needs a GDP growth of at least 10% per annum, as well as a genuine programme of democratisation, comprising of democratisation of both political and economic life. However, these views expressed by Parker (1992) are subject to criticism. Firstly, no well defined strategy to achieve 10% growth in the GDP per annum is provided. Secondly, there is scepticism surrounding the assumption that a 10% growth in the GDP alone will benefit all sectors of the South African population (also see Hattingh's (1992) views regarding GNP: **2.2 - "Definition and Measurement"**)

At the Earthlife Africa Conference (`Whatit means to be Green in South Africa') held in Pietermaritzburg, in July 1992, Ben Turok provided an alternative perspective when he criticised the capitalist system as it is instrumental in 'crushing' the majority of South African Black people. He mentioned that 5% of the population own 80% of the wealth in the country and 4 corporations own 80% of the capital. He subsequently introduced a Marxist-socialist perspective and referred to the capitalist system as a 'skyscraper economy' built by a minority of the White minority, surrounded by a poverty stricken Black population. Therefore, Turok insisted that we decrease the size of the 'skyscraper', and support the notion of sustainable development. There needs to be a holistic structural transformation which should include the following:

- curtailment of luxury goods for the rich;

- a redirection of the resources to those who are deprived (redirection indicates that it is not a matter of robbing the rich to

feed the poor);

- a horizontal growth of the economy; and

- bottom-up development.

However with the recent demise of socialism, Turok's political philosophy should also be analysed with caution!

2.4.4 Population Growth

The debate concerning population growth popularly include aspects of both poverty and environmental degradation. It is therefore discussed in chapter 4 (**4.2.7 and 4.3.1**).

2.5 Conclusion

This chapter has elucidated a few of the difficulties experienced with the definition and measurement of poverty and emphasised that these need to be carefully considered in any analysis of poverty. An assessment of the nature of poverty in South Africa has revealed that the majority of Black people suffer from high levels of impoverishment in both rural and urban environments. Inadequate housing and services, low income levels, high rates of unemployment, high levels of illiteracy, poor health and insufficient health services, low nutritional status and a state of powerlessness all epitomise a destitute sector of society. A social and psychological analysis of these people, trapped in the rigours of poverty reveals feelings of fear, despair and anger.

Various factors have contributed to this social demise - historical roots of conquest, slavery and the assault on the industrial labour movement and the public sector; apartheid ideology and policy; economic

forces and population growth. A combination of these could explain the above conditions. However, it is the State's apartheid policy which has been most instrumental in creating an affluent White population and a impoverished Black population. This cannot be ignored and will not be forgotten. The dismantling of these structures and empowerment of the Black population is the first step to alleviating poverty in South Africa. However, it must be realised that this alone will not reduce poverty - a reallocation of resources, a sensible programme of affirmative action and an innovative strategy focusing on the poor by future Government are also essential.

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- 3 -

ENVIRONMENTAL DEGRADATION AND THE BLACK COMMUNITIES IN SOUTH AFRICA

3.1 Introduction

The first part of this chapter is concerned with rural areas and will explore the conflicts between conservation efforts and the Black communities in South Africa. The community examined in the case study (Mpumelelo) is not, at the present time directly affected by any conservation efforts. However, the current trends in South Africa do illustrate a definite need to investigate the struggles between conservationists and affected Black communities. In this respect particular emphasis is placed on the Maputuland area of northern Zululand, where recent years have witnessed considerable confrontation over conservation issues.

The second part includes both urban and rural environments. For the purposes of this chapter the physical environment is divided into 4 main categories - vegetation, soil, water and air. Other environmental pollutants which effect these categories in Black communities are also discussed - these include sewerage, garbage and toxic waste. Finally, the environment in the workplace is briefly investigated. This aspect of the environment is often neglected but is important as Black workers are often exposed to dangers that would not be accepted by other more privileged sectors of society. Some of the contributing factors which induce the degradation of the environment are also discussed. However, a more detailed and comprehensive analysis of the elements that contribute to this degradation is examined in Chapter 4.

It must be understood that the environment is an interdisciplinary concept and that in reality there are highly complex interactions and interdependent systems operating, requiring a holistic approach. Throughout this chapter the degree and importance of this holism is emphasised. The following quote is one illustration of this interdependency, reiterating the critical need for a holistic understanding:

> "The so-called sponge effect of forests enables them to act as regulators of our water supply. When they are removed, previously perennial rivers then alternately flood and desiccate. The flooding is physically destructive and desiccation disastrous for man and beast. The increase in erosion causes silting of river bottoms. A rocky river bed turns and aerates water so bacteria can perform the important function of purifying water." (Gandar, 1984, p.12)

3.2 Conservation Issues

Many Black people in South Africa are indifferent to environmentalists concerns. Some possible reasons for this indifference are investigated below. The first is analysed comprehensively and includes the 'thorny' issues of Maputuland (northern Zululand). Other possible grounds for this apathy toward conservation efforts are then discussed.

(1) In the past, conservation efforts have been largely insensitive to Black survival needs, fragmented and conservative, and have reflected primarily the interests of the White middle class and various local, regional and national bureaucratic concerns. To make way for conservation projects, large numbers of powerless and poor Black people (many of whom live in harmony with the environment) have been removed from land and denied access to the basic needs they once controlled - conservation has therefore become a 'highly politicised issue' (Koch, Cooper, Coetzee, 1990).

Most individuals, organisations and institutions have also displayed a willingness to donate large amounts of money to saving endangered species, but very little attention has been paid to the environmental catastrophe facing the Black communities and the negative impacts various conservation programmes have had on the people living in the affected areas (Ramphele, 1991).

> "It is unrealistic to spend millions on conserving black rhinos when the rhinos are surrounded by appalling environmental and social problems ..." (Hanks, 1992 cited in Von Klemperer, 1992, p.3)

An account of the conservation programmes in Maputuland reflects the above statements.

Maputuland

This region is situated in northern Zululand and covers about 8 000 square kilometres. It is rich in 'natural' resources, and placed between Swaziland to the west, Mozambique to the north, the Indian Ocean to the east and Lake St. Lucia to the south (Centre for Community Research and Development, 1991). For many years the 'natural' resources in this area have been expropriated by several authorities and therefore marginalised many local communities. These authorities include the KwaZulu Bureau of Natural Resources (KBNR), the Natal Provincial Administration (NPA), Central State bodies such as the Department of Development Aid (now dismantled), the National Parks Board and the Conservation Department of the South African Defence Force.

The KBNR would like to consolidate a chain of nature reserves into one large conservation area. This area would include the following reserves - Mkuze, Ndumu (on the Mozambique border), the Tembe

Elephant Park, Kosi Bay Nature Reserve and the reserve at Lake Sodwana (Koch, Cooper and Coetzee, 1990). The problem is that this will effectively alienate over 50 000 Tembe-Tonga people who have inhabited the region for centuries, developing a lifestyle that is finely tuned and dependant on the environment (Makanjee, 1992). In this culture ingenious methods of hunting, gathering, fishing, cultivation and animal husbandry have been devised. The chief allocates various resources to individuals, placing them in charge, thus ensuring that the people adhere to protecting the environment. The irony therefore, is that it is this culture who have preserved the environment in its pristine state!

Overpopulation of local people and its negative impact on the environment is often cited by conservation managers as a reason for the establishment of conservation areas. However, in some areas overpopulation has resulted directly from previous removals, which have been common practice in Maputuland for many years (Makanjee, 1992). Through extensive research the Centre for Community Organisation, Research and Development (CORD) has found that 30% of the people living in the region have had their survival undermined at least once in their lifetime. They believe that this figure will double if the proposed consolidation of the reserves goes ahead (Koch, Cooper and Coetzee, 1990).

CORD has been very critical of the various conservation and development programmes in Maputuland, as participation of the local communities in most of these projects has been negligible. They have achieved some degree of success in assisting local communities campaign against top-down conservation projects. At Kosi Bay for example the KBNR wishes to establish a nature reserve. This has been opposed, with fierce protest, from the local inhabitants, as it would jeopardise their

survival - the resources they once had access to, would be sharply reduced.

CORD has responded by establishing a 'Resource Planning and Development Programme' in the region, which has facilitated the establishment of various resident committees. The aim of these committees is to challenge the KBNR's proposals to remove residents from the proposed conservation area. The programme has exerted extensive pressure on the KBNR, who are now starting to display a willingness to meet with the residents and people from the programme.

The response of KwaZulu Chief Minister Mangosuthu Buthelezi on issues surrounding the establishment of conservation areas, and the involvement local people will have in these projects has been contradictory. At the launch of the Rhino and Elephant Foundation in 1986, Buthelezi is reported by Koch, Cooper and Coetzee (1990) as stating that he firmly believed that conservation cannot be practised in isolation from the economy, and that people are entitled to tangible benefits from conservation projects - employment opportunities, levies from fees paid by tourists and the harvest of raw materials such as firewood, reeds, thatch and medicinal plants. The removal of 60 families so that the Tembe Elephant Park could be established is evidence that Mr. Buthelezi's words were merely rhetoric, as these people were deprived of many of the resources they previously had access to:

- They were moved during the ploughing season, leaving behind cultivated fields.

- They were promised a regular supply of water, in the form of taps which was never received. Now the women have to walk about 14km every day to collect water from an abandoned quarry.

- Women are allowed into the reserve to collect plants and grasses, but the men are strictly forbidden because of fears that they will poach wild animals.

- Residents have also pointed out that they have not received any revenue from tourism, as the park has never been opened to the public.

Mr. Buthelezi's reaction to the Kosi Bay conflict in 1991, when the indigenous people objected to KwaZulu's plan to establish a nature park in the area - contending that they should be involved in deciding how the natural resources would be used, and that they themselves should be the major beneficiaries, appears contradictory to his earlier views:

> "The response of Chief Minister Buthelezi was typical of the South African authorities. He rejected the legitimacy of the local people's demands, and blamed `White trouble-makers' for stirring up bad feeling in the local community and undermining his Government's efforts to preserve the remaining forests of the area." (Ramphele, 1991, p.6)

Koch, Cooper and Coetzee (1990) have expressed concern with Maputulands characteristic trend of 'conservation by coercion, rather than by consensus', as it is intensifying the conditions for civil conflict between Inkatha and the African National Congress (ANC) as well as posing a severe threat to the long term sustainability of the environment. CORD is also sceptical about the KBNR's approach to conservation:

> "By fencing people and their cattle out of the reserves without alternative provisions, the KBNR is damaging long established land management systems. It could be argued that they are actually causing environmental degradation because residents are forced to graze their cattle at ecologically unsuitable places." (Makanjee (spokesman for CORD), 1992, p.14)

> "Any local conservation and development plan that ignores this rich history of intricate social relationships, survival systems and ingenious management of resources is severely limited and ultimately doomed." (Centre for Community Organisation Research and Development, 1991, p.75)

Kwazulu Bureau of Natural Resources response to the allegations made against them

Director of the KBNR, Nick Steele, is opposed to CORD's perspectives regarding conservation in Maputuland:

> "For a number of years now, the KwaZulu Bureau of Natural Resources (KBNR) has been the focus of a number of politically motivated and intentionally misleading articles and statements under the guise of so-called welfare development organisations in the Northern Zululand area." (Steele, 1992, p.14)

Steele (1992) contends that:

- Unless the KBNR continue their scientific field tests, many 'natural' environments will be lost.

- The KBNR has adopted a policy that 25% of the earnings from tourism go to the tribal authority in the specific area.

- In the Kosi Bay region and the Tembe Elephant Park, certain academics have destroyed the KBNR's conservation efforts and destabilised local communities by branding the KBNR as 'apartheid conservationists' and practitioners of 'colonialist' and 'isolationist' practices. Steele calls these academics 'red greens', and believes that they are people who do not offer any effective solutions.

- The people from the Kosi Bay Nature Reserve and the Coastal Forest Reserve have had to be moved because human and cattle populations are threatening the resources.

- The KBNR do allow the people who have been removed, to return to the conservation areas and utilise the natural resources, as long as those resources can be sustained.

It must be realised that the roots of the conflict in the area also have many political connotations which lend themselves to potential bias. What is certain though, is that there is an urgent need for negotiations to take place between all concerned parties, so that the accelerating destruction of people, animals and land can be curtailed.

The Maputuland area is one of the many regions where Black people have been driven off their land to make way for conservation projects. Therefore, it is not surprising that these insensitive conservation policies have alienated many Black people and communities from ecological concerns:

> "If conservation means losing water rights, losing grazing and arable land and being dumped in a resettlement area without even the most rudimentary infrastructure, this can only promote a vigorous anti- conservation ideology among rural communities." (Khan, 1990 cited in Ramphele, 1991, pp.6-7)

However, the recent establishment of some conservation areas has signalled 'hope' for Black people, in that the local inhabitants have played a more active role in the decision making process. Boonzaier (1991) cites the Coloured reserve in the Richtersveld (northwestern Cape Province) as one of the pioneering examples, where local people have played an active role in a conservation programme. Negotiations were complex and took

place between the local Coloured people and the South African National Parks Board. Agreement was reached for the establishment of the park in October, 1990. Two of the significant provisions made were, the establishment of a joint Management Plan Committee (with equal representation from the National Parks Board and the local population) and the recognition that local farmers have the rights to grazing in the park area. Boonzaier (1991) believes that the success of the Richtersveld negotiations suggest that they could serve as a model for the establishment of future conservation areas and in the reincorporation of local communities into already established conservation areas.

Some other possible reasons why many Black people are apathetic to environmentalists concerns are discussed below.

(2) A large number of them are caught up in a daily battle for survival (Khan, 1991; Ramphele, 1991) and therefore have little energy or time left to think about environmental concerns. Alexander (1991) reiterates the above by emphasising that many Black people simply cannot afford conservation. He cites the poverty stricken areas of the Northern Transvaal as an example. Here, as in many other parts of South Africa, the land is dry, the vegetation is scattered and soil erosion is widespread. In this environment there is total disregard for nature, and pollution has taken a lower value to the need for heating and vital services.

(3) Farieda Khan (cited in Anon, 1991) believes that Whites and Blacks have different priorities. For example: most Whites would think of Coastal Zone Management in terms of leisure pursuits, whilst most Blacks think rather in terms of housing, jobs, as well as the need for basic health, education and transportation services.

(4) Black education as well as anti-development programmes created by an authoritarian government have not nurtured a love for nature amongst the majority of Black people (Ramphele, 1991).

(5) There has also been a steady 'erosion' of public confidence, as Whites have been more concerned with protecting fragile ecosystems from Black squatter settlements, but seem powerless to prevent the construction of up market recreational and infrastructural developments in the same area. Noordhoek, where in 1990, 20 Black families were removed from the wetland area to make way for development around Lake Michelle is an example. (Khan cited in Anon, 1991)

> "Under these far from rare circumstances, it is difficult for Blacks not to wonder if environmental concerns might be being used as a convenient smoke screen for racist motives." (Khan cited in Anon, 1991, p.1)

(6) The 'limited environments' of the Black townships and rural areas offer little exposure to wider concerns, which Ramphele (1991) believes inhibits most Black people to see the connection between individual action and long-term environmental outcomes.

(7) Finally, South Africa's current 'climate' of political turmoil and violence has ensured that Black activists are so involved with crisis management surrounding these issues at local, regional and national levels, that there is little time to be concerned about the environment (Ramphele, 1991).

The Azanian Peoples Organisation (AZAPO) argue that South Africa's 'new' green awareness programme has little relevance for the struggles of the Black majority, as it is felt that most environmental issues still reflect primarily white interests. This is related to a 'politics of ecology', which is due to imbalances in power - those who have control

of the economy have the power to treat the environment as a free resource and those in government have the power to deny resources to the poor (Koch, Cooper and Coetzee, 1990).

The Presidents Council Report (1991) - "National Environmental Management System" reiterates the above accusations as it has a definite bias towards White, middle-class concerns. Very little attention is paid to the environmental catastrophe facing the poverty stricken Black communities in South Africa -problems that should form an integral part of this Management System. Instead large parts of the report concentrate on 'First World' environmental issues, which in the short-term have little or no bearing for the majority of the South African population who are struggling to survive in a depleting socio-economic and physical environment.

In the light of the problems discussed, Khan (1991) believes that there needs to be a national environmental education programme, so that the negative perceptions experienced by the majority of Black people can be changed. She insists that environmentalists should also place less emphasis on 'First World' interests, such as ozone depletion, but should rather focus on issues considered more relevant by Black communities - issues that have thus far been given a lower priority; i.e. there should be more 'grassroots' involvement in decisions effecting the environment.

Recently there has been a pleasing shift from the notion that people are obstacles to conservation. The International Union on Conservation of Nature and Natural Resources (IUCN) has devised a set of guidelines to encourage game parks to incorporate local communities in their conservation efforts. It is therefore suggested that guidelines such as those prescribed by the IUCN are analysed, and if found favourable, incorporated into conservation programmes in South Africa. As already

described an ethos of involving local communities into conservation projects is already emerging in South Africa. The Richtersveld conservation project is one such programme. Many eco-tourism projects have also favoured full community participation.

There is also a need for common purpose and co-operation between service agencies operating in the affected regions. Regional popular development organisations (like CORD) have the potential to effectively co-ordinate the various service organisations. In this respect there needs to be dynamic involvement from the local people, which would call for the transformation of service organisations into popular development organisations, and finally into a rural social movement, which could have the ability to 'resurrect appropriate indigenous structures' for the effective management of the resources in a sustainable way (Centre for Community Organisation Research and Development, 1991). The most effective solutions need to be put into practice now, so that further destruction of environment and people can be prevented.

The dissertation will now focus on the degradation of vegetation, soil, water and air. Sewerage and garbage, toxic waste and the environment in the workplace will also be discussed.

3.3 Vegetation

In South Africa, Black people living in poverty find it increasingly difficult to obtain the basic energy necessary for cooking, heating and lighting. This is particularly evident in many Black rural communities, where large population numbers are preventing the regeneration of any tree species (Daniel, 1984).

The Thornhill resettlement area in northern Ciskei, is an example of vegetation destruction:

> "In 1976/1977 about 40 000 people moved from the Herschel district and were settled on the flanks of Ntabathemba, the hill of hope. The area, suited to extensive stock farming, was dramatically changed into an area of dense human settlement with disastrous results on the physical environment. From the air, this area stands out as a reddish patch of bare soil, virtually devoid of vegetation. In 1976 Ntabathemba had a good cover of thorn trees and bush. By 1981 hardly a tree was to be seen on the slopes of the hill. These slopes are now subject to greater run-off and erosion by water and wind. What happened here is happening in all areas of dense settlement, unless located near plantations. The influx of large numbers of people has upset any balance that may have existed between man and his environment." (Daniel, 1984, p.6)

In rural KwaZulu for example, the majority of Black people are finding that firewood is a resource which is becoming steadily scarcer by the year. In some areas there has been a transition from harvesting dead wood to live wood. This has made an important change, from an insignificant impact on the environment to a major one. In the KwaZulu areas, there were about 250 forests in 1936, but today only 50 remain. (Gandar, 1984)

Short-term strategies should focus on the current demand by increasing fuelwood supplies through afforestation programmes. However, the potential for woodlot development is limited, due to:

- the lack of suitable land; and

- the fact that most of the suitable land has been earmarked for commercial forestry.

