Assessing the use of GIS in the Poverty Alleviation Strategy of the West Coast
District Municipality

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Thesis presented in partial fulfilment of the requirements for the degree of Master
of Arts at the University of Stellenbosch

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March 2007

Declaration

I, the undersigned, hereby declare that the work contained in this thesis is my own original work and that I have not previously in it entirely or in part submitted it at any university for a degree.

Signature: ………………………………   Date: February 2007

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ABSTRACT

Poverty is a complex issue and has many causes which are wide-ranging with devastating effects. In order for these effects of poverty to be minimilised and contained, a poverty alleviation strategy has to be implemented in an effective and efficient manner. In order for a poverty alleviation strategy to be effective for the main stakeholders in the decision-making process the various components of poverty have to be fully comprehended. The extent of poverty needs to be determined by employing poverty measurement techniques which will enable the decision-maker to use a (GIS) to store the poverty data. This Geographical Information System (GIS) enables the decision-makers to capture, manage, store and analyse the poverty data. The GIS can be used to map poverty data and allow a visual display of the poverty data to indicate where the greatest needs are and to allow that the relevant stakeholders and policy makers focus scarce resources and efforts to these areas. Therefore poverty mapping can greatly assist government with the implementation process of the policy process specifically in the West Coast region, where a Poverty Alleviation Strategy is currently being implemented. This implementation plan of the West Coast Poverty Alleviation Strategy can be much more effective if used in conjunction with a GIS for poverty mapping. Therefore decision-makers in the West Coast District Municipality will be provided with an opportunity to utilise the poverty data in a more effective manner which will improve their decision-making process thorough the assistance of a decision-support tool such as the visual display of poverty in the West Coast region.

OPSOMMING

Die toestand van armoede is ingewikkeld en kompleks. Armoede het verskeie negatiewe nagevolge. Om hierdie negatiewe nagevolge te bekamp, moet 'n armoedeverligting strategie in 'n effektiewe manier geïmplementeer word. Die armoedeverligting strategie kan net vir die hoof rolspelers effektief wees tydens die besluitnemings proses, as die hoof oorsake van armoede in volle konteks beskryf en verstaan word. Die toestand van armoede kan net bepaal word deur om gebruik te maak van verskei armoede meetings tegnieke. Hierdie tegnieke sal die besluitnemer in staat stel om 'n Geografiese Inligtings Stelsel (GIS) te kan gebruik wat die armoede data kan stoor. GIS kan gebruik word om die toestand van armoede

visueel te illustreer. Deur gebruik te maak van 'n kaart om aan te wys waar die grootste behoefte is i.t.v. die armoede data en waar die rolspelers hulle hulpbronne en kragte moet saamsnoer. Armoede kartering kan daarom 'n geweldige hulp verleen aan die Owerhede. Veral i.t.v. die beleid implementerings proses in die Weskus Armoedeverligting Strategie, wat 'n sleutel armoede verligting aksie plan bevat. Die beleid proses sal net verbeter word, deur vir die besluitnemers in die Weskus Distrik Munisipaliteit 'n geleentheid te skep om die armoede data in 'n alternatiewe manier te gebruik. Armoede kartering is so alternatiewe manier en sal deur 'n besluitneming ondersteunings sisteem soos GIS die algehele besluitnemings proses in die Weskus streek verbeter.

ACKNOWLEDGEMENTS

For the past five years the academic environment of Stellenbosch has been an integral part of my life. The pain and joy of studying has made me into a better human being, for I have come to appreciate the transformation which new schools of thought have brought in my life, be it from friends, lecturers or formal research.

This thesis has been a major challenge for me. I have had to constantly find the energy, time and motivation to think harder, seek deeper and make an attempt at writing a true addition to the body of research. I truly hope that I have achieved this to some degree.

At the outset of my acknowledgement, I am deeply grateful to the following people for their continued support and encouragement.

To my Heavenly Father who is the centre of my being and who I will praise for all eternity for His grace and goodness in my life.

To my parents for their love and support through my entire academic career, I would not be the person I am today without their seeds of wisdom and love in my life. For my twin sister Maryke who is my pillar of strength and who has been my academic sounding board in so many ways and Aren who helped me during the final stages and who keeps motivating and supporting me in all aspects of my life.

To my supervisor, Prof Johan Burger, thank you for your support and encouragement to continue and persevere in my academic career. Your valuable comments are much appreciated.

Lastly I would like to thank all my friends and relatives who motivated me to complete this thesis.

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ABBREVIATIONS

ABSA	Amalgamated Bank of South Africa
ATM	Automotive Teller Machine
DENOSA	Democratic Nurses Association of South Africa
DMA	District Management Area
FET	Further Education and Training
FNB	First National Bank
GIS	Geographical Information Systems
GVA	Gross Value Added
GGVA	Gross Geographical Value Added
IDP	Integrated Development Plan
LED	Local Economic Development
MEDS	Micro Economic Development Strategy
MPC	Multipurpose Centre
NGO	Non-Governmental Organisations
NU	Non-Urban
PAS	Poverty Alleviation Strategy
PPP	Public Private Partnerships
PSDF	Provincial Spatial Development Framework
RDP	Reconstruction and Development Programme
SABC	South African Broadcasting Corporation
SAPS	South African Police Service
SDI	Strategic Development Initiative
SMME	Small Medium to Micro Enterprises
STATSSA	Statistics South Africa
WCDM	West Coast District Municipality
WCPAS	West Coast Poverty Alleviation Strategy

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Chapter One: Introduction

1.1   Background to Study

One of the main issues which many developing nations in the world face, is that of poverty. The relationship between the state and its citizens, that are caught up in the poverty cycle is one which has to be explored. This will increase the understanding of the various roles which various stakeholders have in alleviating the plight of the poor. Within this context it is essential that the various role-players including local government have access to the best decision support management tools to assist them in this process of alleviation poverty.

The public and private sectors make use of Geographical Information System (GIS) for providing assistance in the decision-making process of service delivery. Government is currently focused on increasing the effectiveness of the decision-making outcomes. This is due to the increased pressure which society places on the structures of the state to be accountable in providing better services for all citizens.

The following research study is an assessment of the possible benefits which a GIS could have if implemented within the framework of the Poverty Alleviation Strategy (PAS) of the West Coast District Municipality (WCDM). The possible value which a GIS will have in terms of poverty mapping in various departments within the municipality will also be determined. The research focus will therefore be on the application of GIS on the West Coast Poverty Alleviation Strategy (WCPAS) and how it will effectively assist in the poverty alleviation process.

The review of the potential applications which a GIS could have on the existing poverty alleviation strategy of the West Coast at local government level will result in recommended actions to benefit the policy process within the WCDM. The research study will be based on using GIS as part of an analyses on poverty reduction interventions while focusing on the poverty information that is geographically disaggregated and which is available as part of the existing WCPAS. Poverty is multi-

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dimensional and is measured by using extensive poverty criteria[1] (See Appendix A). Many of these poverty criteria can be used in programming a GIS to enable the plotting of such statistical data on geographical maps.

The socio-economic statistical data which was gathered as part of the WCPAS process can then be further utilized to illustrate datasets spatially. This in turn will illustrate the extent of poverty in an area such as the West Coast District.

The applications of mapping poverty through a GIS as a decision support system will be evaluated in terms of providing an understanding of the good governance principles which relate to the various policy interventions which were suggested in the PAS. The effectiveness of the PAS which could possibly be supported and illustrated by using the GIS applications to improve decision-making at all levels will be reviewed.

1.2   Statement of the Problem

The West Coast Region has a very severe problem regarding poverty in its communities. A poverty alleviation strategy has been developed to enable strategic poverty alleviation in the areas which have been identified as being below the poverty line and termed "poverty pockets". The strategy has gathered the relevant statistical data which relates to the geographic location of towns in the West Coast, where poverty and other socio-economic indicators can be plotted.

The WCDM and many of the smaller B municipalities in the West Coast do have a GIS department but they are not currently exploiting this function through which the data gathered during the WCPAS or any other such study can be stored and transformed into new composite information. The GIS can make available data which can efficiently serve as a decision support system to assist the WCDM in making strategic decisions to facilitate the poverty alleviation initiatives as identified in the strategy.

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[1] The researcher formed part of a project team where the poverty criteria for the PAS were developed as part of the WCPAS.

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The research problem which will be used in this study is the following:

"What impact may GIS have on the success of the Poverty Alleviation Strategy of the West Coast Region?"