Therefore, if environmental degradation is to be curtailed, an alternative energy supply needs to be made available to the affected areas - demand for fuelwood must be reduced through more efficient usage and substitution with other fuels and electricity (Oxenham and Eberhard, 1990). (For a discussion of electricity and alternative energy, see **3.6. - "Air Pollution"**)

It is not only in the rural areas where vegetation is destroyed. Extensive vegetation destruction has also occurred in urban areas. The vegetation cover surrounding informal, squatter and formal settlements is often depleted by overgrazing from livestock and extensive fuelwood collection. With the depletion of this resource (or lack thereof) the poor living in these areas experience severe hardship.

In a study of five peri-urban and urban areas (Vulindlela, QwaQwa, Amatelang, New Bethesda and Crossroads) in 1984/1985 it was found that the absence of an electrical supply impoverishes peri-urban communities, as households are forced to rely on expensive fossil fuels which consume a disproportionate amount of their income (Eberhard, 1986). In most Black urban areas it has also been found that fuel costs more for the poor than it does for the better off. In a study of the urban areas around Cape Town, conducted in 1983, it was found that the households with electricity (i.e. they were able to afford the initial connection fee) spend less on energy than those without electricity . This is clearly illustrated in the case of Valhalla Park (Coloured township) where those houses with electricity spent on average R25 per month, while those without electricity spend nearly R65. (Eberhard, 1984)

Perhaps, when viewed at a larger scale, the true reflection of the nature of poverty in the country is more easily recognised by the fact that South Africa produces about 60% of the electricity in the entire

continent (Eberhard, 1984; Wilson and Ramphele, 1989; Oxenham and Eberhard, 1990), and yet the majority of the Black population within the country do not have access to this energy for their household requirements.

The degradation of vegetation is evident in both rural and urban environments. Overgrazing from livestock and the persistent collection of fuelwood by the poor are two direct causes in the depletion of this valuable resource. With less vegetation cover, the soil is more prone to water and wind induced erosion. This is discussed in **3.4 - "Soil Erosion".**

3.4 Soil Erosion

Soil erosion is one of the most serious problems facing South Africa, particularly in the Black rural and urban areas. The high levels of poverty, population growth and shortage of land have made Black people susceptible to this form of land degradation. This discussion will firstly advocate the need for a different approach in the analysis of soil erosion. The severity of this problem in the Black areas of South Africa is then described.

Soil erosion is often perceived as a natural process rather than a socially generated problem.

> "Many scientists and agriculturalists have discussed the characteristics and causes of soil erosion but few have considered the social or political components - the human dimension." (Cooper, 1993, p.47)

There are demographic, social, political and economic forces which form critically important components of this process. Timberlake (1985) refers to Africa and mentions that in the past African tribes used vast areas of land for grazing. He believes that the increase in population

meant that there was less land available for grazing. Overgrazing was the result, thereby exposing the soil to the natural forces of erosion, which he described to be particularly serious in the areas of heavy rainfall and mountainous terrain.

A shortfall of Timberlake's (1985) study is that the complex 'web' of social, political and economic forces is not aptly investigated. A more rigorous analysis is required, showing the importance of these facets, especially with the recognition of the important role of poverty.

> "In the Third World, erosion is associated with and caused by poverty: rural people, often pushed onto marginal lands for commercial or political motives, are forced to strip the land of wood for fuel, and resort to overgrazing or cultivation to make a living. Thus a cycle of land degradation and deepening poverty is set up." (Cooper, 1991, p.176)

In South Africa soil erosion of catastrophic dimensions is found in the 'homelands' and other rural areas inhabitated by Black people.

> "The great red hills stand desolate, and the earth has torn away like flesh. The lightening flashes over them, and the clouds pour down upon them, the dead streams come to life, full of the red blood of the earth. Down the valleys women scratch the soil that is left, and the maize hardly reaches the height of a man. They are valleys of old men and old women, of mothers and children. The men are away, the young men and the girls are away. The soil cannot keep them anymore." (Alan Paton, 1948 cited in Wilson and Ramphele, 1989, p.34)

What then can be identified as the root causes of soil erosion in these areas?

Apartheid ideology and policy is a root cause of the soil erosion problems experienced by Black people, as it has created an unequal

distribution of land and resources. The Nationalist Government forced millions of Black people to live in the homelands, where population densities are of the magnitude of ten times that of the rest of rural South Africa. These people need to subsist in these areas, and without adequate resources and infrastructure are forced to strip the environment to survive (Cooper, 1991).

Cock (1991) also shows that State intervention in an attempt to reduce soil erosion in the 'homelands', has been unsuccessful. The States 'betterment' programme was designed to address the soil erosion problems in the 'homelands' is cited as an example.

This programme was created by the State in response to the negative environmental affects caused by overstocking in the 'reserves', and a perception that the rural poor were responsible for this degradation, due to their bad farming practices. The programmes therefore:

- Enforced villagisation and stock reduction.

- Consolidated arable lands.

- Allocated common land for rotational grazing.

- Provided soil conservation measures.

- Made a differentiation between full-time and subsistence producers in villagers.

Most of these schemes did not alleviate soil erosion, and were disliked by communities who did not want stock reduction, enforced

differentiation and social engineering. Some of the shortcomings are listed below (derived from Cock, 1991 and Cooper, 1991):

- Stock reduction was not enforced, due to community resistance.

- Construction of contours, as a soil conservation measure, could have been achieved at a far lower cost and without the accompanying social dislocation. Many of the contours were also built without waterways to lead the water away.

- The establishment of villages also meant that the surrounding hills were stripped of wood.

Therefore, these efforts by the State caused social distress without improving the quality of the 'natural' environment, as they did not consult the people to be effected, were underfunded, piecemeal, lacking in skilled personnel and ignorant of the root causes of overcrowding - apartheids creation of the homelands.

Soil erosion is also prevalent in urban areas, particularly in semi-formal, informal and squatter settlements. This soil loss originates from human behaviour, inadequate planning and is characteristic of the physical environment itself. It is related to poor road design and location, footpaths, watering points used for collecting domestic water needs and for daily herding of livestock, depletion of vegetation, site clearance and dwelling construction. With reference to site clearing, many sites (dependent upon topography) are cleared using the "cut-and-fill" type with the back of the platform cut into the slope. This method enhances the potential for soil erosion as:

- topsoil is removed, exposing the nutrient-poor infertile subsoil; and

- the slopes created are steepened relative to the natural gradient.

The use of corrugated iron with no guttering also augments the potential for soil erosion. The disadvantage is that corrugated iron has no retention capacity, therefore during rainstorms large quantities of water with increased energy is fed onto the land, thereby increasing the potential for erosion to occur. (Beckedahl and Slade, 1992)

It is also important to recognise that eroded material emanating from soil degradation has a much wider effect as it forms silt and sediment elsewhere (Beckedahl and Slade, 1992). For example, an increased sediment load in rivers decreases water quality further downstream and increases siltation levels in dams.

Soil erosion in Black communities is widespread in both rural and urban areas - the root cause being identified as political and socio-economic. The effect is devastating, as an unacceptable living environment is created and land for cultivation is reduced. Levels of poverty are increased and marginal lands are further depleted as people need to survive in the short-term.

3.5 Water

South Africa is essentially a 'dry' country. Water is not only running out, but it is not available in sufficient quantities where and when we need it (Weaver, 1990). At the present rate of population and industrial growth, Coetzee (1991a) estimates that the demand for water will overtake supply by about the year 2030.

In most parts of the country Black people do not have easy access to clean drinking water. This is emphasised by the fact that 5 out of every

100 Black children in rural areas die from diseases caused by contaminated water before the age of five (Huntley, Siegfried and Sunter, 1989). To the poor this lack of clean drinking water is a high cost in terms of time, effort and money. When compared to the rural areas and informal settlements, most formal Black townships are believed to have relatively easy access to clean drinking water. However, this is not always so, with the main obstacle being the institutional arrangements - notably the fact that most Black Local Authorities do not have the "capacity to maintain a water reticulation system" (Munnik, 1992, p.17).

Wilson and Ramphele (1989) insist that it is not so much the lack of clean drinking water, but rather its distribution, which appears to be a combination of geography and colour caste. This is clearly shown by Huntley, Siegfried and Sunter (1989), who indicate that the Ciskei averages 9 litres per Black person, per day; the smaller towns in the Eastern Cape average 19 litres per Black person, per day; whilst the Black township near Port Elizabeth averages 80 litres per Black person, per day and the Whites in Port Elizabeth average 200 litres per person, per day.

Munnik (1992) also believes that there is enough water and that the Department of Water Affairs does have adequate finances and technology. The problem is that these resources do not 'flow' to the people at grassroots level. The reasons for this are related to the many stumbling blocks village water committees have in managing water supplies. Some of these are highlighted below:

- Many communities do not have the capacity to maintain and administer their water supply i.e. most water committees have no legal standing, therefore they cannot levy tariffs or receive subsidies. There are also no local institutions which would enable them to collect money from people using the resource. (Munnik, 1992)

- In some communities, chiefs have made community members pay levies. The emergence of water committees undermines their authority, thus causing conflict between these committees and the tribal authorities. (Munnik, 1992)

- People are more interested in free access to a water resource than in water quality, and are unwilling to pay for the maintenance of the water supplies. In response to this some water committees try to get the chief on their side. If these chiefs are respected then they would have the ability to fine people if they do not contribute. However, this has often led to abuse by the chiefs, who use the water committees to increase their own power. (McIntosh, 1992)

- Prominent people are often put on water committees to give them greater social standing. However, these people often contribute little to the work of the committee. (McIntosh, 1992)

McIntosh (1992) has highlighted the following as important in overcoming these problems experienced by community water committees.

- There is a need for people whose interest is in the work of the water committees, rather than personal status or influence.

- It is important that the service organisations not only look at the number of springs and boreholes constructed, but also whether the water is being effectively used.

- There needs to be more effective local level mechanisms for joint planning, prioritisation and implementation.

- There needs to be an improvement in the 'wait and see' approach adopted by the support services as it results in the ad-hoc provision of services and eliminates the possibility of a planned programme and inter-agency co-ordination.

A new concept of sharing water, has been proposed by the Department of Water Affairs. Under these proposals all parties in a catchment area will, through consensus, agree on 'equitable distribution'. The water allocation will take place in four stages:

Stage 1

- Identification of all claimants to the water and the creation of a forum.

Stage 2

- An education process where the parties learn each others needs and claims.

Stage 3

- Computer models to show the implications of different decisions.

Stage 4

- Decisions will be taken by consensus and compensation given to the disadvantaged water users.

Munnik (1992) believes that this concept of water sharing would be most favourable. However, it must be considered with caution because of

the following issues:

- there is the possibility that the poor may be intimidated and marginalised by experts and the non-poor;

- various regions cut across different catchments; and

- water is already being transferred between catchment areas.

Other proposed solutions to the water shortage include an increased use (under strict environmental management measures) of ground water (Rawlins, 1990) and/or the importation of water from neighbouring countries (Weaver, 1990).

With regard to water pollution per se, Black informal settlements, most of which do not have proper sanitation and refuse removal facilities, are a very serious threat to the quality of water. The findings of a CSIR pollution survey on the water quality effects of different land-uses in the Durban Metropolitan Region, found that the more densely populated informal settlements produced the highest concentration of suspended solids, with faecal bacterial contamination of up to 1 million coliforms per 100 ml emanating from some of the informal settlement areas. The CSIR Survey then gave a relative water quality degradation index to each land-use, with the Black informal settlements having the highest rating (Simpson, 1990). Point sources of pollution are normally easily maintained by discharge standards which are monitored by strict law enforcement. However, diffuse sources of water pollution (eg. washing of clothes in rivers, cattle in water, agricultural practices, waste and sanitation), such as those found in Black informal settlements, are more difficult to control.

Koch, Cooper and Coetzee (1990) believe that in the past the Government has generally imposed unsuccessful top-down, expensive water supply schemes on the Black communities in the country. By contrast, they indicate that approaches to water supply, involving community participation and involvement have been a success. This is indicated by organisations such as the Valley Trust and the Rural Advice Centre, who have provided clean and safe village-based water supplies.

In conclusion, at a recent conference "Africa - One Continent: Agenda for Sustainable Land Management" (2-4 November, 1993 - CSIR Conference Centre, Pretoria), Odendaal (1993) listed the following as essential when establishing water projects in Black communities:

- A human orientated and holistic approach.

- Local communities perceptions and traditions must be recognised.

- The people affected need to be consulted and there needs to be full community participation.

- Multi-disciplinary collaboration.

The above discussion has revealed that there is a shortage of clean water in Black communities and that there are very high levels of water pollution emanating from Black informal settlements in particular. It is identified that to provide communities with clean water and to curb pollution will require a holistic and participatory approach as well as multi-disciplinary collaboration.

3.6 Air Pollution

In many Black townships air pollution is a serious problem, as there is extensive use of cheap fuel (eg. coal and wood) for heating and cooking. Clean energy sources are unavailable or too expensive, therefore people have no option but to use coal fires (Dewar, 1991).

Kgomo (1991) gives an account of Soweto township where the atmosphere is very seriously polluted with sulphur dioxide, a gas which results from the burning of fossil fuels such as coal, wood and animal waste. However, it is the use of coal which remains the major source of energy in Soweto and many other townships, as it is cheap, accessible and reliable; compared to electricity which is expensive, inaccessible and unreliable. Kgomo (1991) mentions that electricity is expensive in Soweto partly because:

- the Soweto City Council has a higher tariff structure than Johannesburg, and

- the township administration is fraught with incompetence and corruption.

The air pollution in many Black townships, has intensified the challenge to find a means of electrifying all townships. Eskom has highlighted this challenge as a priority. However, the provision of electricity by Eskom is hindered by the following issues:

- The basic infrastructure needs to be overhauled and upgraded, and the people must be both motivated and able to use electricity instead of coal. the anomalies in tariff structures also need to be put right. (Kgomo, 1991)

- The question of who should pay the cost of installation remains unresolved (Lewis, 1991).

- The supply of electricity needs to be constant and not be frequented by power cuts, as experienced in the past (Kgomo, 1991).

- There is also contentious debate regarding the actual generation of the electricity. Most of South Africa's energy is generated from the coal burning power stations situated in the Eastern Transvaal Highveld (ETH). Nussey (1990) mentions that these power stations are responsible for making the ETH region one of the worst regions in the world for the emission of the following mixture of pollutants - dust particles, sulphur dioxide, nitrogen oxides and carbon dioxide. This is viewed particularly seriously with current international concerns regarding the 'greenhouse effect' and the depletion of the ozone layer.

Lennon and Turner (1992) support Eskom and react to the above accusations by stating that:

- The public need electricity and the cheapest electricity available is that situated at the fuel source, i.e. the coalfields in the ETH.

- There is still a great deal of scientific uncertainty and debate regarding "greenhouse" emissions. Therefore, initiatives to reduce carbon dioxide gas emissions or to apply carbon dioxide emission tax are premature.

- It is not true that the air pollution levels produced by Eskom in the ETH region rate amongst the highest in the world. Rather it is the

Black townships which have air pollution levels that are comparable to the worst in the world (largely due to the burning of cheap coal for heating and cooking). Lennon and Turner (1992) illustrate this by firstly comparing ambient air quality levels of sulphur dioxide and nitrogen oxides between the ETH, Soweto township and the Vaal Triangle. Figure 3 clearly shows that Soweto has extremely high levels of sulphur dioxide and nitrogen oxides when compared to the ETH.

Secondly, ambient fine particulate levels are analysed (Figure 4), again showing that Soweto's levels are a lot higher than the ETH - in fact Lennon and Turner (1992) mention that these levels found in Soweto would not be acceptable overseas.

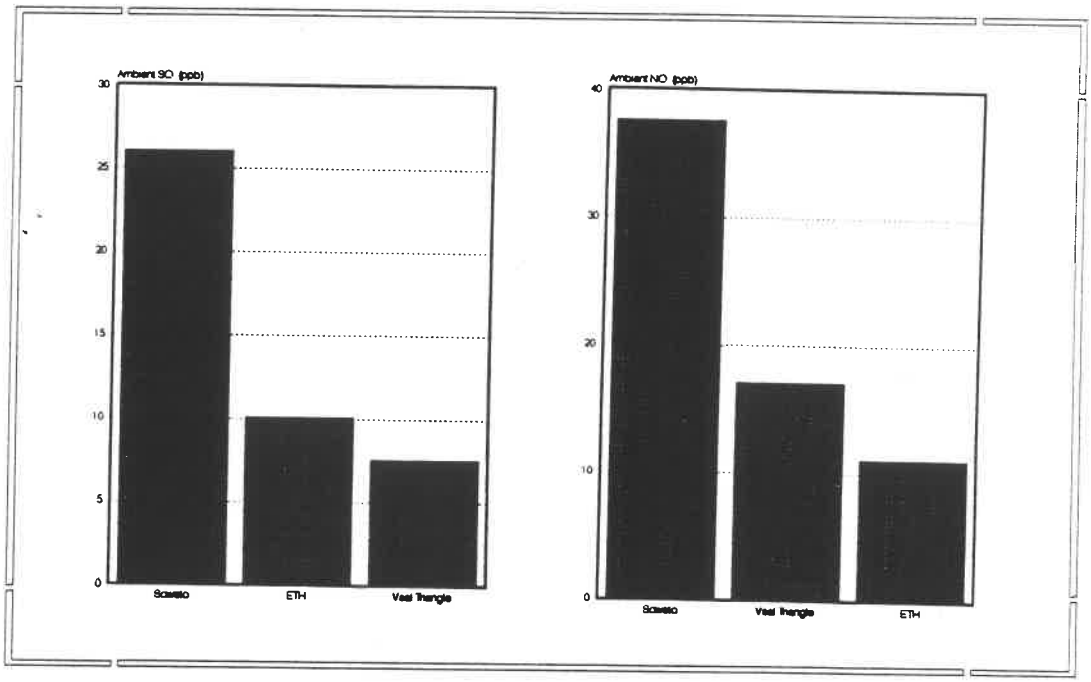

Figure 3: Ambient air quality levels of sulphur dioxide and nitrogen oxides: Soweto, Eastern Transvaal Highveld and the Vaal Triangle.
Source: Lennon and Turner, 1990, p.3.