1.3   Research Objectives

The objectives of the research study will be to:

o   Provide a broader understanding of GIS
o   To provide both a critical and objective analysis of the rational and possible consequences of implementing a GIS within a government body
o   To determine what challenges are currently being experienced by local government who make use of a GIS and how the WCDM can avoid them
o   Determine the possible impact of implementing a GIS in the Poverty Alleviation Strategy of the WCDM

1.4   Methodology

The research study will be an empirical study based on qualitative research. It will be a qualitative study as it has a "unique and valuable contribution to make by generating a better conceptual framework for research" says Morton & Williams (1985:10). In this regard the study will use qualitative research methods to interpret a cause and affect relationship among the following variables:

o   GIS (independent variable)
o   Local Government Poverty Alleviation Strategy (dependant variable)
o   Local government strategy (dependent variable)

The researcher will make use of documentary analysis of GIS which has previously been done. Relevant statistical data will be used to apply the case study which forms part of the dependent variable to GIS in order to add value to the research work. The sources which will be consulted include municipal officials and GIS specialists. The study will be conducted for the WCPAS compiled for the six municipal areas namely Swartland Local Municipality, Bergrivier Local Municipality, Saldanha Bay Local

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Municipality, Cederberg Local Municipality, Matzikama Local Municipality and the District Management Area.

The methodology that will be used in this research study will be:

o Personal Interviews: Personal interviews will be held with key informants who include the officials in the WCDM who are involved with implementing the WCPAS and individuals who are subject experts on GIS.

o Literature Review: The literature review component will consist of the collection and analysis of the relevant secondary sources which relate to GIS and decision making.

o Secondary sources include books, journals, contemporary sources, internet sources, policy documents, data analysis:

o The qualitative data which was collected during the Poverty Alleviation Strategy will be analysed to determine how the data sets can be used for GIS. This study will not make use of surveys but the data analysis of existing statistical information will be crucial in determining the impact of GIS for the specific strategic outcomes of the WCPAS.

1.5 Chapter Outline

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Chapter Two: Literature Study

2.1   Introduction

This chapter provides a brief introduction into the understanding of poverty, what the role of government is regarding poverty alleviation and also government's involvement in poverty alleviation strategies. The various issues of poverty within government are highlighted to provide the background for the various issues which exists. This chapter will describe the first variable of the thesis being poverty and how this relates what the current situation is. This is followed by a description of the second research variable being the WCPAS and how poverty is measured within this strategic document.

2.2   Defining Poverty

According to the World Bank (2006) "*poverty can be described as hunger, lack of shelter, sickness and having no access to medical care and facilities. Poverty is not having access to school and not knowing how to read. Poverty is not having a job, is fear for the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom.*"

There are many forms of poverty, and this is different depending on various locations, periods of time and has been described in various different ways and different definitions. A general definition of poverty is that of not having enough resources to meet your daily needs. When persons find themselves in these kinds of situations, it is a struggle to survive.

The condition of poverty is complex and should not be thought of as a simple problem with a simple solution. Race, gender, familial status, age, and place of residence are some, but not all of the characteristics that enhance the risk of living in poverty. The purpose of this research assignment is to increase knowledge about poverty. As such measuring poverty is difficult because poverty is a complex issue.

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In a statement issued by the South African Ministry of Welfare and Population Development, poverty is defined as follows: "*Poverty is about lack of access, lack of power, lack of income and resources to make choices and take advantage of opportunities. In other words, poverty is not just about those who are poor in terms of income. It affects everybody, not just those who are its victims. The entire society suffers from the loss of people's creativity and potential.*" (Fraser-Moleketi, 1997).

Poverty can be seen as a condition of having insufficient resources or income. In its most extreme form, poverty is a lack of basic human needs, such as adequate and nutritious food, clothing, housing, clean water, and health services. Extreme poverty can cause terrible suffering and death, and even modest levels of poverty can prevent people from realizing many of their desires.

The world's poorest, many of whom live in developing areas of Africa, Asia, Latin America, and Eastern Europe, struggle daily for food, shelter, and other necessities. They often suffer from severe malnutrition, epidemic disease outbreaks, famine, and war. (Burkey, 2000:5)

Poverty has many causes, some of them very basic. Some experts suggest, for instance, that the world has too many people, too few jobs, and not enough food. But such basic causes are quite intractable and not easily eradicated. In most cases, the causes and effects of poverty interact, so that what makes people poor also creates conditions that keep them poor.

Primary factors that may lead to poverty include overpopulation, the unequal distribution of resources in the world economy, inability to meet high standards of living and costs of living, inadequate education and employment opportunities, environmental degradation, certain economic and demographic trends, and welfare incentives, lack of modernisation tendencies, physical limitations, bureaucratic stifling, dependency of Third World countries and exploitation by local elites (Burkey, 2000:6).

Poverty has wide-ranging and often devastating effects. Many of its effects, such as poor nutrition and physical health problems, result directly from having too little income or too few resources. As a result of poor nutrition and health problems, infant mortality

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rates among the poor are higher than average, and life expectancies are lower than average.

Other effects of poverty may include infectious disease, mental illness, and drug dependence. Some effects of poverty are not as easily understood. For example, studies link poverty to crime, but by no means are all poor people also criminals. In many cases, the primary effects of poverty lead to other problems. Extended hunger and lack of employment, for instance, may lead to depression, which may sometimes contribute to criminal behaviour (Encarta, 2000).

Poverty and lack of economic development are two indicators of the sub-optimal functioning and operation of a development system, creating a poverty trap with a range of developmental and social problems. The cycle is illustrated in **Figure 2.1** with the fatal system flaws being:

o   Rapid population growth
o   Lack of relevant technical and business skills
o   Social stagnation
o   Insufficient capital formation

Figure 2.1: Poverty Cycle

(Urban-Econ, 2006)

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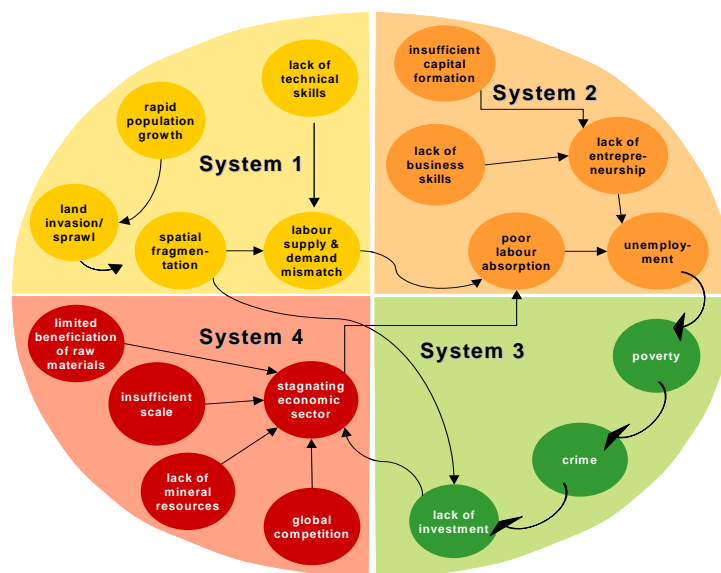
The abovementioned elements such as *system one* which describes lack of skills, *system two* which describes lack of entrepreneurship and start-up capital, *system three* which describes the link between poverty, crime and lack of investment and finally *system four* which illustrates the link between a stagnating economy and various other elements all contribute to already high unemployment levels, exacerbating the detrimental spin-offs such as poverty and crime in both developed and developing countries. This is what can be called an illustration of a poverty cycle which exists in many third world countries.

Such a situation provides an unhealthy environment for investment, which in turn leads to a stagnating local economy with lack of investment and beneficiation. The untapped resource base of an area with a resultant undiversified economy with low economic performance lies in lack of focus on pro-poor economic development has meant that limited use has been made of important economic levers, which could serve to reduce poverty in sustainable ways.

This poverty cycle and economic stagnation which is persistent in many nations of the world has an impact on the fatal flaws in the economic, environmental and social system, placing further strain on the already over-extended rural resource base, reinforcing the need for an innovative and effective local economic development and regeneration strategy.

In seeking to intervene in the poverty cycle which exists, the interactions and linkages between different elements need to be thoroughly understood. Once the poverty cycle is fully comprehended, specific development strategies can be implemented to improve the functioning of each system to eventually lead to sustainable local development and improved living conditions. Similarly, the ongoing management of the necessary interventions in the overall system will be essential to sustainability over time.