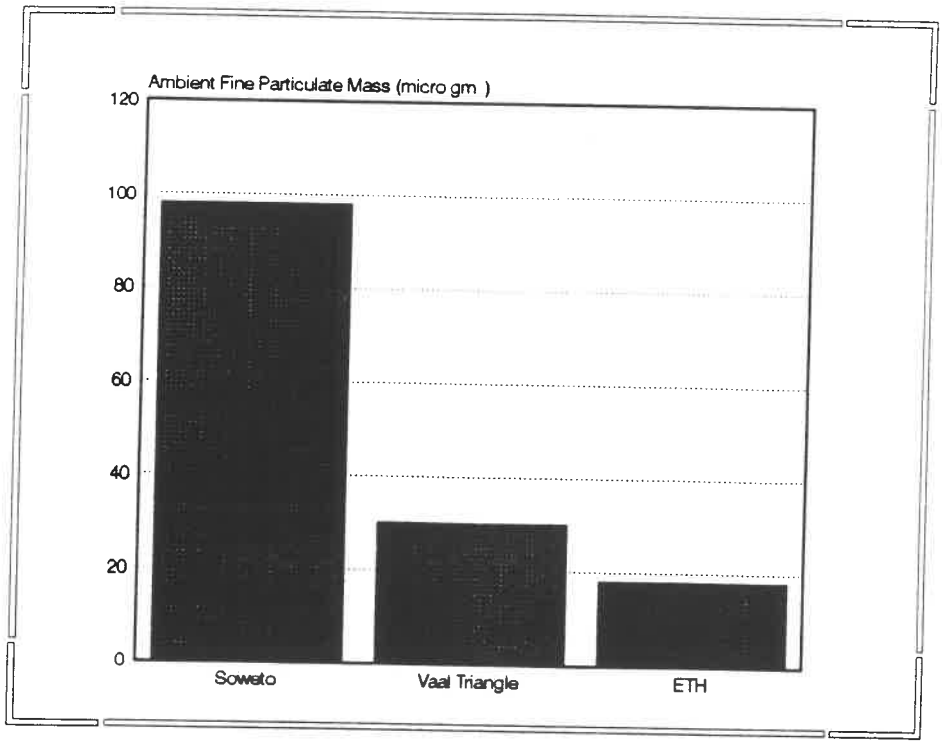

Figure 4: Ambient fine particulate mass: Soweto, Eastern Transvaal Highveld and the Vaal Triangle.
Source: Lennon and Turner, 1992, p.3.

However, there are many who contest the above, believing that Eskoms power stations are a greater threat to the pollution of the atmosphere than the townships:

> "... coal-fires in townships only contribute about 7.5 per cent of all pollutants. Eskom is responsible for more than 54 per cent." (Nussay, 1990, p.20)

One should also be sceptical about the validity of Figures 3 and 4, presented by Lennon and Turner (1992), as they are concerned with air pollution deposits. Perhaps emissions would provide a more accurate analysis. Lennon and Turner (1992) do in fact provide a graphical illustration of sulphur dioxide and nitrogen oxide anthropogenic emissions, but compare levels between South Africa, Germany and the USA - figures for the ETH are not provided?

When the electrification of the Black townships is considered, along with the alarming pollution levels emitted from the coal burning power stations an interesting dilemma with controversial implications is revealed. Eskom is currently spending about R100 million to improve precipitators at its 8 ETH power stations. To clean up the gas emissions would require a capital investment of R8 billion, which would force the price of electricity up by 30-50%. On the other hand, it would cost R6 billion for Eskom to electrify every township in South Africa, thus eliminating about two-thirds of the dust and gaseous particles in these regions. (Nussay, 1990)

Given the apparent financial constraints experienced by the present Government it is important to consider what the priorities are. For example, is it more important to provide electricity for the Black townships, thus reducing the amount of air pollution in these regions (as well as improving health and lifestyle), but at the expense of increasing the amount of air pollution emitted from the coal powered stations in the ETH region?

The problems and opposing points of view regarding the generation and supply of electricity demonstrates the need to search for alternative energy sources. Nuclear power is believed to be one alternative energy source, as it is cheap and clean. However, the dangers surrounding nuclear energy have led to fierce opposition against its use. Also current nuclear technology does not provide a viable long-term solution, as the current stocks of Uranium are not likely to last more than half a century if South Africa was to embark on a large nuclear power station building programme (Oxenham and Eberhard, 1990).

David Lewis (1991) has suggested that perhaps the answer lies in the field of renewable energy such as solar energy, wind power and hydro-

electric power. With reference to Hydro-electric power (HEP) it is envisaged that the larger rivers in Southern Africa, such as the Zambezi and the Cunene have enormous HEP potential. However, international co-operation is important for this resource to be fully utilised. To conclude Lewis (1991) believes that for renewable energy to be most effective there needs to be an assortment of complementary projects:

> "It is quite conceivable that in the future somewhere on the Cape flats a small wind powered station could be providing electricity to the local community, while electricity carried via high-voltage power lines from some future hydro-electric scheme up-country powers an energy-efficient modern factory producing materials for low-cost housing." (Lewis, 1991, p.130)

The above discussion has highlighted some of the problems associated with the electrification of Black urban settlements. It has been shown that there are different priorities when examining air pollution in South Africa. However, the reality is that there are high levels of air pollution in many of the Black townships, thus posing an ever increasing threat to human health and the environment. This pollution needs to be reduced. The best way to do this is to provide an effective, low cost, clean and efficient energy for the affected areas. This is no simple task and will require a determined effort by the present and future Government in South Africa, who with the private sector will need to make supplementary funds available (Kgomo, 1991) and provide more funding for research (Nussay, 1990).

3.7 Sewerage and Garbage

Throughout South Africa there is a chronic failure of local authorities to plan an appropriate infrastructure for the dense concentrations of Black people, particularly in areas of rapid urbanisation. This has resulted in inadequate sewerage and toilet facilities and a lack

of garbage removal. The consequence is that many South African townships, informal settlements and squatter communities are accumulating vast quantities of waste, which is the breeding ground for disease (Koch, Cooper and Coetzee, 1990). Plate 1 (squatter settlement at Howick, Natal) is a typical portrait of many Black settlements across the country.

Plate 1: Squatter settlement at Howick (Natal), depicting vast amounts of litter. This is the scene in many Black South African settlements.
Photograph: Guy Jennings (Department of Geography, University of Natal, Pietermaritzburg).

Black Local Authorities were established in the 1980's with the aim of upgrading Black settlements. However, these authorities were unable to improve sewerage facilities and garbage removal, primarily because they were politically powerless (Wilson and Ramphele, 1989) and bankrupt (Koch, Cooper and Coetzee, 1990).

3.8 Toxic Waste

The discoveries of mercury leakage from Thor Chemicals in Natal raised serious concerns regarding the importation and disposal of toxic waste in South Africa (see **3.9. - "The Environment in the Workplace"**). In this regard it is believed that it is the 'less developed' countries of the world who are most at risk, to the importation of toxic waste, as environmental regulations have become more demanding in the rich (North) countries. However, in the 'less developed' countries lax regulations combined with economic incentives have made them more vulnerable to the importation of toxic waste. Perhaps the possible reasons why Thor Chemicals decided to locate in KwaZulu illustrate this trend:

- Poor environmental protection laws.

- Cheap and repressed labour.

- Scarcity of established popular environmental Non- Government Organisations (NGO's).

- The plant would be illegal in the USA.

There is also other evidence of illegal toxic waste disposals in South Africa. Two examples clearly illustrate the vulnerability of Black communities.

The first was discovered by the Johannesburg branch of Earthlife Africa at the old municipal dump near the Black township of Kathlehong. It was found that there had been illegal dumping of sweets by a Wadeville based company as well as the disposal of used bandages, syringes, medical drips and needles from the Natalspruit Hospital. The homeless people who

live off the dump and the children who play on it and eat the sweets are believed by experts to be in danger of contracting blood borne diseases such as hepatitis and Aids. (Coetzee, 1991b)

A second incident was discovered by Earthlife Africa a couple of years ago, when they uncovered illegal toxic waste dumping on the outskirts of Pietermaritzburg, where more than 6 000 drums of toxic waste had been dumped by a recycling company. In a Black village outside Pietermaritzburg 126 drums containing toxic waste were found. A large number of these drums containing lethal solvents and heavy metals had begun to leak out, contaminating the environment. The village people had also been emptying the drums and using them for collecting rain water for drinking. Medical tests showed that many of the villagers were suffering from symptoms of lead poisoning. The tragedy is that the people responsible were not prosecuted as the public prosecutor felt that the R400 maximum fine for illegal dumping did not justify the expense and effort of the case! (Lukey, Albertyn and Coetzee, 1991)

Many believe that the dumping of toxic waste will continue until stricter laws are passed to prevent it and until the laws are properly enforced. In South Africa it is the Black 'poor' who have been and are the most vulnerable to the illegal dumping of toxic waste, as the majority are politically powerless and not educated enough to recognise the problem. (Coetzee, 1991b)

A concern is that South Africa and the 'homelands' are very susceptible to the importation of toxic waste, because sanctions have hurt the economy and South Africa is extremely short of cash (Coetzee, 1991b). This vulnerability is further emphasised by the Government's ambiguous attitude towards the importation of toxic waste into the country. In 1990 the Government banned the importation of toxic waste

into the country. However, many see this as a rather superficial promise for the following reasons:

- There is a wide difference of opinion between the South African Government and the various protection agencies, as to what constitutes toxic waste (Centre for Community Organisation Research and Development, 1991).

- The South African Government is considering signing the Basel Convention - a treaty which controls the importation of toxic waste, rather than banning it. Many African countries have also joined the Organisation of African Unity (OAU), who have called for a ban on waste imports by member countries. South Africa and the 'homelands' are not OAU members. (Coetzee, 1991b)

3.9 The Environment in the Workplace

It is important to realise that for many people the workplace forms an important component of their environment. Across the globe trade unions are fighting for a safe and healthy environment in the workplace. Information and control have been identified as two important 'rights' that both the workers and the public need to know. In South Africa the workforce are often denied these rights. Many Black workers have suffered from this denial. Thor Chemicals at Cato Ridge (Natal) and the Asbestos mining at Mafefe (northeastern Transvaal) are two examples.

Thor Chemicals

Thor Chemicals is a recycling plant for mercury waste, which is shipped from the USA and Europe. The Thor plant is situated on the border of KwaZulu, near the Mngweni River. A couple of kilometres

downstream the Mngweni River flows through the highly populated area of Fredville in KwaZulu, where people use the river every day for washing and swimming. The Mngweni River eventually flows into the Umgeni River, several kilometres from the Thor plant.

Mercury waste was first discovered in the Umgeni River in July 1988 by the Umgeni Water Board. Samples were also taken from the head of the Mngweni River, revealing alarmingly high deposits of mercury. These findings were closely followed by reports from the Black workers that two colleagues had "gone mad". They were taken to hospital and found to be suffering from mercury poisoning.

> "Mercury is an extremely dangerous element. It can destroy the central nervous system and cause foetal damage. Its non-fatal effects include mental deterioration, nervous tremors, fits of laughing and crying, severe inflammation of the digestive system and loss of hearing, sight, smell and taste." (Chemical Workers Industrial Union, 1991, p.81)

The main groups that took up the struggle against Thor Chemicals included: the Chemical Workers Industrial Union (CWIU), Earthlife Africa, Greenpeace and the local residents around Fredville. International support was mobilised by the CWIU and Earthlife Africa. The protests and press coverage forced the State to react, and the Department of Water Affairs ordered Thor Chemicals to suspend operations for 3-4 weeks. The then Minister of the Environment Affairs, Gert Kotze, announced in August 1990 that South Africa would no longer import toxic waste, except in cases where a company intends extracting a valuable by-product from it (Coetzee, 1991b). Thor Chemicals used this 'loophole' to their advantage by claiming that they were importing raw materials for processing. They were subsequently allowed to continue their operations!

Even though there is still a great deal of scepticism surrounding

the importation of toxic waste into South Africa, there was a positive outcome of the 'Thor episode'. This was the alliance that emerged between the trade unions, green groupings and the rural peasants. This is crucial because it is those who have the least political and economic power who are most vulnerable to toxic waste disposals. An alliance such as that which campaigned against Thor Chemicals has the ability to empower the poor.

Asbestos mining in Mafefe (northeastern Transvaal) is another example where the local Black people were for many years denied of the right to know. Through the years of asbestos mining and after, these people were oblivious to the dangerous effects asbestos fibres have on the human lungs.

> " I feel grief when I think of the suffering and the loss of life. My overwhelming worry is that I spent half my life on or near the asbestos dumps or inside an asbestos-plastered hut. We know too well that asbestos fibres are silent and do not warn us of their danger once they are in our lungs. I deeply regret that I was one of those village boys who loved to do part-time jobs at White supervisors' houses. " (Mabiletja, 1991, p.87)

The above discussion depicts the vulnerability of the poor to an unsafe work environment. These workers need to be empowered and supported by the Trade Unions so that atrocities such as Thor Chemicals and Asbestos mining at Mafefe do not occur.

3.10 Conclusion

Environmental degradation is widespread in both rural and urban Black communities. Vegetation cover is rapidly being depleted, soil erosion is reaching catastrophic levels, water is unavailable and polluted and the atmosphere surrounding high density urban areas is being degraded

from the burning of cheap fuels. The establishment of conservation areas and belligerent removal of communities threatens the sustainability of the environment. Inadequate sewerage facilities and garbage removal is detrimental to the physical environment, aesthetically displeasing and a health threat. Finally, toxic waste disposal and an uninformed workforce (and public) also pose a threat to the environment as well as very serious health risks.

The most significant themes that have emerged from this Chapter are firstly the inter-related nature of the features discussed, and secondly, the pivitol role that poverty and powerlessness play in the degradation of the environment. Understanding the latter is crucial for the attainment of sustainable development in South Africa. The following chapter (**Chapter 4 - "Poverty and Environmental Degradation: Inter-relationships"**) is concerned with this relationship.

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- 4 -

POVERTY AND ENVIRONMENTAL DEGRADATION: INTER-RELATIONSHIPS

4.1 Introduction

The preceding chapters have identified the 'nature' of poverty and the prevalence of environmental degradation in South African Black communities. This chapter is concerned with the inter-relationships of poverty and environmental degradation, and will firstly analyse this association at a global scale and identify the various factors that influence it, citing the experience of the poor. The significance of these inter-relationships in South African Black communities will then be discussed.

4.2 Inter-Relationships - A Downward Spiral

Globally, there has been a biased focus toward environmental degradation favouring the 'First World' and more affluent sectors of society. Environmental issues which are of concern to the more fortunate have received greater exposure in public and political debate. However, a new awareness is emerging - the effect of poverty on the environment. It is in the disadvantaged sectors of the 'developing' nations, where this relationship has become most apparent.

Mellor (1988) believes that environmental problems and poverty are inseparable. His focus is on the rural poor in 'developing' countries, where people cannot afford sufficient food to maintain the minimum requirements for healthy productive lives. They depend on agriculture and therefore the physical environment to survive. To ensure short-term survival the poor (with the added dimension of population pressure) are

forced to crop marginal lands on soil that cannot sustain itself. The result is degradation and the depletion of this valuable resource.

> "... poverty can drive ecological deterioration when desperate people over-exploit their resource base, sacrificing the future to salvage the present." (Durning, 1989, p. 40)

Environmental decline perpetuates poverty as ecosystems offer ever dwindling yields for the poor. The result is a "downward spiral of economic deprivation and ecological degradation" (Durning, 1989, p.41).

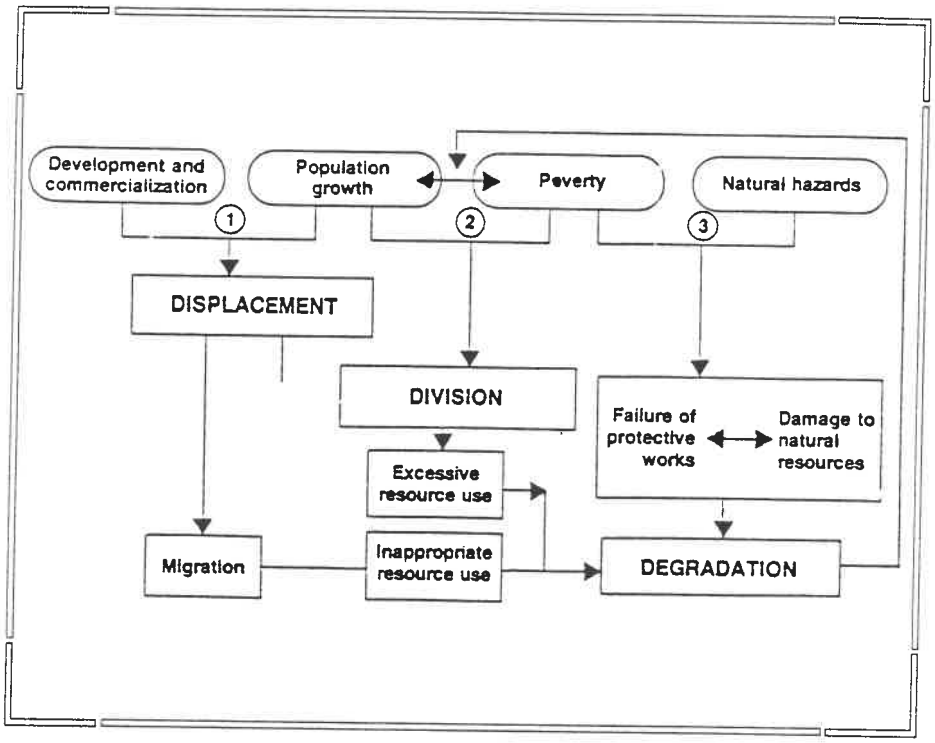

Figure 5: Impoverishment and degradation spirals.
Source: Kates and Haarmann, 1992, figure 2, p.9.

A simplified flow chart (Figure 5) developed by Kates and Haarmann (1992) (derived from an analysis of case studies conducted in different regions across the globe) illustrates the mechanisms involved in a downward spiral of poverty and environmental degradation. The model

consists of four main driving forces: development and commercialisation, population growth, poverty and natural hazards. Three main spiral sequences are depicted with each sequence being dominated by two of the driving forces. Criticism regarding this model is that the driving forces identified by the authors are more integrated than depicted in the diagram. For example: the political powerlessness experienced by the poor is an important factor to consider when examining development projects. Socio-political forces are also vital components in the poverty - environmental degradation spiral and should therefore be clearly represented in the diagram.

Many elements 'fuel' the downward spiral. These are identified and discussed within the following categories: lack of resources, security of tenure/ control of resources, skewed land ownership patterns, depletion of the commons, education, urbanisation, population growth, development and policy issues and the victimisation of the poor. It is important to understand that the poor are politically powerless - this powerlessness is a dominant influence in determining their plight in each category.

4.2.1 Lack of Resources

Durning (1989) cites observations made by Sheldon Annis in two Guatemalian Villages in the 1970's. In the one village, the poor had sufficient resources - they optimised every resource in a sustainable manner. By contrast another village was deprived of resources. Annis witnessed a farmer planting corn on such a steep slope that he had to lower his son down by rope to plant seedlings. On his return some years later Annis was not surprised to discover that the hillside had been eroded away.

The poor are often aware that an over exploitation of resources leads to environmental degradation. However, they are in a desperate situation where short-term survival is a priority.

4.2.2 Security of Tenure/ Control of Resources

The poor, especially in the developing countries, often have access to a resource but no control (ownership) over it. This reduces incentives to make long-term investments on the land and incites a hurried depletion of resources, as the people fear they will lose access to them (Mellor, 1988). Durning (1989) indicates that the control of trees is a particularly neglected component of the poverty-environment spiral. Like land and livestock, trees are economic assets that provide a flow of benefits to the poor.

4.2.3 Skewed Land Ownership Patterns

Land ownership patterns are often to the detriment of the poor. This is clearly illustrated in Nepal, where land holdings are characterised by under-attended large holdings, overburdened small holdings and millions of landless. Those that are deprived of land (or enough land) use the resources in an unsustainable manner, in fear of eviction and starvation. Similar inequitable distributions of land are found in Costa Rica where land invasions by the large cattle farmers have driven the poor into a similar plight. (Durning, 1989)

4.2.4 The Commons

The environment in many common areas has over generations been traditionally protected by the poor, who have developed unique resource management methods to ensure sustainability. However, common lands

are often turned into private property and/or invaded for commercial interests. This has effectively pushed the poor onto more marginal lands, disrupted the delicate balance that has evolved to protect the environment and led to the depletion of resources.