"Poverty is not always an unchanging condition among individuals, households or a community" says Moser (1996:1). Rather it can be seen that while some individuals or households are permanently poor, other become impoverished as a result of general life-cycle changes, specific events such as illness of a main income earner, or when external economic conditions get worse etc (Rakodi, 1995). In this thesis a policy framework is formulated for addressing poverty in terms of the concept of the "assets of

the poor". This will provide the framework for the various municipal initiatives for poverty alleviation in the South Africa at a grass-root level.

Therefore, because individuals and households are moving into and out of poverty researchers suggest that the dynamic concept of susceptibility is used to understand these processes of change. The concept of being susceptible to poverty can be countered through improving the asset bases of the poor and by the management of their complex range of assets. Mostly, the more assets that individuals, households and communities have or secure access to, and the better these assets are managed, the less vulnerable they are. On the other hand, the greater the erosion of their asset base, the more insecure they are and the greater their poverty becomes (Moser, 1998).

According to Rakodi (1995: 420), "it can be deducted that poverty is characteristic by not only a lack of assets and the Poor's inability to accumulate these asset, but also by an inability to devise an appropriate coping strategy." The key issues which need to be addressed in anti-poverty strategies are therefore to build up the asset base of the poor and to increase their capabilities to manage their existing group of assets. This asset framework for dealing with poverty provides a conceptual base for understanding and applies equally at all levels from national government down to the operations of local government (Moser, 1998).

The rural environment is extremely diverse in terms of the spatial patterns, socio-economic and demographic characteristics of the population, and the economic profile and potential. It follows that the effective demand for services and facilities will also vary on the basis of these differences. In order to provide practical projects, it is imperative that these differences be acknowledged and accommodated.

2.3   Poverty Alleviation as a Government Responsibility

The accumulation of poverty in South Africa has caused much attention to be paid to this particular problem as there has been a connection made to various other negative factors to poverty e.g. HIV/Aids which continues to spread at a much faster rate in poor areas of the country. The health of many poor people can be directly linked to their status in terms of poverty. Relevant media articles revealed that poverty is a major issue in terms of the following poverty situation in South Africa:

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o   Exploitation of poor people

o   Not dealing with the poverty crisis adequately

o   Community (Nurses) participates in war against poverty

o   Community contributions

o   2004 Election theme: Poverty

These articles presented the following case concerning poverty that the poor are being empowered but many politicians are abusing the campaign against poverty as a marketing scheme. There needs to be a revision of legislature in terms of ensuring that poor people are not robbed of their houses because of debts of small amounts as it reverses the democratic development when that person looses a RDP house over a small debt. There has been much criticism from the UN concerning South Africa government not dealing with poverty adequately and the explanations have been a further embarrassment.

Therefore South Africa can combat poverty effectively but this can only be done if all stakeholders, government, NGO's the public and private sector organisations along with the poor themselves realise their responsibilities in poverty alleviation (Kotze, 1997:1).

2.3.1   Other Role Players

Government has a social responsibility towards the poor, along with the fact that poverty alleviation will increase the development of any country including South Africa. Many policies have been written in order to set the wheels in motion towards achieving the various developmental goals which have been set to battle poverty. Various organisations e.g. NGO's and Foreign Aids organisations will be key role players in providing poor communities with aid at fairly low cost. They are less prone to elitism, they promote participation, they have the capacity to be innovative and adapt to changing circumstances, they have broadened channels through which resources and benefits can reach groups which would otherwise have been bypassed. Therefore the poor will be given a chance to become involved in their own developmental process, assisted by these organisations.

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The war against poverty has become a part of the Democratic Nurses Association of South Africa (DENOSA) strategic focus. Their involvement in the community is evident as they reach the poor in many ways; they have broadened their involvement to incorporate various community projects such as gardens to promote economic sustainability, and various teacher programmes which will reach the poor in terms of educating adult, and children (De Beer & Swanepoel, 1998: 11-14).

The social responsibility of the community has also been addressed in terms of their contributions towards various projects which are needed to win the battle (De Beer & Swanepoel, 1998:20). The last article is important in that it highlights the past elections theme which was poverty and it presents the nation with the action plan which will be implemented in the next 4 years in terms of employment opportunities, education, black empowerment to name a few.