The Indian coastal states of Kerala, Goa and Karnataka, where local people earn a living in small scale, non-motorised fishing, is an example of this conflict of interests. The introduction of motorised trawlers led to the sustainable yield of the fishery being exceeded. The harvest was reduced, thus devastating the livelihood of the poor. (Durning, 1989)

4.2.5 Education

Mellor (1988) believes that education effects the environment in two ways:

- People with low levels of education do not understand the harm of what they are doing. It is therefore essential that educational levels are raised so that an ethic of environmental awareness can be achieved.

- Education has an influence on population growth. It is advocated that rural people with smaller families are more educated.

4.2.6 Urbanisation

The rapid urbanisation of the poor, particularly in the 'developing' world is a serious threat to the environment. Families are often not able to find affordable shelter in the formal sector and therefore locate themselves in overcrowded informal settlements, which have contributed

significantly to environmental degradation. These settlements are characterised by inadequate sanitation, indiscriminate waste disposal and wood gathering for fuel or construction, which has led to debilitating health consequences (Co-operative Housing Foundation, 1990). The coal burning stoves found in many informal settlements also pollute the atmosphere, increasing the danger of respiratory diseases such as Tuberculosis.

4.2.7 Population Growth

The association between population growth, environmental degradation and poverty is complex. Various researchers have attempted to determine the relationship between poverty and population growth. Birdsall (1980) shows that there is a relationship between the two, particularly in the 'developing' countries, where growth rates have been rapid and averaged between 2% and 3%. However, the relationship between the two is intricate and needs to be viewed with caution:

> "There are many reasons to expect poverty and rapid population growth to be mutually reinforcing .... Regarding some of the links there is substantial evidence; regarding others, much less. The issue is not a simple one; indeed if it were there would be no issue at all." (Birdsall, 1980, p.84)

A study conducted in South Africa reiterates this complexity, when household sizes and levels of poverty in urban areas were compared with rural areas. According to a study of 13 different urban Black settlements around Cape Town and Durban, it was recognised that the link between household size and poverty is extremely weak. Instead, the critical factor effecting the level of poverty in the 13 townships was their geographic location. However, rural Black settlements differ in that they tend to show a much stronger link between household size and poverty. (Prinsloo, 1980)

Besides the complex notions described above, there is evidence and a belief that an increase in population growth does threaten levels of poverty and environmental degradation:

> "Rapid population growth can exacerbate the mutually reinforcing effects of poverty and environmental damage." (World Bank, 1992, p.7)

There are essentially two points of view regarding this relationship.

The first school of thought believes that we need to curb population growth as rapid growth threatens levels of poverty and environmental degradation.

It is the poor in the 'developing' countries who are most at risk. Of every 10,000 future births in the world, more than 9,000 will occur in 'developing' countries (World Commission on Environment and Development, 1992). In striving for sustainable development the WCED (1992) therefore believe that there needs to be effective population management through programmes that recognise the linkages between poverty and population growth. These programmes should deal with population growth through an integrated approach which includes, education, the enhancement of the status of women, improved public health and family planning.

Bekker and Mountain (1990) identify two important approaches to population development programmes. The first emphasises a balance of population growth against socio-economic development in the short-term, and natural resources in the longer-term. The second approach focuses on population, poverty and power, and strongly criticises the balancing approach, as it:

- Uses the theory of demographic transition during the industrialisation phase of a country, which could be interpreted as implying that the poor alone are to blame for the population explosion.

- Assumes that a specific area has a limited amount of resources, and does not acknowledge that technological advancement has the potential to overcome shortages of natural resources (providing that policy makers allow for the optimisation of technology).

- Infers that resources are equally distributed in society.

Irrespective of which approach is used in conceptualising population development, Bekker and Mountain (1990) insist that a strategy is desperately needed to regulate (at worst) or solve (at best) increasing poverty, unequal distribution of resources and rapid population growth.

The second view regarding population growth is Marxist/ socialist inclined, maintaining that population growth per se is not the principal cause of the increase in poverty and environmental degradation. Even though it is noted that as "city populations have grown - environmental conditions have deteriorated" (Harrison, 1991, p.14), there are other factors and 'actors' which have accompanied the increasing population growth rates, and influenced levels of poverty and environmental degradation. These are described by Harrison (1991) as political forces which include big business, trade, politicians, military and parts of the civil service. These power niches have ensured that their own needs are met first, resulting in the misuse of funds which could have been made available for the upgrading of poverty stricken communities and their degraded environments. Perhaps if funding is distributed more equitably, it could show that people are not the problem but rather the solution and

that higher concentrations of people could initiate the ability to create more productive and dynamic markets.

The difference between the two points of view discussed above is that the first focuses primarily on the reduction of population growth as the solution to ending poverty and the destruction of natural resources, whilst the second is more concerned with socio-economic and political forces. As extremes both could be considered to be short sighted. In conclusion it must be accepted that population growth does effect levels of poverty and the environment. However, social, political, economic and judicial issues as well as management proficiency and administrative capability also play crucial roles in determining the severity and extent of these levels. Therefore, in the search for solutions, we need to consider the dynamics of population, poverty and the environment as interdependent and interactive. In addition we must take cognisance of the holistic nature of the dynamic factors effecting these phenomena.

4.2.8 Development and Policy Issues

> "Development is about improving the well-being of people." (World Bank, 1992, p.34)

> "The environment can be considered to be an integral part of development, since any impact on man's environment also influences his state of well-being or welfare." (Bartelmus, 1986, p.7/9)

This section discusses the development strategies adopted by international agencies for the 'developing' nations. The schemes implemented by the government in India are also used as an example of a national development programme which has not uprooted poverty and environmental decline.

Development Strategies Adopted by International Agencies for the 'Developing' Nations

Firstly, a brief overview of these strategies (up to the early 1980's) is outlined, drawing heavily from Bartelmus (1986). Secondly, the publications "Our Common Future" (WCED, 1987) and "Development and the Environment" (World Bank, 1992) are discussed.

Traditional economic theory has failed to prevent continued environmental decline, leading to the emergence of radical and pessimistic 'doomsday' and 'conservationist' views toward the environmental problem. The 'doomsday' adherent believes that only zero or negative economic growth can avoid disastrous environmental consequences, whilst the 'conservationist' focuses primarily on the preservation of ecosystems and endangered species to the neglect of socio-economic conditions and consequences. Most developing nations cannot share these pessimistic solutions as they consider growth to be more important than concern about species of wildlife, and believe that only the more wealthy countries can afford this luxury. (Bartelmus, 1986)

It is this response that reveals the dilemma facing development and environmental concerns in the 'developing' nations. The majority of the inhabitants in these nations are characterised by extreme conditions of poverty and therefore concerned with short-term survival, they are subsequently very sensitive to any environmental policies, particularly when their already limited access to resources are threatened. Essentially the challenge is therefore one that can achieve short-term survival with sustained long-term growth.

An early attempt at understanding the environmental problems in the developing countries emerged from the United Nations (UN)

Conference on the Human Environment, held in Switzerland (1972). It was recognised that environmental problems do not only result from the development process itself, but also from the lack of development. This was described as the 'pollution of poverty'. At the conference it was concluded that environmental and developmental goals should be harmonised by the wise use of natural resources.

At a joint United Nations Environment Programme (UNEP) and United Nations Conference on Trade and Development (UNCTAD) symposium held in 1974 it was realised that the failure to provide a safe and happy life for all was not one of absolute physical shortage, but rather of economic and social maldistribution and misuse. It was also ascertained that development in the sense of the growth of economic macro-indicators had not succeeded in alleviating the situation for the poorest people. Therefore, a new strategy was proposed, advocating the satisfaction of "basic-needs" for the poor first, with consideration towards environmental risks.

The "basic-needs" approach received substantial support in the late 1970's and the 1980's. However, Bartelmus (1986) indicates that international statements have steered away from the "basic-needs" approach, as it was labelled as an intrusion into many national developmental policies which had other priorities such as the building of infrastructure and industrialisation. The United Nations third development decade (1980's) therefore omitted any reference to the satisfaction of basic needs - stressing instead, the establishment of a New International Economic Order as an effort to accelerate the development of the poor countries. Emphasis was also placed on the inter-relationship between environment, development and population as well as environmental degradation in urban slums.

It is pleasing to note that recent publications by the United Nations Environment Programme (UNEP) and the World Bank identify an urgent concern regarding the relationship between poverty and environmental degradation.

In 1983 the United Nations set up an independent body, the World Commission on Environment and Development (WCED) to re-examine the critical environment and development problems on the planet. The Commission headed by Gro Harlem Brundtland (the then Prime Minister of Norway) published its findings in the 1987 report - "Our Common Future".

The report supports the concept of sustainable development, and claims that we are borrowing environmental capital from future generations with little or no intention of repaying it. Humanity therefore needs to ensure that development is sustainable - that it meets the needs of the present without compromising the ability of future generations to meet their needs.

The high levels of poverty found within the developing nations are identified as a major cause and effect of the environmental problems. Other obstacles to sustainable development in these countries include international relationships, population growth, the independent and fragmented nature of institutions concerned with environment and development, insufficient farmer support programmes, inadequate technology and the shortage of resources.

The most significant conclusions and recommendations of the report are listed below:

- Economic growth, alleviation of poverty and sound environmental management are mutually consistent objectives.

- Population growth must be decreased, in order to assure more equitable access to resources. It is suggested that governments develop long-term multifaceted population policies which include the strengthening of social, cultural and economic motivations for family planning and the provision of the education, contraceptives and services required.

- There should be an integration of environmental policy and planning, as well as greater public participation and the involvement of all parts of the development community. The public, Non-Government Organisations (NGO's), the scientific community and industry also need to be better informed.

The World Bank Report (1992) - "Development and the Environment", is particularly concerned with sustained and equitable growth in the developing world. The predicament of the poor is depicted as follows:

- The poor draw a large part of their livelihood from unmarketed natural resources.

- The poor are regarded as both victims and agents of environmental damage. They lack resources and technology and often have to meet urgent short-term needs, prompting them to 'mine' natural capital.

- It is often the poor who suffer the most from the effects of environmental degradation, as they are unable to protect themselves.

The need to reduce population growth is also considered essential for any programme which seeks to alleviate poverty and environmental deterioration.

National Development Programmes

Many national development programmes have been unsuccessful in uprooting poverty and preventing environmental decline. The schemes adopted by the government in India are an example, where the poor are in conflict with development attempts.

The five year plans over the last forty years in India have focused on eliminating poverty, but have been ineffective as half the people still live below the poverty line. Two features of these plans were the development of large dams for irrigation projects and the commercialisation of forests. The implications of moving people and submerging wooded areas in the construction of the dams were detrimental to the poor in terms of reducing the amount of available land and resources. The dams also only survived a short while as siltation rates were far higher than anticipated. The deforestation in the Himalayers for railway sleepers, paper and sports goods did not only directly lead to soil erosion but also denied the poor access to this resource. These activities led to the well documented Chipko movement, which was an uprising of women in Uttarkhand (Himalayers), who protested against government policies of development and the diversion of natural resources for urban and commercial purposes. (Chowdhry, 1989)

4.2.9 Victimisation, Vulnerability and the Powerlessness of the Poor

> "Even where poverty is not a cause of environmental decline, it is a ticket to suffer environmental abuses caused by others." (Durning, 1989, p.50)

The poor are often located in areas which are undesirable for the upper echelons of society - on steep slopes, floodplains and near garbage dumps and industrial zones. This is not only threatening to the communities safety (landslides and flooding) but also to their health.

The world's economically and politically powerless are also susceptible to the importation of toxic waste from the industrialised countries. Waste brokers offer the developing countries large amounts of money in exchange for the waste. Greenpeace Organisation (environmental activists) who monitor and publicise such activities, comment that the less developed countries find themselves in an unfair position in that they have to make a choice between poison and poverty (Greenpeace, 1992).

The poor are also very sensitive to 'natural' disasters (eg. drought, flooding, landslides) - i.e. if the meagre resources they do have are destroyed, then there is very little or nothing left to ensure survival.

4.3 South African Black Communities

The inter-relationships between poverty and environmental degradation with special focus on international experience have revealed that these two phenomena are inseparable, characterised by a downward spiral, 'fed' by elements that accelerate the downward cycle and are a threat to the sustainability of the planet. This section will analyse these

inter-relationships in South African Black communities. The elements that aggravate these inter-relationships are also identified and investigated.

Previous chapters have identified the high levels of poverty and environmental degradation in both rural and urban Black South African communities. There is little doubt that these people are caught in the rigours of the downward spiral.

> "The destruction of the environment further contributed to the already impoverished Africans as the possibilities of survival got smaller and smaller in addition of being less productive." (Malatsi, 1992, p.76)

> "In South Africa millions of urban people do not have adequate shelter, drink polluted water and have no jobs... Urban crisis results as massive urbanisation confronts urban management structures and resources incapable of developing the necessary infrastructure. Vast unserviced slums grow as existing infrastructure collapses under increasing demands, and the natural environment is further degraded." (Baskin, 1993, p.22)

The elements that contribute to the cycle, further impoverishing Black communities and degrading the environment are discussed below.

4.3.1 Population Growth

Considerable growth in the rural Black population was a particularly important component of South African demography prior to 1980. This was exacerbated in the years 1950 - 1980 when apartheid strategies such as influx control and the 'homeland' policies prevented Black urbanisation. Wilson (1991) mentions that between 1960 and 1980 the population in the 'reserves' increased from 4.5 million to about 11 million because of:

- natural population growth rate;

- the redrawing of boundaries to include some urban areas in the 'homelands';

- the insistence that new suburbs for Blacks moving to the cities be situated in the 'homelands'; and

- the compelled movement of Black people from both urban and rural areas to the reserves.

However, in the 1980's and 1990's (especially with the repeal of influx control in 1986) there was a rapid surge in Black population migration from the 'reserves' to the 'White' urban areas. This is clearly indicated by the fact that the proportion of the Black population living in urban and metropolitan areas rose from 42% in 1980 to 50% in 1990 (Simkins, 1991). The majority of these people found themselves in overcrowded shack settlements surrounding these urban centres. The above patterns of Black population 'migrations' as well as 'natural' population growth has ensured that high population densities are a feature in both urban and rural areas throughout many parts of South Africa.

With regard to 'natural' population growth it is believed that the low status experienced by women, associated with conditions of poverty, is one major cause of South Africa's high population growth rate. Barbara Klugman, at the International Earthlife-Africa Conference (Pietermaritzburg, September, 1992) listed the following issues contributing to this scenario in Black communities:

- Motherhood as adulthood. i.e. many women are only taken seriously once they have become mothers.

- No alternative career options. i.e. career options for women are more limited than for men.

- Teenage powerlessness. This is believed to have led to the very high teenage pregnancy rate.

- Children are important for domestic help and security in old age.

The high population densities in many urban and rural areas have emerged from artificial and natural means, and place immense pressure on the land. The rural poor are largely dependant on local resources for survival. An example where an increase in population density has undermined this survival and intensified the downward spiral is the Thornhill resettlement scheme in the Ciskei. Livestock and people numbers have exceeded the carrying capacity of the land, resulting in catastrophic environmental degradation (see **Chapter 3 - 3.3: "Vegetation"**).

The high levels of Black urbanisation are also a threat to the environment and people. Of most concern is the prolific establishment of dense poverty stricken informal settlements. The relevant issues affecting these areas are discussed under urbanisation (**4.3.4: "Urbanisation"**).

4.3.2 Inequitable Distribution of Land

The implementation of apartheid policy has created inequitable land distribution patterns in South Africa. Through the 1936 Land Act the State marginalised Black people to only 13% of the total land area. This has been instrumental in creating the high population densities, characteristic of most Black areas. It is the rural poor in particular who have suffered from these discriminatory actions, as they rely on the land

for a source of livelihood. With little land and increasing population densities these people have been forced to strip the meagre resources from the land to ensure short term survival.

Grazing and the cropping of marginal lands have reduced vegetation cover and depleted the fertility and sustainability of the soil. The result has been severe water and wind induced soil erosion, which has left landscapes barren and unproductive. The collection of fuelwood by the poor has also led to the removal of vegetation cover. Gandar (1984) has shown that in rural Kwazulu for example, this destruction is reflected by the fact that there were about 250 forests in 1936 - today only 50 remain (see **Chapter 3 - 3.3: "Vegetation"**). As fuelwood has become more scarce, rural women have had to traverse further afield to go and collect suitable stock. This has important socio-economic implications as:

- their productivity in terms of household tasks is reduced, because they spend more time collecting fuel, and

- the collection of fuelwood in some remote areas is a problem for their safety (eg. rape and robbery).

4.3.3 Lack of Resources/ Security of Tenure

The shortage of land discussed above is fundamental in limiting the physical resources available to Black people. Soil and vegetation have been highlighted in this regard. Another resource which needs special mention is water, as Black people in most parts of the country do not have easy access to clean drinking water. It is in the rural areas and the informal settlements where this is problematic, with the most serious consequences being the associated health risks. This is clearly reflected by Huntley, Siegfried and Sunter (1989) who indicated that 5 out of every

100 Black children, before the age of 5, die from diseases caused by contaminated water (see **Chapter 3 - 3.5: "Water"**).

Black people do not only have too little land, but don't have ownership thereof or an insecure tenure. As discovered with the poor throughout the world, this does not inspire investment on the land and/or encourages the poor to strip the resources from the land as quickly as possible, as they fear their access will be lost to the land and resources.

4.3.4 Urbanisation

Since the abolishment of discriminatory legislation such as 'influx control' and 'group areas', Black urbanisation has increased, with the majority locating themselves in overcrowded informal settlements. These settlements have a detrimental effect on both people and the environment, as they are characterised by high population densities, inadequate sewerage and sanitation, an accumulation of garbage and pollution of the atmosphere from coal and wood burning fires. The surrounding wooded environs are also stripped for building and fuel. The result is not only aesthetically displeasing but also a very serious health threat to the inhabitants.

Clean energy sources such as electricity are unavailable or too expensive for most Blacks in urban areas. Kgomo (1991) shows that even in the more formalised Soweto township the atmosphere is extensively polluted with sulphur dioxide as a result of extensive coal burning, to satisfy household energy needs (see **Chapter 3 - 3.6: "Air Pollution"**). The densely populated Black informal settlements, in particular are also a source of water pollution, as they do not have adequate sanitation and garbage removal facilities (see **Chapter 3 - 3.5: "Water"**).

The inability of Black urban communities to upgrade their environments is reflected by their extreme poverty and powerlessness (Wilson and Ramphele, 1989; Koch, Cooper and Coetzee, 1990). The establishment of the Black Local Authorities (BLA's) in the early 1980's attempted to upgrade Black urban areas. They were provided with insufficient sources of income, have accumulated huge debts and have subsequently not been able to provide adequate infrastructure and services. Most Black people are therefore sceptical of these authorities and refuse to pay any type of rent. To compound the problem, Provincial Authorities and Central Government have recently refused to subsidise the deficits experienced by the BLA's.

4.3.5 Conservation Conflicts

Chapter 3 demonstrates that most Black people in South Africa are 'indifferent' to environmentalists' concerns. The main reasons for this apathy include the extreme poverty necessitating Black people to be concerned with daily survival, political violence which has demanded the attention of most Black activists and the racial bias of conservation efforts.

Many conservation bodies have simply imposed projects on communities, often believing that these communities are a threat to the environment. The irony is that many local people are living in equilibrium with the resources in their area. As they rely on the land for livelihood, ingenious methods have been developed to ensure sustainable development and long-term survival. Black communities have been removed off the land to unfamiliar sites, which often have a poor resource base. Promises such as benefits from the money earned with conservation activities and water supply are made, but seldom realised.

The above actions have not only cultivated negative feelings toward conservation managers, but have also put greater pressure on the environment. Without sufficient resources the poor have little option but to deplete resources in an unsustainable manner so as to ensure short-term survival, therefore deepening the downward spiral of poverty and environmental degradation.

However, not all conservation projects have negative impacts on local communities. Certain initiatives have through participatory actions effectively integrated rural communities into conservation programmes. The Richtersveld Reserve cited by Boonzaier (1991), where there is effective co-existence between the National Parks Board and local Coloured farmers concerning resource utilisation, is an example of such success (see **Chapter 3 - 3.2: "Conservation Issues"**). Rammuyla (1993) also refers to the Bophututhatswana Parks Board as being successful in integrating local communities with conservation efforts. Much like Zimbabwe's 'campfire projects' this success is due to community involvement at all stages of planning and decision making. The local people are in control of the projects and do benefit from them.

4.3.6 Development and Policy

This discussion shows that past Government policy towards development concerns has been top-down and biased, with Black people not receiving the support and attention they deserve. Many development projects, especially those steered by the Government are demonstrated to have further impoverished Black communities. Finally, the complexity of satisfying all the role players in the development process is examined.

An important bias to take cognisance of is the skewed agricultural assistance (access to institutions and loans), which has benefited the

White farmers and neglected the Black farmers. The World Bank (1993) has identified this and further claims that a large proportion of the White commercial farmers are inefficient. The fact that many of these farmers continued to receive assistance is indicative of an unjust system. The World Bank (1993) therefore support the phasing out of these inefficient farmers, and an increase of support for Black farmers.

Chapter 3 elucidates the ubiquitous 'Betterment' schemes which were designed by the Nationalist Government to reduce the catastrophic soil erosion problems in the homelands. They were top-down programmes which were imposed on communities. These schemes failed and led to increased socio-economic hardship and environmental decline.

The development issues surrounding the Jozini Dam in Maputuland provide a useful case study as they depict a transition from a top-down planning approach to a more participatory scheme.

In the 1950's the Nationalist Government identified the 'poor white' sugar cane farmers in the Pongola floodplain, as needing State assistance. It was decided that a dam be constructed to support these farmers. The Jozini dam was subsequently built in the Pongola Gorge, and was completed in 1972. Before the construction of the dam the Pongola floodplain had been characterised by a series of flash floods in the summer rainy season, which was used by local Black people to evolve an efficient system of floodplain agriculture. However, the dam subjected them to untimely flooding, which was dictated by technical factors, decided by the Department of Water Affairs. This led to the destruction of their crops on the floodplain, which had previously been a very productive area. In response Black people started cultivating high-risk ecological zones, resulting in the scouring of river banks, soil erosion and siltation. (Centre for Community Organisation and Development, 1991)

Researchers, the Centre for Community Organisation and Research (CORD) have for many years attempted to change this situation of 'top-down' decision making, where the local people have had little control in determining the discharge of water from the dam. The breakthrough was in September of 1987, when the Department of Water Affairs agreed to the establishment of the CORD/Mboza Village project. 'Water committees' were established and included representatives from five user groups: fisherman, farmers, women, stock owners and health workers. By 1990 there were 13 water committees which were involved in useful discussions with the authorities.

Unfortunately, some tribal authorities and 'homeland' officials, including the Kwazulu Bureau of Natural Resources (KBNR) appear to have been threatened by the above successes. For instance, many tribal authorities believe that they should control the project, rather than the water committees, whom they consider to be their subjects. The roots of this conflict are complex, but it could be considered that the corruption, which has become a characteristic feature of many KwaZulu tribal authorities, is possibly central to this resistance. These problems need to be addressed with vigour, so that democratic representation can become a more permanent feature throughout Maputuland. (Centre for Community Organisation Research and Development, 1991)

It would be naive to isolate the Black population as the only group that needs to be focused upon in South Africa. It is the combination of the different groupings with their diverging set of aims that makes development issues so complex. The St. Lucia debate is an illustration of these struggles. Most of the material included in this discussion is captured from Bannister and Bridgeland (1989).

Lake St. Lucia and its surroundings form one of South Africa's richest reserves and one of the largest ecosystems on the African continent. Developments over the last couple of years have witnessed a severe mining threat to this fragile ecosystem. Richards Bay Minerals (RBM) is making a determined effort to mine the Dunes of the eastern shores (Kingsa and Tojan areas) for rich heavy mineral deposits of titanium, rutile, zircon and low-manganese iron. There has been immense opposition to the proposed mining from conservationists and the public, with many highly emotive responses which reject what is believed to result in the destruction of a pristine landscape. The Environment Minister has received many thousand petitions that oppose this development.

RBM has reacted by stating that :

- They mine a timescale product which at the moment has a strong market - if RBM does not react to current shortage, their competitors will.

- It is estimated that the income generated over two decades from the mining operations will total at least R5 billion.

- 600 jobs would be created for the Zulu people in the area -an area of high poverty.

In this conflict between developers and conservationists, the views of an important group are often neglected - the Zulu people. Past decades have seen the removal of most Zulu people from the eastern shores. However, many Zulu people are moving back to the eastern shores and settling 'illegally' in the Dukuduku State forest. Their response to the

proposed mining development is echoed from a statement made from Professor Abraham Nkabinde (Rector of University of Zululand):

> "... no doubt that the majority of Zulu people favour mining the eastern shores. They need work locally. There is much poverty and unemployment. Most of the men in work have to migrate hundreds of kilometres to Johannesburg and Durban. Many understand the argument of the conservationists, but when it is set against the daily battle for survival it becomes a side issue" (Bannister and Bridgeland, 1989, p.118).

The St. Lucia saga therefore illustrates some of the typical forces that oppose each other. There is a wilderness that needs to be protected, a resource that could be exploited and a large number of poor and unemployed who desperately need economic upliftment. Finding solutions to these imperatives will not be an easy task. It is important that the decisions made will not destroy our environment so that future generations will be able to benefit from the landscape, aesthetically, spiritually and economically. It is also equally important that the poor benefit from development projects, so that short-term survival and long-term sustainability can be achieved.

4.3.7 Powerlessness and Vulnerability of the Poor

Apartheid policy ensured that South African Blacks are politically powerless. This powerlessness contributes to the downward spiral as the poor are unable to improve their lifestyle.

> "As is the case all over the world, it is always the economically and least powerful sectors of society that face the dangerous consequences of waste dumping." (Lukey, Albertyn, and Coetzee, 1991, p.162)

The South African Black population is no exception. They are not only located in undesirable areas which are sensitive to natural disasters, but are also vulnerable to environmental atrocities.

This is illustrated with the Thor Chemicals issue where Black workers were exposed to lead poisoning (see **Chapter 3 - 3.9: "The Environment in the Workplace"**). Evidence of illegal toxic waste disposals and their threat on Black communities are described in detail in **Chapter 3 - 3.8: "Toxic Waste"**. Coetzee (1991b) illustrated the discovery of sweets, used bandages, syringes and medical drips at a dump near the Black township of Kathlehong (Johannesburg). The homeless people who live off the dump are at risk of contracting bloodborne diseases. Another example also discussed in **Chapter 3** is the discovery of a number of drums containing toxic materials near a rural village outside Pietermaritzburg. People from this settlement came in close contact with this deposit and tested positive for the early stages of lead poisoning.

4.4 Conclusions

This chapter has clearly shown that, as Mellor (1988) ascertained, poverty and environmental degradation are inseparable. A global analysis of the poor identifies these inter-relationships as consisting of a downward spiral which is 'fuelled' by many elements.

The South African Black population, who are poor and reside in degraded environs are also caught in this downward spiral. The elements which fuel this spiral include; population growth, inequitable distribution of land, lack of resources, lack of (and insecurity of) tenure, an inability to upgrade urban and rural settlements, loss of access to resources due to the establishment of conservation and development programmes. Perhaps the most dominant forces effecting these elements and the downward

spiral are apartheid and powerlessness. Both influence all the elements discussed and further impoverish the Black population. Without political power the poor find it impossible to reverse the spiral.

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- 5 -

SHENSTONE/AMBLETON CASE STUDY

MPUMELELO

5.1 Introduction

The settlement is informal and peri-urban in nature and is situated on a north facing slope on the farm Ambleton, about 10km south of Pietermaritzburg. It constitutes the first phase of a larger development project (under the auspices of the Natal Provincial Administration), which aims to develop other sites in the surrounding areas of Shenstone and Ambleton farms.

The area is characterised by grey-brown, slightly sandy shales of the Pietermaritzburg formation (Ecca group) and the Mispah 10, Westleigh 13 and Hutton 27,37 soil types (Pietermaritzburg Metropolitan Study, 1988). More detailed information regarding soils, geology and hydrology was to be obtained from a Geotechnical report which was compiled by a consultancy firm for the Natal Provincial Administration (NPA). However, the Physical Planning Directorate (NPA) made access to this document impossible!

The research attempted to establish a holistic approach to:

(i) the cause and effect relationships between conditions of poverty and conditions of physical environmental degradation and resource depletion, and

(ii) ascertain the potential resource utilisation, so that effective

strategies can be devised to ensure a sustainable future for both people and the environment.

It is important to realise that the research should not only be conducted for academic interest, but will most importantly be of benefit to the community. Therefore, the 'active' involvement of the community throughout the research was perceived to be critical, so that this goal can be achieved.

5.2 Methodology

(1) A document was given to the committee representing the community, informing them of the proposed research. With their approval the study commenced.

(2) The research was committed to a participatory approach. An approach that takes cognisance of the 'Participatory Rural Appraisal' technique, which enables communities to do their own investigations, to share their knowledge and to plan and own the outcome (Chambers, 1993). In support of this method, a report detailing the findings of this investigation will also be forwarded to the committee, for their information and comments.

(3) An historical overview of the settlement.

(4) A systematic sampling technique was employed, interviewing every fourth household. 43 households were interviewed (see Appendix 1: copy of questionnaire), representing 24% of the households at the settlement. The questionnaires were coded and entered on computer for analysis. The data captured from these questionnaires includes demographic features, socio-economic characteristics,

local resource utilisation, a prioritisation of "needs" as well as the local peoples' perceptions and attitudes regarding the environment.

(5) Interviews with organisations actively involved in the community were conducted.

(6) An analysis of physical environmental degradation at the settlement, with photographic documentation.

(7) Levels and sustainability of local resource utilization were investigated.

5.3 Historical Overview

The Natal Provincial Administration (NPA) expropriated the two farms, Shenstone and Ambleton in February 1991, with the aim of providing land for urbanisation. In January/February 1992, 58 families who had fled the violence in Mpopomeni township and had subsequently been housed in Howick, 'agreed' to move to the Shenstone/Ambleton area. Over the next few months more families from the Pietermaritzburg area were also relocated to the site. All the households at Ambleton were temporarily housed in tents, provided by the NPA.

The ANC reacted angrily to the relocation of the squatters to the Ambleton farm. The ANC Midlands region vice chairman, the late Reggie Hadebe (cited in Gibson and Urquhart, 1992), said that the Government should act in consultation with the affected people, offering them a real and viable alternative instead of creating further apartheid ghettos which marginalise people. Hadebe mentioned that the displaced and homeless need to be located close to their job opportunities and social amenities. It was his belief that the Government is taking advantage of the peoples' predicament (Gibson and Urquhart, 1992). Furthermore Gibson and

Urquhart (1992) reported that the Chairman of the Copesville Residents Association, Stephen Koteli, has stated that the people were not prepared to go to the Ambleton settlement - Koteli said that the City Council owns plenty of land inside the city boundary, which could be used for low income housing.

The NPA challenge the ANC's attitudes regarding the relocation of the refugees to Ambleton. They believe that the people are happy with the move to Ambleton. They had a choice of various areas to move to. These included Bulwer, Copesville and Ambleton, which were all shown to the people at the NPA's expense. The people were not interested in the Bulwer area, as it is too far from their place of work, or Copesville as they did not want a township type area. Subsequently, the Shenstone/ Ambleton area was selected - a portion of the farm Ambleton was chosen for the settlement, as it is closer to Pietermaritzburg, than the rest of the farm.

The settlement comprises 207 sites. It is Phase 1 of a larger development plan, which as mentioned aims to establish similar settlements in the surrounding area. Early in 1992, consultants were commissioned by the NPA to develop a structure plan for the area. However, it appears that the ensuing political sensitivity concerning this development, resulted in a decision by the NPA to stop the implementation of this plan. This remains the status-quo. However, the establishment of similar settlements in the area continues, without the guidance of a structure plan.

Politically this community has both IFP and ANC members. However, there appears to be no conflict as:

(i) the people are tired of the violence; and

(ii) they are dedicated to living peacefully in the area.

The community has therefore appropriately named their settlement, *Mpumelelo* (success).

5.4 Planning Control

At present, the NPA is the planning authority in the area. Various Departments within the NPA structure are involved with this settlement. The two principal sections concerned with planning and development are the Town Planning Directorate and the Community Services Department.

When the Town Planning Directorate was informed of the proposed research their response was apprehensive and dissuasive, as the area was politically sensitive and they themselves had put a hold on planning whilst they attempted to set up a steering committee, which would incorporate all concerned parties. The Directorate was approached on numerous occasions for assistance and co-operation with this investigation - they, however remained behind 'closed doors'. This is problematic for any research and development initiatives. It not only raises suspicion, but also limits the available information pertaining to the settlement and leads to possible duplication of research and development projects. This is to the detriment of the people at Mpumelelo.

The Community Development section (Branch of the Community Services Department, NPA) has been more approachable and provided some assistance in this research. They are concerned with urbanisation support and community development:

(i) Urbanisation Support

- Provide 'squatters' with land.

- Assist in transporting the squatters to the alternative land.

- Provide the people with temporary accommodation - tents.

This support was provided for the people at Mpumelelo.

(ii) Community Development

- This involves the development of the area, i.e. various upliftment schemes. Besides State funding, Community Development receives donations and funding from various organisations. These include:

Joint Services Board (JSB)

- Funds are received from the JSB for roads, water and sanitation. A problem with the JSB is that those communities who apply first, get the funding first. As there is a long waiting list, many communities have to wait a long time before they receive any funding.

Independent Development Trust (IDT) and Department of Education and Training (DET)

- The IDT and DET provide funds for education.

Community Development is assisting the community with the following:

- The provision of wooden poles for the construction of dwellings. However, only a few households have received this building material.

- Water and toilet facilities. There are 7 tanks providing water for the community and 36 pit latrines (for the location of these see Figure 6 - Land-use: Mpumelelo). However, the water supply is inconsistent and the number of pit latrines totally insufficient.

- Upgrading of roads, which has created some local employment.

- Improvements in education. The DET has provided the local school (old farm house is being used as a temporary venue) with a headmaster and 5 teachers. A new school is in the process of being built, but completion is not possible as no funds are available.

As already indicated, the NPA has been exposed to considerable criticism regarding the development at Ambleton - especially from the ANC. Recent evidence of resistance to NPA policy is the fact that various people are pulling out of the Shenstone/Ambleton steering committee, as they believe that the priorities of the NPA are wrong. This follows the announcement that an additional 600 sites are to be developed in the area. Committee members from Mpumelelo and neighbouring Willowfontein and Mantshaheni are withdrawing, as they insist that occupied areas should be upgraded first. Anton Krone (spokesman for the Built Environment Support Group) is reported as criticising the decision by the NPA to develop the additional sites, as it completely ignored the Pietermaritzburg Local Government Forum in the decision making process, reaffirming their commitment to apartheid planning and development (Anon, 1993b).

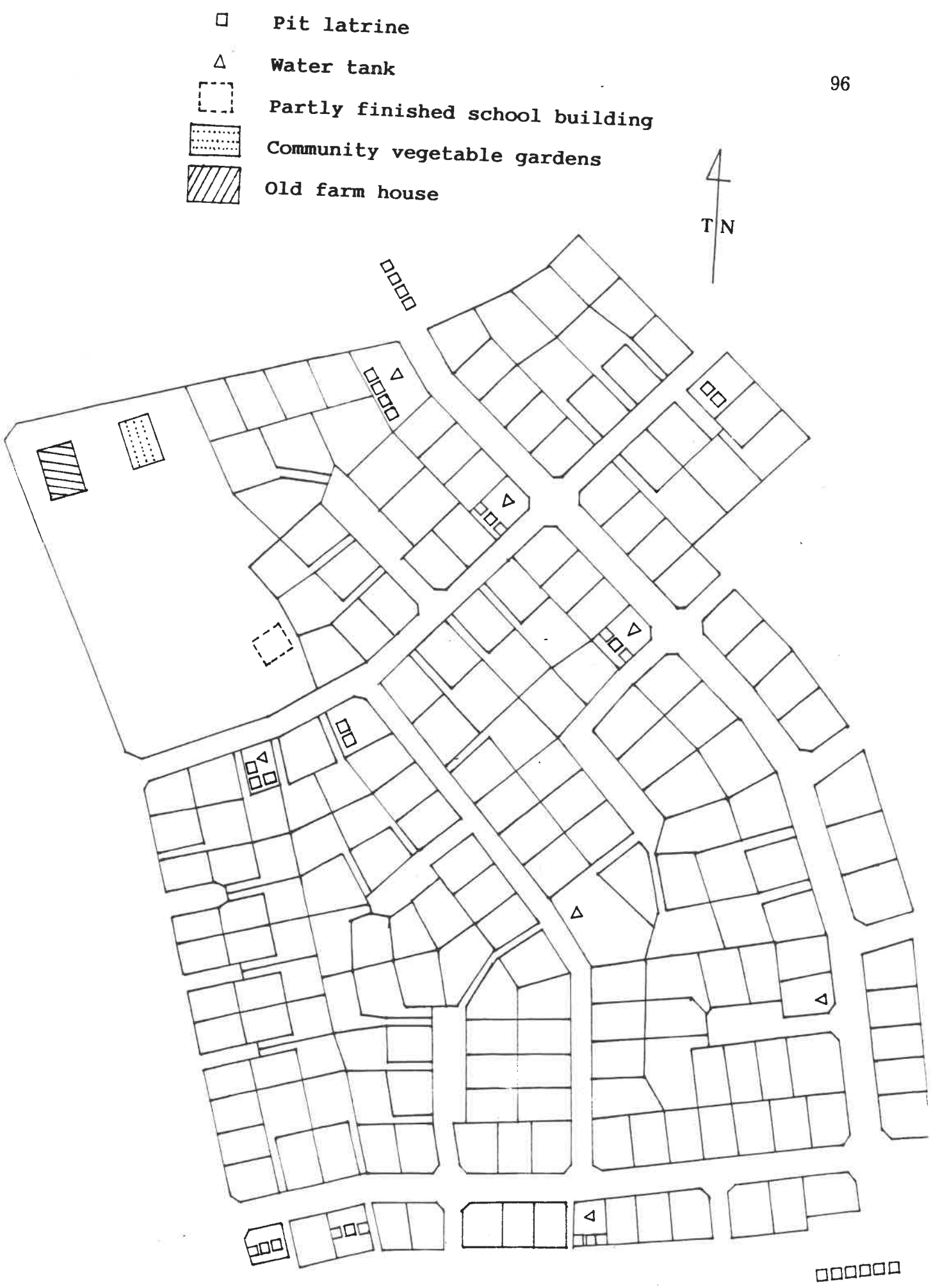

Figure 6: Land-use map: Mpumelelo settlement.
Source: Fieldwork.