2.4   Acts, Strategies and Policies

This section provides an overview of legislation applicable to Poverty Alleviation Strategies and is discussed in the subsequent paragraphs of this section. Legislation and policy that have an influence on a Poverty Alleviation Strategy and this sub section provides a legal framework and influences the manner in Poverty Alleviation should take place within the policy environment provided by government (West Coast Poverty Alleviation Strategy, 2006).

The recent major changes in the South African local government system have brought about new challenges and changes for municipalities. Coupled with the fact that the country itself is still battling with the challenges of the new political dispensation, municipalities operate within a complex regulatory and policy framework. Central to this is the adoption of a new system of developmental local government, which puts emphasis on the social, economic and political development of local communities as being central to the functioning of local government. This includes a PAS that is linked to a local economic development strategy.

Traditionally, economic development was viewed as a function of the national and provincial levels of government however; recently, local authorities are being recognised as important players in the pursuit of the country's economic well- being.

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Hence, the recent focus on Local Economic Development (LED) aligned with the Provincial Poverty Alleviation Strategy. The higher levels of government set a broad policy and legislative framework for economic development, but the actual planning and implementation of local programmes is the responsibility of local government.

It is important that a PAS be aligned with the appropriate legal strategies and frameworks of the province and the national government. It is essential to note that local strategies alone will not be sufficient in the fight against poverty. These should be aligned with national and provincial policies to create an organic process where different initiatives can reinforce and complement one another. In order for this government driven economic development and the PAS to be effective, there should be close collaboration and co-ordination between the three spheres of government in addressing these issues.

2.4.1 Social Welfare in Western Cape

As part of the broader policy context the Provincial Department of Social Services and Poverty Alleviation are currently administrating the following legal frameworks or parts thereof. The following acts and policies are important as they form part of the Department of Social Services legislature and this department is the department with the core function of poverty alleviation.

o *Aged Person's Act, Act 81 of 1967:* The Act provides for the protection and welfare of older persons, for the establishment and registration of facilities providing accommodation and care to older persons (Republic of South Africa, 1967).
o *National Welfare Act, Act 100 of 1978:* The Act provides for the registration of welfare organizations on regional basis; the establishment, functions and operations of regional welfare boards; and the establishment of a national Welfare Board (Republic of South Africa, 1978).
o *Child Care Act, Act 74 of 1983:* As amended the Act, 1983, provides for the establishment of children's courts and the appointment of commissioners of child welfare, for the protection and welfare of children, for the adoption of children and for the establishment of facilities for the care and the treatment of children (Republic of South Africa, 1983).

- o *Adoption Matters Amendment Act 1996, Act 56 of 1988:* The Act amended the Child Care Act, 1983 to simplify the granting of legal representation for children in Children's Court proceedings; to provide for the rights of natural fathers where adoption of their children born out of wedlock has been proposed and for certain notice to be given to amend the Natural Fathers of Children born Out of Wedlock Act. 1997, to consolidate the law on adoption under the Child Care Act, 1983; and to amend the Births and Deaths Registration Act, 1992, to afford a father of a child born out of wedlock the opportunity to record his acknowledgement of paternity and his particulars in the birth registration of the child (Republic of South Africa, 1988).

- o *Probation Services Act 1999, Act 116 of 1991:* The Act provides for the establishment and implementation of programmes aimed at the combating of crime and for the rendering of assistance to and treatment of persons involved in crime (Republic of South Africa, 1999).

- o *Social Assistance Act, Act 59 of 1992:* The Act provides for the rendering of social assistance to national councils and welfare organizations. The Act was amended in 1994 to further regulate allocation of grants and financial awards to persons and bodies (Republic of South Africa, 1992 (b)).

- o *Welfare Laws Amendment Act 1997, Act 106 of 1997:* The Act amended the Social Assistance Act, 1992 in order to provide for uniformity of, equality of access to, and effective regulation of social assistance throughout the Republic, to introduce the Child Support grant, do away with capitation grants, to abolish maintenance grants subject to the phasing out of existing maintenance grants, to provide for the delegation of certain powers, and extend the application of the provisions of the Act to all areas in the Republic (Republic of South Africa, 1997 (b)).