Scale 1cm : 18m

5.5 Non-Government Organisations (NGO's)

A few Non-Government Organisations (NGO's) are actively involved in assisting the community in various development projects. The following have been identified:

(i) Grassroots Gardening Project

The Grassroots Gardening Project is completely apolitical and has been initiated by concerned people, who believe that the planting of trees and gardens in Black townships and peri-urban settlements will be beneficial to those people. They emphasise that the growing of vegetables will provide the people with subsistence to their diet, as well as provide them with a little more to strive for, as many of them are unemployed.

The aims of the project include:

- Educating people about the environment.
- Planting gardens and starting compost heaps.
- Showing people how to farm organically.
- Planting cutting lots so that firewood is available.

At Mpumelelo, the committee and the residents of the area have been consulted, regarding this project, and have welcomed the idea. A few members of the community were subsequently taken on an organic farming course. With their new skills they returned to the community, and as a starting point established vegetable gardens on their own properties. They then assisted other community residents to establish similar gardens.

The Grassroots Gardening Project has provided community members with the skills necessary to farm organically. The establishment of successful vegetable gardens on many of the residential properties has been the result of the projects endeavours. Unfortunately, for reasons which are difficult to ascertain, this NGO has not been able to continue its impressive and successful work with the community.

(ii) Project Gateway

Project Gateway is a church organisation which is concerned with the development of Black communities. They strive to bring communities together and make them as self-sufficient as possible. What Project Gateway is achieving at the Mpumelelo settlement is commendable. Thus far they have followed a participatory approach in assisting the people to establish vegetable gardens as well as encouraging the creation of other self-help committees.

As a starting point Gateway has helped members of the community develop vegetable gardens on their properties. They have provided seedlings, implements and technical assistance, and have successfully encouraged those people with skills in organic farming to assist other residents. Gateway has also supported the formation of various committees, such as tool and seedling committees. These committees help in organisation and provide effective channels for communication.

Project Gateway is now in the process of establishing an environmental resource centre, which would further assist communities in protecting their environment. Details regarding this initiative are not available as the project is still at an early planning stage. The findings of this thesis will hopefully assist them with this endeavour.

(iii) The Women of Pietermaritzburg

Provide food for the children. Soup is given to the school children every day.

(iv) Integrated Planning Services

Involved in assisting the community with the development of housing. This organisation is conducting an analysis of the soils in the area so that the appropriate mixtures for block making can be determined.

5.6 Institutional Development

Committees

The establishment of various committees at the settlement was initially suggested and supported by Project Gateway, and could be regarded as an important form of institutional development. The committees at the settlement include:

General Committee

- This committee represents the Mpumelelo community. It was democratically elected by the community and consists of 6 men and 5 women.

The various sub-committees are listed below:

Seedling Committee

- Responsible for the distribution of seedlings (provided by Project

Gateway) to community members.

Tool Committee

- Responsible for the lending of garden tools (provided by Project Gateway) to community members.

Water Committee

- Concerned with the distribution of water to the community.

5.7 Sites and Land-Use

The total number of sites at present is 207, with an average size of 260m². Figure 6 (page 96) depicts the land-use at the settlement.

5.8 Land Tenure

The sites are currently owned by the State. The NPA officials are still (2 years since the first people were settled at Mpumelelo!) negotiating a land tenure agreement with the community. It is essential that this be resolved as a matter of urgency, as security of tenure is important for the attainment of sustainable development (see **4.2.2 - "Security of Tenure/ Control of Resources"**).

5.9 Demographic and Socio-Economic Profile

There are 180 families living at the settlement with a total population of approximately 1 000 people. The survey revealed an average family size of 5.65.

The average household income for the community is R 182.30 per month (*Source*: Fieldwork sample), which is well below the Monthly Minimum Living Level (MLL) of R 760.19, as calculated by the Bureau of Market Research in August, 1992.

The levels of unemployment are also very high. Figure 7 shows that 59% of the adults (20 years and older) are unemployed.

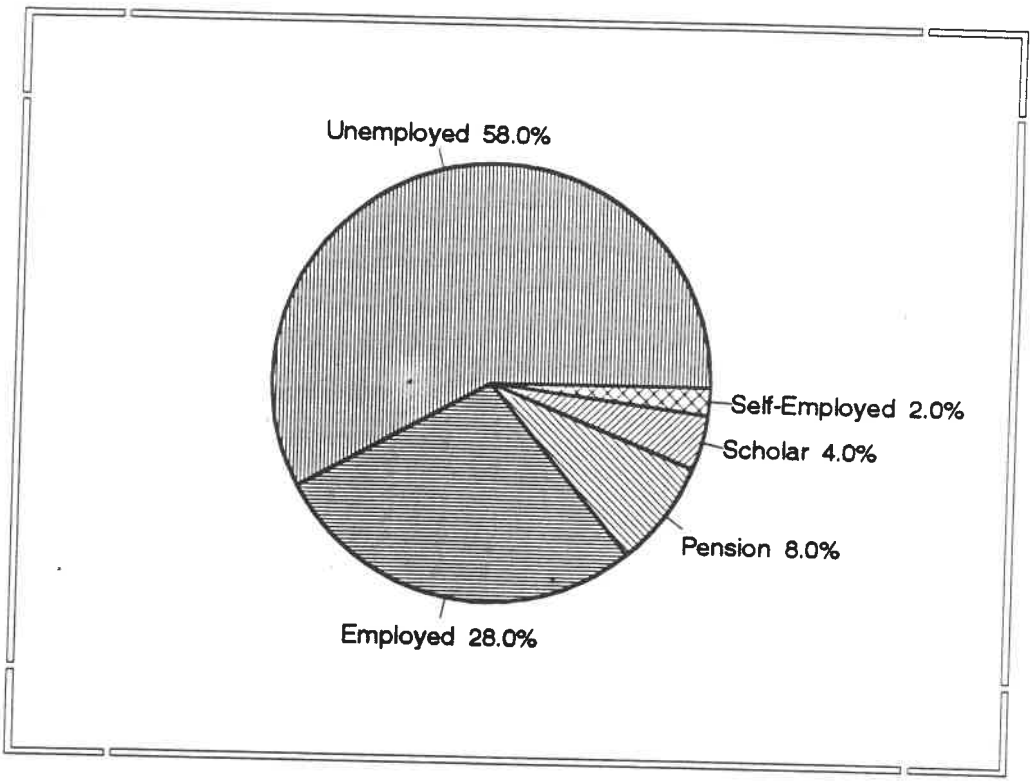

Figure 7: Employment structure of the population at Mpumelelo (pecentage of males/females 20 years and older). *Source*: Fieldwork sample.

5.10 Education

Wedepohl (1984) claimed that just under 30% of Black South African adults (20 years and older) were 'functionally' illiterate (less than standard 4) in 1980. Figure 8 (Education levels) indicates that 63% of the adults at Mpumelelo are 'functionally' illiterate - twice the national estimate for 1980. Figure 9 compares illiteracy with age. The

degree of illiteracy does rise with age and is over 80% for those 60 and older. As mentioned there is a school at the settlement. However, it is only a primary school (class 1 - standard 5). Members of the community have requested that a high school be established.

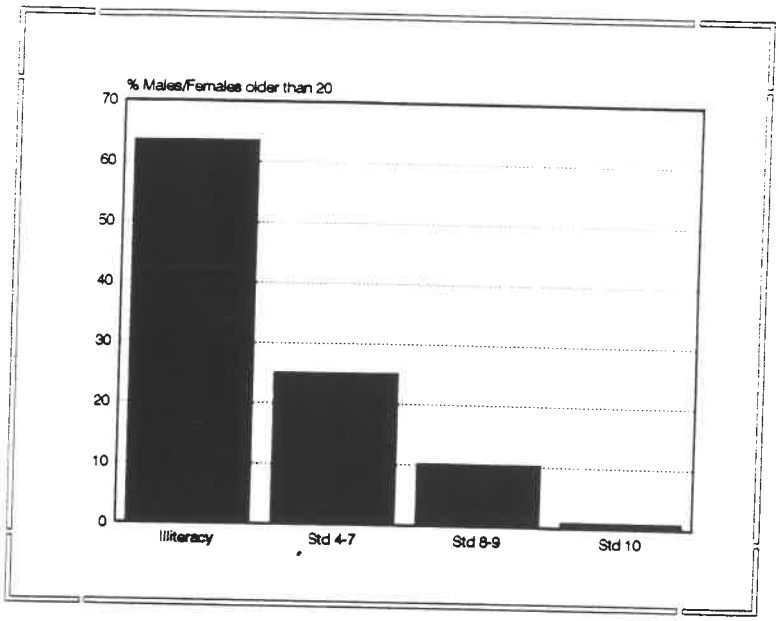

Figure 8: Level of education: percentage of males/females 20 years and older: Mpumelelo settlement.
Source: Fieldwork sample.

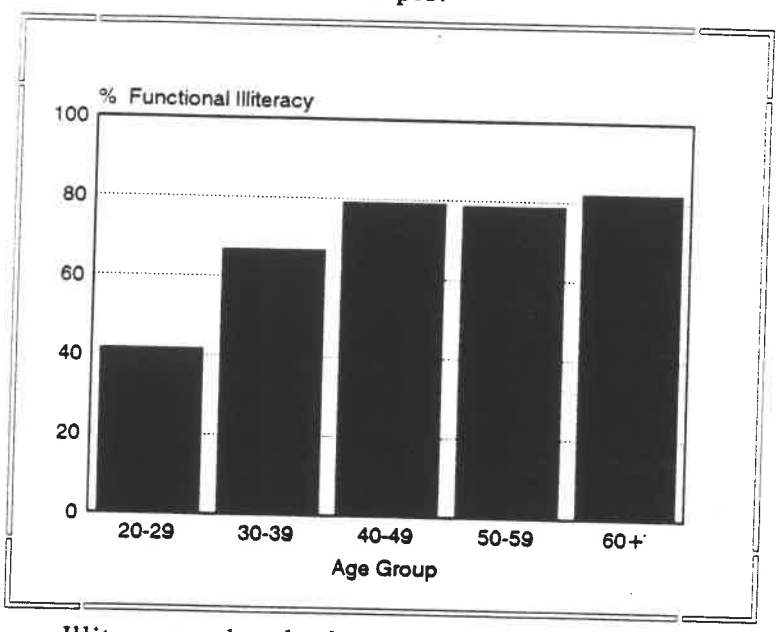

Figure 9: Illiteracy level by age: percentage of population functionally illiterate (less than standard 4): Mpumelelo settlement.
Source: Fieldwork sample.

5.11 Socio-Cultural Environment

Housing

There is a critical shortage of housing, with some people still living in the tents provided by the NPA. This accommodation is most unpleasant as it is reported by community members to be uncompromising to temperature fluctuations, i.e. the tents are not effective in keeping cool on hot days or warm on cold days.

Figure 13 (see **5.16 - "Community Skills"**) shows that the community regard the provision of housing as one of their most urgent needs. Common problems (identified by the community) preventing them from addressing this need include the following:

- The wood from the thorn trees in the surrounding area is not appropriate for building as it is described by the locals to be unsuitable in shape.

- Insufficient funds to buy building materials.

For further details regarding the local resources used for the construction of the dwellings see **5.12 - "Local Resource Utilisation"**, below.

Recreational Facilities

The only recreational facility is a very 'rustic' soccer pitch. The NPA did promise sports facilities. However, this has not been realised.

5.12 Local Resource Utilisation

Community activities which have a significant impact on local resources include fuelwood collection for energy requirements and the construction of dwellings.

Dwelling Construction

The local resources used for the construction of dwellings include soil, wood and shale. Figure 10 (see page 105) indicates that most of the soil and shale used for house building is derived locally and on-site. Soil - 96% (on-site: 46%, locally: 50%) and Shale - 89% (on-site: 38%, locally: 51%). Of the households surveyed, 78% use soil for building materials and 62% use stone.

98% of the households use wood for dwelling construction, with 30% of the wood collected from the local area. 34% is purchased, 21% collected elsewhere and 15% provided by the NPA. As already mentioned, the wood from the trees in the surrounding area is not suitable for dwelling construction. This explains the low percentage of wood collected locally. Many members of the community also emphasise that the NPA assured them that they would be provided with wood for building. There is uncertainty and negative feelings as only 15% of the households have received wooden poles for building.

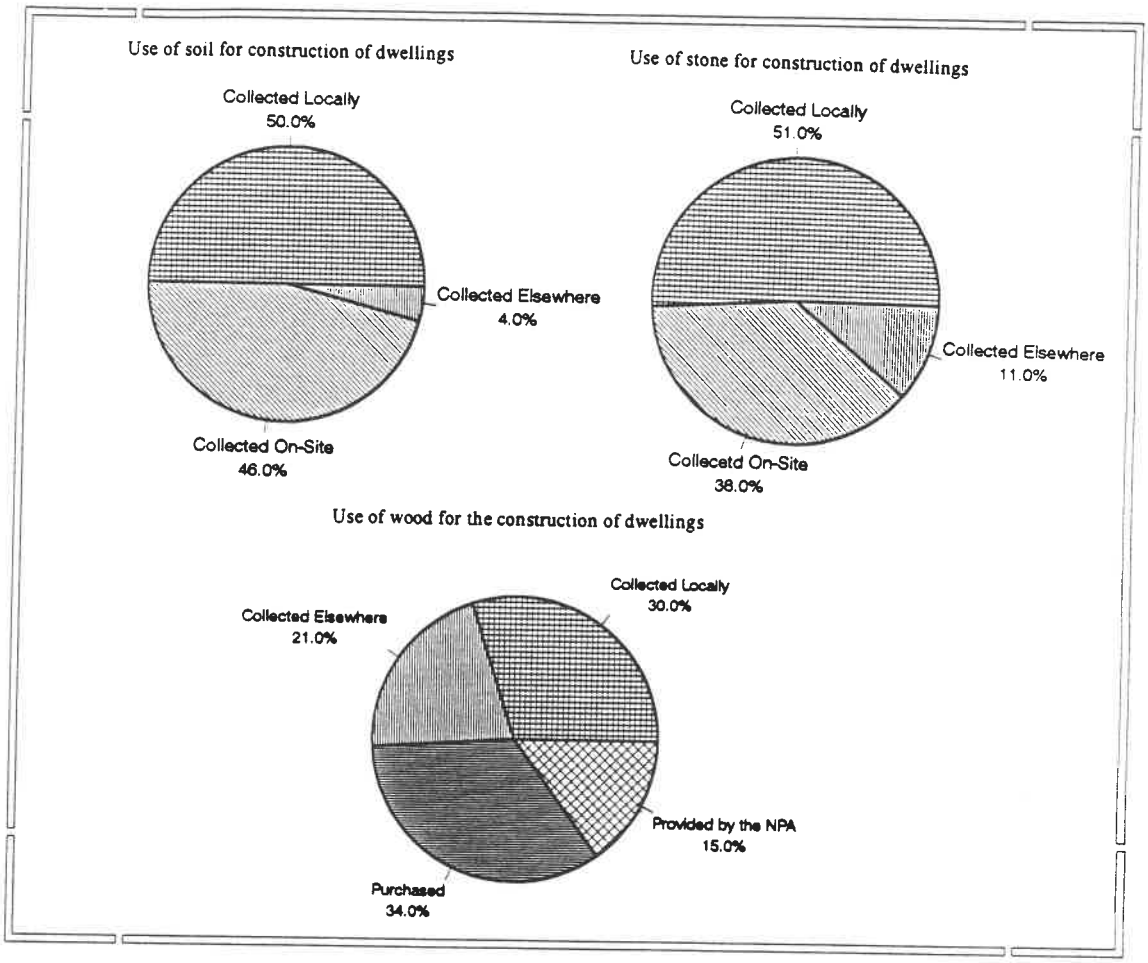

Figure 10: Use of soil, stone and wood for the construction of dwellings. Percentage of resource collected (locally, on-site and elsewhere) and purchased: Mpumelelo settlement. *Source*: Fieldwork sample.

Fuel

86% of the households use wood for fuel. Other fuels used are paraffin, gas and candles. Figure 11 (see page 106) illustrates that most of the wood used is collected locally (56%). 32% is collected elsewhere and 12% is purchased.

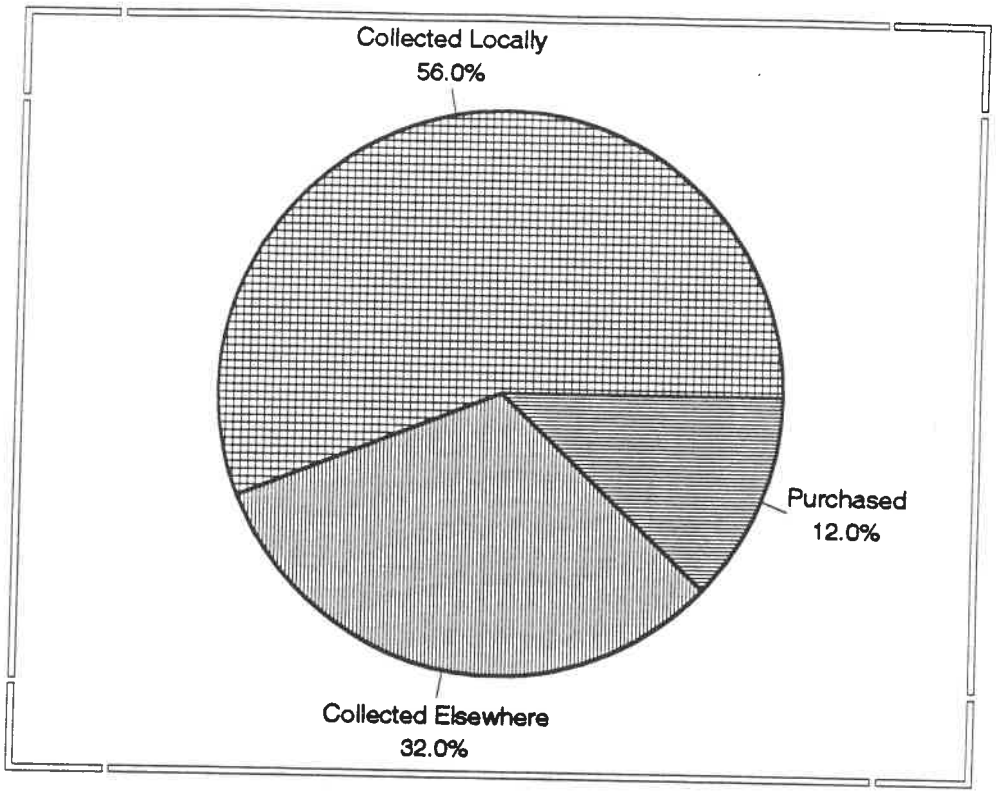

Figure 11: Use of wood for fuel. Percentage collected (locally and elsewhere), purchased and provided by the Natal Provincial Administration (NPA): Mpumelelo settlement.
Source: Fieldwork sample.

Water

The stream immediately below the settlement remains dry for most of the year. It is therefore not an important resource for the community. The only effect it does have on the community is negative. With heavy rains water flow from this stream floods the only access road, effectively isolating the community (see **Plate 2** - page 107).

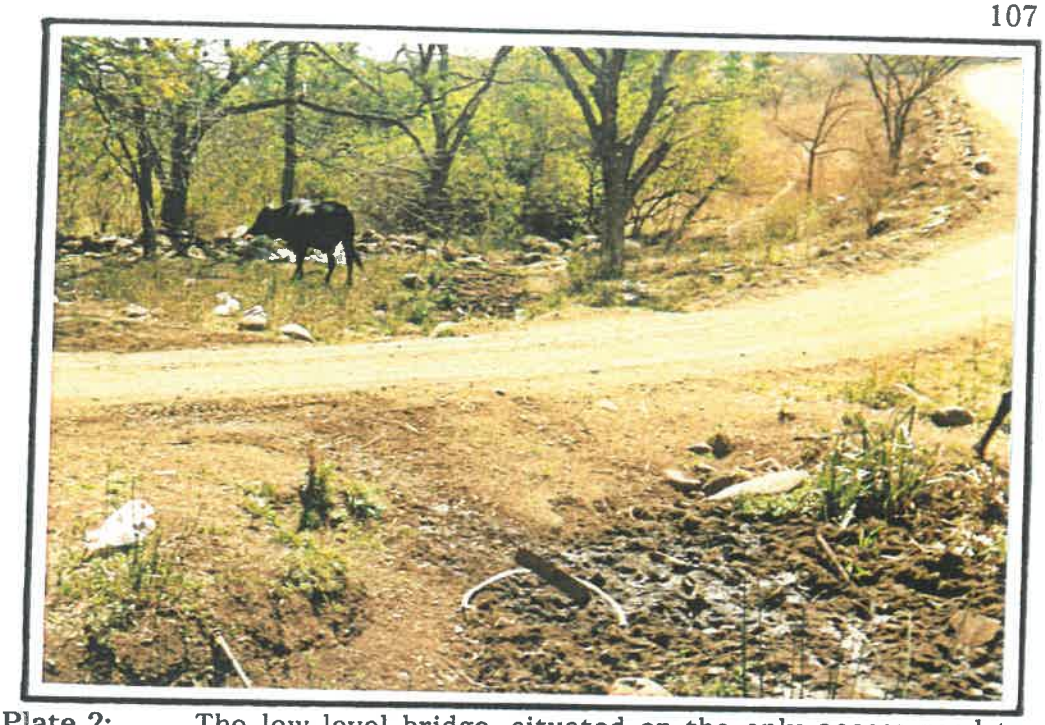

Plate 2: The low level bridge, situated on the only access road to Mpumelelo settlement. It is not effective in preventing flooding of the road.
Source: Fieldwork survey.

Seven water tanks (see **figure 6 - land-use: Mpumelelo**) provided by the NPA, supply the community with water. This water is used for drinking, building, washing, bathing and the watering of vegetable gardens. A serious complaint is that this water supply is erratic, with no water being available at times.

Livestock

The only livestock kept by the community are a small number of poultry. A few cattle from the neighbouring settlements do graze in the area. These numbers do not pose a threat to the degradation of vegetation cover at this stage.

Other activities also effect the sustainability of the local resources. These are discussed in **"Physical Resource Degradation" (5.13)**, below.

5.13 Physical Resource Degradation

The depletion of resources and pollution at Mpumelelo has resulted in environmental degradation. This analysis will identify this degradation.

Removal of Vegetation

As illustrated the trees in the area are used for fuel and dwelling construction. Evidence of the deforestation for these purposes is depicted in plate 3.

The NPA is also responsible for the destruction of the vegetation cover as they clear the landscape for site and road construction. When vegetation is removed the soil is exposed to wind and water erosion.

Plate 3: Evidence of the removal of trees by the community: Mpumelelo settlement
Source: Fieldwork survey.

Soil Erosion

Evidence of soil erosion is associated with poor road construction (plate 4), the clearing of sites (plate 5) and the positioning of water tanks (plate 6). There is also potential for soil erosion emanating from the many foot paths in the area, especially those positioned on the steep slopes. The community therefore needs to be assisted with path construction and maintenance. Most of the dwellings have tin roofs with no gutters. As Beckedahl and Slade (1992) illustrated, these have a zero infiltration rate and therefore during heavy rainfall the energy of the water falling onto the soil is increased. This increases the potential for soil denudation.

Plate 4: Soil erosion associated with poor road construction: Mpumelelo settlement.
Source: Fieldwork survey.

Plate 5: Soil erosion associated with the clearing of sites: Mpumelelo settlement.
Source: Fieldwork survey.

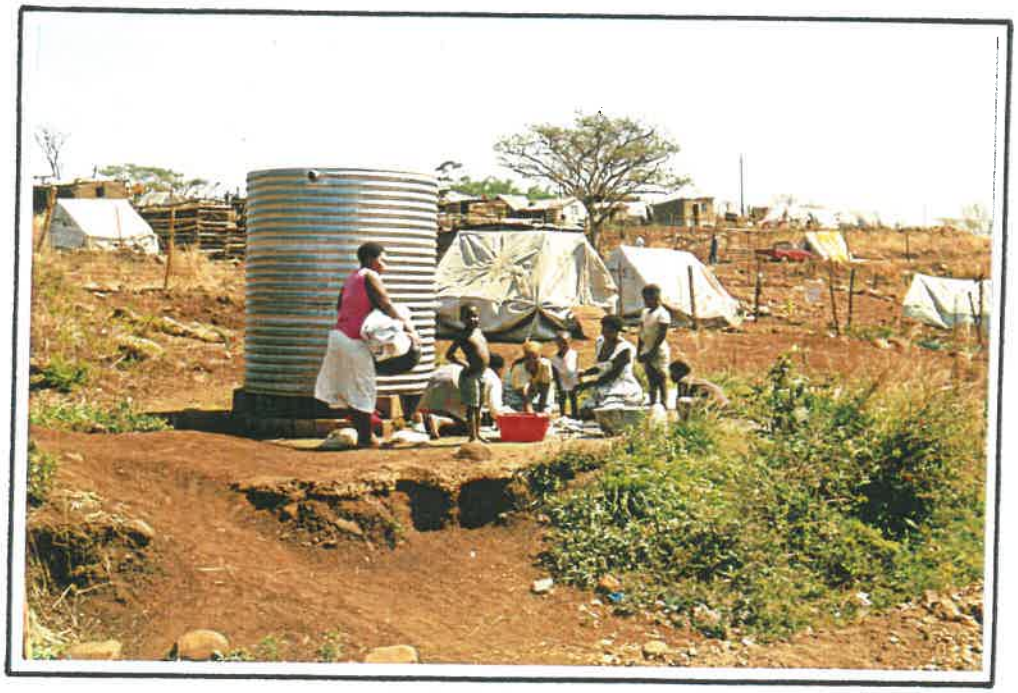

Plate 6: Soil erosion associated with water collection points: Mpumelelo settlement.
Source: Fieldwork survey.

Many of the sites are susceptible to severe soil erosion. With heavy rains parts of some properties could be destroyed, unless preventative measures are taken (plate 7). Some anti-erosion measures include stone

packing and the grassing of slopes. A few households have taken such action (plate 8).

Plate 7: This site is very susceptible to soil erosion, as illustrated by the steep and unstable slope at the front of the site: Mpumelelo settlement.
Source: Fieldwork survey.

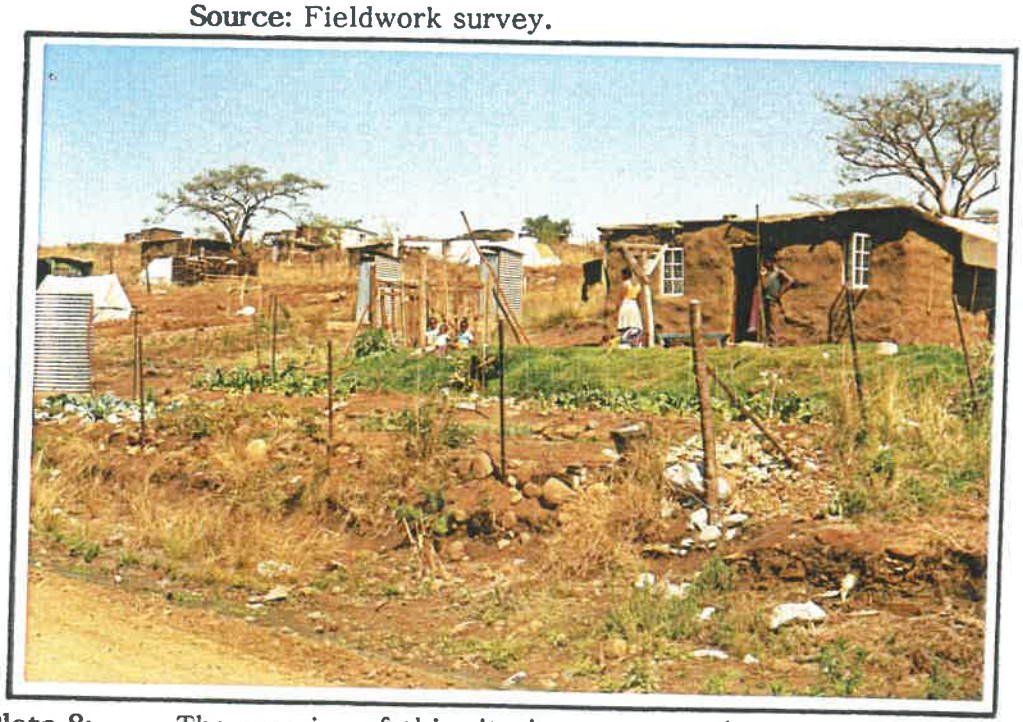

Plate 8: The grassing of this site is a preventative measure against soil erosion: Mpumelelo settlement.
Source: Fieldwork survey.

Sewerage and Garbage

There is insufficient sewerage facilities with inadequate maintenance, as well as no garbage removal. Sewerage systems are often blocked and leak and garbage is scattered throughout the settlement (plate 9). This is not only aesthetically displeasing but also a health risk.

Plate 9: Litter at the Mpumelelo settlement.
Source: Fieldwork Survey.

5.14 Community Perceptions Regarding the Cause of Environmental Degradation

Figure 12 (see page 113) illustrates what community members perceive to be the cause of environmental degradation at their settlement. These perceptions include: poverty, rain and flooding, soil quality, road construction, violence, unavailability of water, land shortage, government development, drought, toilet facilities, lack of natural resources and education. It is important to note that poverty is identified by most as a cause of environmental degradation.

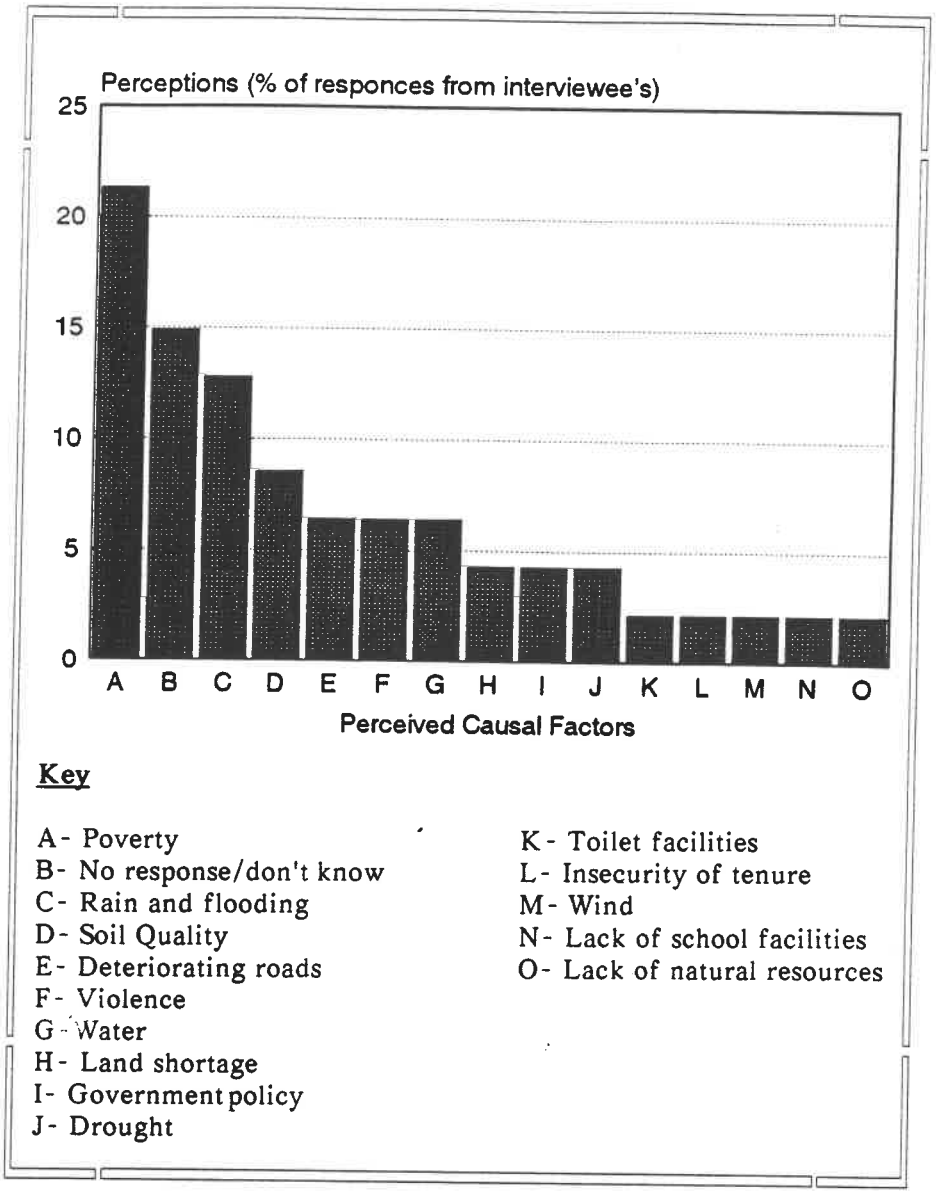

Figure 12: Community perceptions regarding the cause of environmental degradation (percentage of interviewee's): Mpumelelo settlement.
Source: Fieldwork sample.

5.15 Community Needs

In the questionnaire interviewee's were asked what they considered to be the most serious problems at the settlement. Poverty is ranked highest, with 28% of the responses identifying this as the most critical

problem, housing shortage - 21%, lack of transport - 18%, toilet facilities - 10%, soil quality - 5%, water availability - 5%, insufficient land - 3%, flooding - 3%, low level of education - 3%, violence - 3%, lack of electricity - 3% (see figure 13). An indication of the communities needs can be gleaned from the above responses.

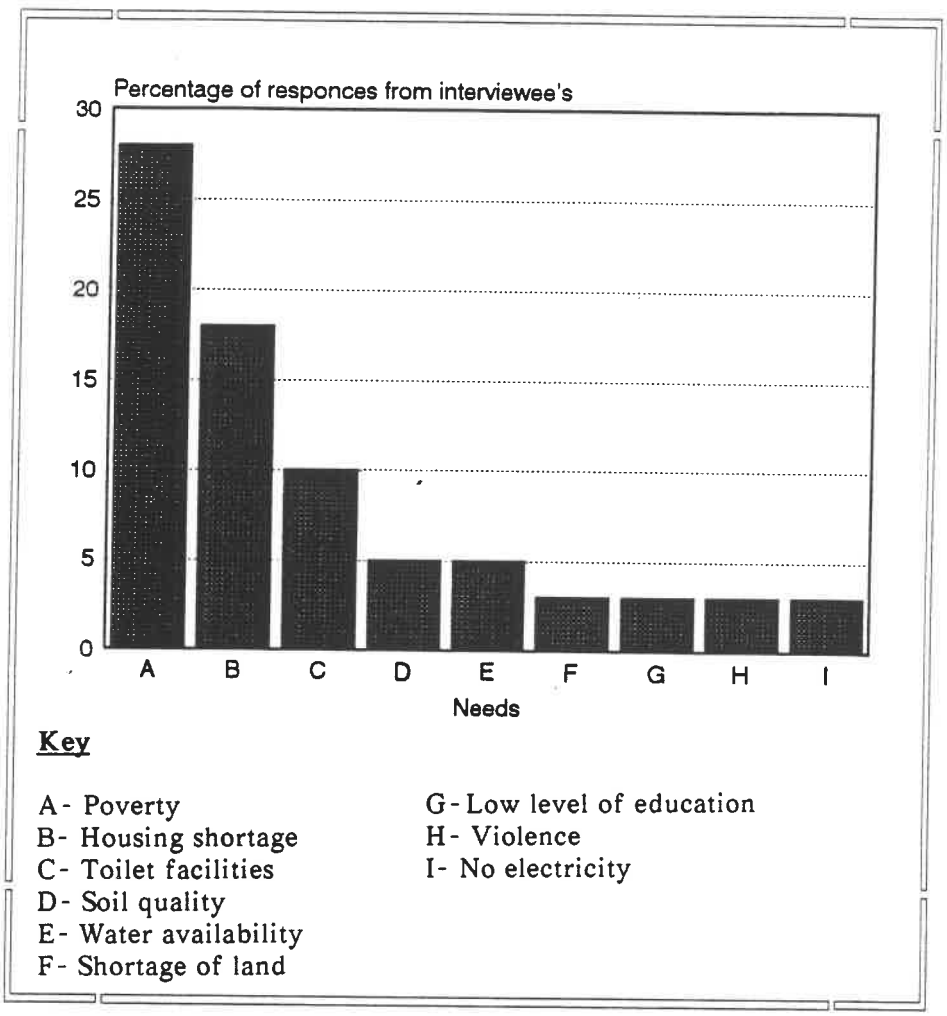

Figure 13: Most urgent problems as perceived by the Mpumelelo community (percentage of interviewee's).
Source: Fieldwork sample.

5.16 Community Skills

Defining what constitutes a skill begs a philosophical discussion. This analysis avoids such debate and merely reiterates the skills as

identified by the community. They include: house building experience, crop growing experience (growing of vegetables), livestock skills, sewing and knitting, first aid, African beer brewing, plumbing, painting, carpentry, candling, driving and cooking. It is important to note that 35% of the males and females older than 15, indicated that they have no skills.

5.17 Discussion and Conclusion

This study indicates a highly impoverished community living in a degraded environment.

The average household income of R 182.30, 59% unemployment rate, high levels of functional illiteracy (63%) and a critical shortage of housing all denote tremendous poverty. Physical degradation and pollution of the environment includes depletion of vegetation cover, soil erosion, litter and the leakage of sewerage.