- o *Prevention and Treatment of Drug Dependency Act 1992, Act 20 of 1992:* As amended the Act provides for the establishment of a Central Drug Authority, the establishment of programmes for the prevention and treatment of drug dependency, the establishment of treatment centre and hostels, the registration of institutions as treatment centre and hostels and the committal of persons to and their detention, treatment and training in treatment centre (Republic of South Africa, 1992 (a)).

- o *Non-profit Organisations Act, 1997:* This Act repealed the Fund-raising Act 1997, excluding this chapter, which deals with the relief funds, and provided for an environment in which non-profit organizations can flourish. The Act also established an administrative and regulatory framework within which non-profit organizations (Republic of South Africa, 1997 (b)).

o *Advisory Board on Social Development Act, 2001:* The Act provides for a national advisory structure in the social development sector with the aim of building and consolidating partnership between government and civil society and for that purpose, to establish a body to be known as the Advisory Board on Social Development (Republic of South Africa, 2001).

o *White Paper for Social Welfare (1997):* The White Paper sets out the principles, guidelines, proposed policies and programmes for developmental social welfare in South Africa. As the primary policy document, the White Paper serves as the foundation for social welfare in the post 1994 era (Republic of South Africa, 1997 (e)).

o *White Paper on Population Policy for South Africa (1998):* The White Paper aims to promote sustainable human development and the quality of life of all South Africans, through the integration of population issues into development planning in all spheres of government and in all sectors of society. The policy mandates the Department of Social development to monitor the implementation of the policy and its impact on population trends and dynamics in the context of sustainable human development (Republic of South Africa, 1998).

o *Prevention and Combating of Corrupt Activities Act, 2004:* The Act provides for the strengthening of measures to prevent and combat corruption and corrupt activities, it makes provision for the offences relating to corruption, investigative measures, the establishment and endorsement of a Register in order to place certain restrictions on persons and enterprises convicted of corruption activities relating to tenders and contracts, and to place a duty on certain persons holding a position of authority to report certain corrupt transactions (Republic of South Africa, 2004 (d)).

o *Expanded Public Works Programme (EPWP):* The EPWP is one of government's initiatives to try to bridge the gap between the growing economy and the large numbers of unskilled and unemployed people who have not yet enjoyed the benefits of economic development. The EPWP involves creating temporary work opportunities for the unemployed, using public sector expenditure. It builds on existing best-practice government infrastructure and social programmes that are known to be successful, by either deepening their labour absorption or by extending them. The EPWP is one of the initiatives agreed to at the Growth and Development Summit (GDS) in June 2003 (Republic of South Africa, 2004 (c)).

The above mentioned legislation, policies and programmes have numerous Implications for the PAS. It is of utmost importance that the Department of Social Services and Poverty Alleviation work together with all stakeholders in the fight against poverty. The PAS should be aligned with the abovementioned legal frameworks in order for this strategy to be fully supported by Provincial Government. It is important to note that the EPWP is an initiative which needs to be taken into account in terms of the public sectors direct impact on reducing unemployment within poor communities. This is a national public initiative and will impact the whole of South Africa.

The various policies which are relevant to the poverty and are of more direct relevance to a PAS are summarised in **Table 2.1** below. The policy framework is contextualised by determining the national, provincial and local reference which is made to poverty alleviation. **Table 2.1** provides a key summary of the various policies in terms of the three spheres of Government (National, Provincial and Local) and what the specific objective is of the policy. The various polices can have specific economic impacts which will directly affect the development of any country, where the specific economic development indicators are mentioned to illustrate this level of impact.

Poverty is an issue in all levels of government and the policy framework provides an overview of the specific linkage which can be made to the objective nature of the policy in relation to its policy objectives, economic development impacts and poverty alleviation actions. Therefore the following **Table 2.1** indicates the strategic manner in which government wishes to address poverty in South Africa at all levels.