The analysis of housing, fuel, litter and sanitation all illustrate the inter-relationships between poverty and the environment. As mentioned there is a shortage of housing. The NPA did guarantee the residents building materials, but only a few community members have received wooden poles. Most people cannot afford building materials and therefore rely on the environment to obtain their needs. Soil, stones (especially shale) and trees are all removed for this purpose. The survey showed that 78% of the households interviewed use soil for dwelling construction, 62% use stone and 98% use wood. 96% of the soil, 89% of the shale and 30% of the wood is obtained locally. The low percentage of wood collected locally is best explained by the fact that it is not suitable for dwelling construction.

There is no electricity at the settlement. The community therefore use wood, paraffin, gas and candles for fuel. Wood is used extensively with 80% of the households interviewed using it and 56% of the wood being collected locally.

The resources used for dwelling construction and fuel are indicative of people living in poverty - people who cannot afford anything else. Local depletion of these resources is high, therefore placing pressure on the sustainability of the environment. Another important component of dwelling construction and its effect on the environment is the roof material, which is mostly corrugated iron with no gutters. It is shown that this increases run-off which intensifies soil erosion.

No garbage removal and inadequate sanitation facilities and the maintenance thereof has resulted in an abundance of litter, sewerage leakage and dirty toilets (pit latrines). The community do not have the funds available to upgrade and provide the necessary services. They also believe that it is the NPA's responsibility.

Other factors also effect the inter-relationships of poverty and environmental degradation, i.e. development policy, land tenure and powerlessness.

Development Policy

The development strategy adopted by the NPA is questioned and criticised:

- The location of the settlement has further marginalised the poor. As the late Reggie Hadebe mentioned, the homeless need to be

located close to their job opportunities and social amenities (Gibson and Urquart, 1992).

- The development of additional sites in the area has been criticised by the Mpumelelo Committee and surrounding communities as they believe that existing settlements should be upgraded first. This development will increase the population density and therefore put added pressure on the local resources. The NPA has also completely ignored the local communities and other role players when deciding to develop the additional sites. As Anton Krone mentioned, it reiterates their inability to withdraw from apartheid planning and development.

- Many promises were made by the NPA to the prospective residents (eg. building material and sports facilities). These have not been fulfilled and therefore have incited suspicion and distrust amongst the community.

- The Town Planning Directorate (NPA) has made very little contact with other organisations and researchers concerned with the development of the community. This raises a problem common to most development initiatives - the lack of co-ordination between organisations involved with development projects. This limits available information and leads to a duplication of research and development initiatives.

- Not enough pit latrines have been provided. Members of the community have complained that they are dirty and blocked. Who's responsibility is it to clean and maintain these facilities?

- Road construction is poor. They have been built on steep slopes with no effective drainage system. This has resulted in soil erosion.

- Who's responsibility is it to remove the garbage?

- The water supply provided to the community is inconsistent. The water tanks are also poorly situated. This has resulted in soil erosion around these features.

Tenure

The sites are still owned by the State. Negotiations are under way, but it is important that the community members obtain security of tenure as soon as possible. People need a sense of belonging so that sustainable development can be achieved.

Powerlessness

The inhabitants of this settlement are no different to the poor from other parts of the country and the world. They are powerless and unable to make decisions at a political level which would improve their lifestyle and the environment.

The survey also investigated community needs and perceptions regarding the cause of degradation. What is important is that the community identify poverty alleviation as their most urgent need and perceive poverty as the main cause of the environmental degradation at the settlement.

In conclusion, poverty and environmental degradation are inter-related. Important elements which effect this relationship are

development policy, tenure and powerlessness. Especially with the establishment of an additional 600 sites by the NPA, Mpumelelo and it's surrounding area are prone to further impoverishment and environmental degradation.

To reverse poverty and environmental degradation and achieve sustainable development at Mpumelelo the following suggestions are highlighted:

- NPA need a more participatory approach in their planning.

- Greater co-operation between organisations, institutions, agencies and researchers.

- More assistance from NGO's. A similar approach to that taken by Project Gateway should be followed.

- The planting of woodlots for fuelwood.

- Community empowerment is essential. The committees have given the community more power, but this needs to be expanded upon.

- Local employment creation in upliftment schemes and services eg. refuse disposal, maintenance of the pit latrines, low-cost preventative measures against soil erosion.

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CONCLUSIONS AND RECOMMENDATIONS

An analysis of the literature reveals that most South African Black communities, both rural and urban are characterised by tremendous poverty and high levels of environmental degradation. Further examination shows that poverty and the environment are integrated and that the poor are caught in a downward spiral of poverty and environmental degradation. Various elements aggravate this downward cycle and are identified as population growth, inequitable distribution of land, lack of resources, insecurity of tenure, rapid urbanisation, development and policy, conservation strategies and powerlessness. Perhaps the greatest onslaught on the Black population is apartheid - a system which entrenched political powerlessness, negatively effected almost every aspect of life in Black communities and contributed to further impoverishment and degradation of the environment.

In the case study of the informal settlement, Mpumelelo, poverty levels and resource utilisation are assessed. Similar trends as depicted in the literature are realised, with the very high degree of poverty being integrated with environmental degradation. Contributing factors such as development policy and strategy as well as powerlessness effect this relationship.

South Africa is at a time of historic change, with the demise of the apartheid system and empowerment of the Black population. A new democratic society is emerging, one which is free of racial bias, injustice and suppression. However, the simple casting of a vote and the election of a new Government will not eliminate poverty and preserve the environment. To achieve this will require great innovation, a determined

effort from both Government and Non-Government sectors and a good understanding of the predicament experienced by the poor.

The following recommendations take cognizance of the literature and the case study research. They should be considered when attempting to reduce poverty and environmental decline in South African Black communities.

- A comprehensive land reform programme is needed to resettle Black people and create more equitable land distribution (Malatsi, 1992).

- There should be massive credits, loans, grants (at low interest rates) and related support measures provided to Black people to allow them to escape from poverty. It is understood that the poor do not have collateral. Therefore, innovative schemes need to be devised to ensure repayment.

- Government should also facilitate income generating activities and business. Upliftment schemes of this nature are being attempted by the present Government.

- Participatory planning and a bottom-up approach are important in attaining sustainable development. However, participation is difficult to achieve in reality. Schemes formulated by central Government in particular are implemented by conventional bureaucratic structures and are unable to be responsive to local needs and preferences:

> "By its very logic and goals, the bureaucratic system becomes target orientated, subordinating local needs to a blue-print approach or guidelines determined from the top." (Chowdrhy, 1989, p. 149)

It is pleasing to note that the Government is starting to realise that the involvement and participation of affected people is necessary. This needs to be implemented into all development projects.

- Education and training are needed to equip Blacks with the skills required for their own advancement.

- Co-operation is needed between development agencies, Government, Non-Government Organisations, researchers and research institutions. Information should be made available and shared between the various interest groups concerned with development. Information should also be made available to communities.

- Development needs to focus on the poor. Ghandis' philosophy of *antoyodaya* contends that true development puts first those that society puts last. Therefore, for development to help the poor it must put them first, not only as intended beneficiaries but as active participants, advisers and leaders. (Durning, 1989)

- South Africa can learn from international experience. Similar dynamics face the poor in other parts of the world. The strategies devised to relieve this poverty should be analysed and evaluated.

- Empowerment of the poor is necessary. This will enable them to make decisions at a political level which will improve their chances of escaping poverty.

- Involvement (and empowerment) of women in development projects is essential. They already play an important part in many upliftment schemes.

- The planting of woodlots is needed to insure a future resource for fuel and building.

- The poor need to have control over their resources (eg. the common areas). Security of tenure also needs to be realised. Both are important determinants for sustainable development.

- Institutional development and organisation needs to be improved at community level. Committees must be capable of representing the community in an efficient and effective manner. Empowerment of these committees is therefore essential so that they can play a meaningful role in the development process.

- The population growth rate should be reduced as it does 'fuel' the downward spiral. Education is an important strategy through which this can be achieved.

- Durning (1989) mentions that international development agencies continue to fund projects that are largely irrelevant to the poor. With the World Bank and other organisations poised to be actively involved in the South African development process, it is important that they incorporate the issues discussed above.

The above recommendations highlight some important foci which need to be considered when diminishing poverty and sustaining the environment. To end poverty in South African Black communities will require more than a local piecemeal approach -it needs a strong

Government policy that focuses on the poor. One which promotes equity and equal opportunities.

The ethos that it is only the poor who are affected by the downward spiral also needs to be changed:

> "For, although environmental damage penalizes the poor more consistently and severely than it does the rich, the downward spiral eventually becomes a circle embracing all of humanity, rich and poor alike ... The fate of the fortunate is immutably, bonded to the fate of the dispossessed through the land, water and air: in an ecological endangered world, poverty is a luxury we can no longer afford." (Durning, 1989, pp. 67,68)

To conclude, the downward spiral of poverty and environmental degradation will continue in South Africa, unless the views expressed in this dissertation are very seriously considered and supported. We need to be positive, these 'evils' will be overcome and a sustainable future will be shared by all.

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APPENDICIES

APPENDIX 1

AMBLETON SETTLEMENT SURVEY

Craig Michael Harvett
Department of Geography
University of Natal
Pietermaritzburg
1993

INTRODUCTION

The interview will be initiated by firstly explaining to the prospective interviewee the aims of the research, and that the community will be informed of both its findings and recommendations. The interviewee will then be asked if he/she would like to participate in the exercise. The interview will proceed once they have given their consent.

Details of Interview

Name of Interviewer:

Date:

---

1. Site number _____

2. Name of person interviewed _____

3. Number of people living on the property _____

4. Household profile (pto)

Question 3

Name	Sex	Age	Educ	Occupation	I pm/w	Rural/Urban	Skills Before	Skills After	Build your Dwelling
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No

Question 3 (Cont)

Name	Sex	Age	Educ	Occupation	I pm/w	Rural/Urban	Skills Before	Skills After	Build your Dwelling
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No

Question 3 (Cont)

Name	Sex	Age	Educ	Occupation	I pm/w	Rural/Urban	Skills Before	Skills After	Build your Dwelling
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No
				U-Emp Emp* S-Emp* Pens Std		5 R/U W? 10 R/U W? 15 R/U W?	HB exp CG exp LS exp Oth Sk *	HB exp CG exp LS exp Oth Sk *	Yes/ No

Note

(a) Educ: School standard passed. Post school education and qualification details.

(b) Occupation:

U-Emp - Unemployed
Emp - Employed
S-Emp* - Self-Employed
Pens - Pension
Std - Student

* - Indicate the nature of Emp and S-Emp

(c) 5 R/U - Live in a Rural or Urban area in the last 5 years?
10 R/U - Live in a Rural or Urban area in the last 10 years?
15 R/U - Live in a Rural or Urban area in the last 15 years?

W - Where?

(d) HB exp - House-building experience
CG exp - Crop-growing experience
LS exp - Live-stock experience
Oth Sk - Other skills (* Indicate what skills)

5. Number of dwellings on the property _____

6. Dwelling details **(pto)**

Question 6

Dwelling	Use	Quality	Roof Construction Materials	Amb?	Wall Construction Materials	Amb?
Dwelling 1	Cooking Sleeping Other *	Good Fair Poor	Wood	Yes/ No p/ c On-Site Local Elsewhere *	Wood	Yes/ No p/ c On-Site Local Elsewhere *
			Tin	Yes/ No p/ c On-Site Local Elsewhere *	Tin	Yes/ No p/ c On-Site Local Elsewhere *
			Thatch	Yes/ No p/ c On-Site Local Elsewhere *	Soil	Yes/ No p/ c On-Site Local Elsewhere *
			Other *	Yes/ No p/ c On-Site Local Elsewhere *	Stone *	Yes/ No p/ c On-Site Local Elsewhere *
					Brick	Yes/ No p/ c On-Site Local Elsewhere *
					Plastic	Yes/ No p/ c On-Site Local Elsewhere *
					Other *	Yes/ No p/ c On-Site Local Elsewhere *
Dwelling 2	Cooking Sleeping Other *	Good Fair Poor	Wood	Yes/ No p/ c On-Site Local Elsewhere *	Wood	Yes/ No p/ c On-Site Local Elsewhere *
			Tin	Yes/ No p/ c On-Site Local Elsewhere *	Tin	Yes/ No p/ c On-Site Local Elsewhere *
			Thatch	Yes/ No p/ c On-Site Local Elsewhere *	Soil	Yes/ No p/ c On-Site Local Elsewhere *
			Other *	Yes/ No p/ c On-Site Local Elsewhere *	Stone *	Yes/ No p/ c On-Site Local Elsewhere *
					Brick	Yes/ No p/ c On-Site Local Elsewhere *
					Plastic	Yes/ No p/ c On-Site Local Elsewhere *
					Other *	Yes/ No p/ c On-Site Local Elsewhere *

Dwelling	Use	Quality	Roof Construction Materials	Amb?	Wall Construction Materials	Amb?
Dwelling 1	Cooking Sleeping Other *	Good Fair Poor	Wood	Yes/ No p/ c On-Site Local Elsewhere *	Wood	Yes/ No p/ c On-Site Local Elsewhere *
			Tin	Yes/ No p/ c On-Site Local Elsewhere *	Tin	Yes/ No p/ c On-Site Local Elsewhere *
			Thatch	Yes/ No p/ c On-Site Local Elsewhere *	Soil	Yes/ No p/ c On-Site Local Elsewhere *
			Other *	Yes/ No p/ c On-Site Local Elsewhere *	Stone *	Yes/ No p/ c On-Site Local Elsewhere *
					Brick	Yes/ No p/ c On-Site Local Elsewhere *
					Plastic	Yes/ No p/ c On-Site Local Elsewhere *
					Other *	Yes/ No p/ c On-Site Local Elsewhere *
Dwelling 2	Cooking Sleeping Other *	Good Fair Poor	Wood	Yes/ No p/ c On-Site Local Elsewhere *	Wood	Yes/ No p/ c On-Site Local Elsewhere *
			Tin	Yes/ No p/ c On-Site Local Elsewhere *	Tin	Yes/ No p/ c On-Site Local Elsewhere *
			Thatch	Yes/ No p/ c On-Site Local Elsewhere *	Soil	Yes/ No p/ c On-Site Local Elsewhere *
			Other *	Yes/ No p/ c On-Site Local Elsewhere *	Stone *	Yes/ No p/ c On-Site Local Elsewhere *
					Brick	Yes/ No p/ c On-Site Local Elsewhere *
					Plastic	Yes/ No p/ c On-Site Local Elsewhere *
					Other *	Yes/ No p/ c On-Site Local Elsewhere *

Question 6 (Cont)

Dwelling	Use	Quality	Roof Construction Materials	Amb?	Wall Construction Materials	Amb?
Dwelling 3	Cooking Sleeping Other *	Good Fair Poor	Wood	Yes/ No p/ c On-Site Local Elsewhere *	Wood	Yes/ No p/ c On-Site Local Elsewhere *
			Tin	Yes/ No p/ c On-Site Local Elsewhere *	Tin	Yes/ No p/ c On-Site Local Elsewhere *
			Thatch	Yes/ No p/ c On-Site Local Elsewhere *	Soil	Yes/ No p/ c On-Site Local Elsewhere *
			Other *	Yes/ No p/ c On-Site Local Elsewhere *	Stone *	Yes/ No p/ c On-Site Local Elsewhere *
					Brick	Yes/ No p/ c On-Site Local Elsewhere *
					Plastic	Yes/ No p/ c On-Site Local Elsewhere *
					Other *	Yes/ No p/ c On-Site Local Elsewhere *
Dwelling 4	Cooking Sleeping Other *	Good Fair Poor	Wood	Yes/ No p/ c On-Site Local Elsewhere *	Wood	Yes/ No p/ c On-Site Local Elsewhere *
			Tin	Yes/ No p/ c On-Site Local Elsewhere *	Tin	Yes/ No p/ c On-Site Local Elsewhere *
			Thatch	Yes/ No p/ c On-Site Local Elsewhere *	Soil	Yes/ No p/ c On-Site Local Elsewhere *
			Other *	Yes/ No p/ c On-Site Local Elsewhere *	Stone *	Yes/ No p/ c On-Site Local Elsewhere *
					Brick	Yes/ No p/ c On-Site Local Elsewhere *
					Plastic	Yes/ No p/ c On-Site Local Elsewhere *
					Other *	Yes/ No p/ c On-Site Local Elsewhere *

Question 6 (Cont)

Dwelling	Use	Quality	Roof Construction Materials	Amb?	Wall Construction Materials	Amb?
Dwelling 5	Cooking Sleeping Other *	Good Fair Poor	Wood	Yes/ No p/ c On-Site Local Elsewhere *	Wood	Yes/ No p/ c On-Site Local Elsewhere *
			Tin	Yes/ No p/ c On-Site Local Elsewhere *	Tin	Yes/ No p/ c On-Site Local Elsewhere *
			Thatch	Yes/ No p/ c On-Site Local	Soil	Yes/ No p/ c On-Site Local Elsewhere *
			Other *	Yes/ No p/ c On-Site Local Elsewhere *	Stone *	Yes/ No p/ c On-Site Local Elsewhere *
					Brick	Yes/ No p/ c On-Site Local Elsewhere *
					Plastic	Yes/ No p/ c On-Site Local Elsewhere *
					Other *	Yes/ No p/ c On-Site Local Elsewhere *

Note

(a) Amb? Are the materials collected (c) or purchased (p) from the Ambleton area or elsewhere? If Yes: local (within walking distance) or on-site. If No: where are they collected or purchased.

7. Does the property have a vegetable garden? Yes/ No

8. If No (7): Why don't you have a vegetable garden?

_____

_____

9. Fuel

Type	Amb?	What is it used for?
Wood	Yes/ No p/ c On-Site Local Elsewhere *	
Coal	Yes/ No p/ c On-Site Local Elsewhere *	
Paraffine	Yes/ No p/ c On-Site Local Elsewhere *	
Gas	Yes/ No p/ c On-Site Local Elsewhere *	
Other *	Yes/No p/ c On-Site Local Elsewhere *	

Note

(a) Amb? Are the materials collected (c) or purchased (p) from the Ambleton area or elsewhere. If Yes: local (within walking distance) or on-site. If No: where are they collected or purchased.

10. Do you have any livestock? Yes/ No

11. If Yes:

Type	Number	Where do they Graze/Eat?	What are they used for?
Cattle		Amb? Yes/ No On-Site Local Elsewhere *	
Goats		Amb? Yes/ No On-Site Local Elsewhere *	
Poultry		Amb? Yes/ No On-Site Local Elsewhere *	
Other *		Amb? Yes/ No On-Site Local Elsewhere *	

Note

(a) Where do they graze/eat: At Ambleton - Yes or No. If Yes: On-site or local (within walking distance). If No: where do they graze or eat.

12. What do you believe are the main problems (from most to less urgent) at the settlement, and what is causing these problems?

1 _____ _____

2 _____ _____

3 _____ _____

4 _____ _____

13. What is getting better at the settlement? _____

14. Do you use the natural resources of your area for anything else? Which natural resources, and for what? _____

15. What do you believe is causing the deterioration of the environment at your settlement _____

16. * What attempts have been made to curb environmental degradation on the property: _____

_____

_____

_____

17. * What attempts have been made to curb environmental degradation immediately outside the boundary of the property _____

_____

_____

18. Do you have any other comments/ questions regarding the interview? _____

_____

_____

Many thanks for participating in this research.

- 8 -

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