Table 2.1: Poverty Alleviation Policies and Legislation

Policy	Nature of Influence	Economic Development Indicators	Strategic Anti-Poverty Issues
Macro-Economic Policy, 2005 (Provincial) (Department of Provincial Treasury, 2002)	▪ Determines the fiscal envelope available; ▪ Determines the nature of economic growth and indicates what sectors investment is likely to occur.	▪ Local sectors identified or favoured by macro-economic policy initiatives, particularly taxes, subsidies and interest rates; ▪ Size of the fiscal envelope; ▪ Budget priorities and allocations, particularly human and physical investment plans.	▪ Analysis of the Socio-Economic characteristics of poverty population; ▪ Effective targeting of human and physical investment plans to build capabilities with macro-economic policy initiatives population (skills training and education and municipal infrastructure).
The Micro Economic Development Strategy for the Western Cape (MEDS), 2005 (Provincial) (Department of Economic Development and Tourism, 2005)	▪ The MEDS provides the 10-year economic development view of Government in the Western Cape.	▪ A very significant increase in the funds made available for economic development; ▪ That small business development, with the huge potential boost for employment, will receive a quantum growth spurt occasioned by their one-stop shop advice and business support centre; ▪ Large-scale intervention will be put in place to deal with growth and equity in promising industries.	▪ Leap forward in interventions in human resource development to equip all the citizens to be effective players in the workplace; ▪ Pioneering large-scale initiatives to find sustainable decent work for those whose skill-level have condemned them to the apparent scrap heap of global employment.
Ikapa Elihlumayo, 2004-2007 (Provincial) (Department of Economic Development and Tourism, 2004)	▪ Combines short term and long term strategies; ▪ Guiding appropriate geographical targeting of service delivery in Province.	▪ Targeted and coordinated infrastructure spending and investment; ▪ Targeted economic growth; ▪ Micro-economic Strategy; ▪ Improving financial governance.	▪ Provides short term relief to the poor and unemployed; ▪ Structured human resource development; ▪ Higher levels of sustained growth and employment; ▪ Building social capital; ▪ Building human capital.
The Reconstruction and Development Programme (RDP), 1994. (National) (Republic of South Africa, 1994)	▪ Provides a guiding vision that is promoted through a range of national strategies and IDP's at local level; ▪ Guiding policy which has direct	▪ Accelerating the basis for sustained economic growth, development and job creation.	▪ Meeting the basic needs of the people; ▪ Developing human resources; ▪ Ensuring safety and security; ▪ Representative institutions must be

	implications for LED and Poverty Alleviation Strategies		established to address poverty alleviation.
Restructuring the South African Labour Market, 1996. (National) (Presidential Commission, 1996)	▪ Spatial movement of labour and hence increased need for labour and infrastructure in certain areas ▪ Impacts on wages, level of employment and hence the affordability of services; ▪ Certain localities may gain and others may lose; ▪ Wages and level of employment affect the tax base of localities and hence revenue for infrastructure spending	▪ Trends in employment; ▪ Trends in wage levels; ▪ Occupational trends; ▪ Spatial Allocation of employment and trends by sector and occupation; ▪ Socio-economic characteristics of labour by locality and region (age, race, gender, education); ▪ Internal migration patterns; ▪ Impact of international migration patterns.	▪ Alignment of regulatory framework and land development framework to mitigate against internal spatial mismatches between the location of poor neighbourhoods and nodes of economic growth.
Trade and Industrial Policy, 2004. (National) (Republic of South Africa, 2004)	▪ Impacts on the levels, nature and location of investment activity and hence infrastructure needs; ▪ Economic infrastructure to support production and distribution of goods and services, and ▪ Social infrastructure to support communities.	▪ Spatial and Sectoral distribution of new private sector investment; ▪ SDI related infrastructure investment and level of government spending; ▪ Spatial impact of enterprise incentives, particularly SMME related ones.	▪ Alignment of regulatory framework and land development framework to mitigate against internal spatial mismatches between the location of poor neighbourhoods and nodes of economic growth. ▪ Complementary programmes to encourage local labour intensive and high value SMME's
The West Coast Region Spatial Plan (Vol 1 & 2), 2001. (Regional) (West Coast District Municipality, 2001)	▪ Sectoral plans of the IDP; ▪ Providing general direction to guide decision making on an ongoing basis, aiming at the creation of integrated, sustainable and habitable regions, cities, towns and residential areas.	▪ To direct, guide and co-ordinate the spatial planning with accompanying development over the following 20 years. ▪ To spatially inform the IDP. ▪ To direct public spending strategies ▪ To provide direction and establish an atmosphere of trust to the private sector regarding investment ▪ To obtain the approval of National and Provincial Departments for local planning and policy principles.	▪ Responds to the need to align investment in social and economic infrastructure across departments and spheres of government in order to tackle development challenges effectively; ▪ It provides national objectives for spatial development; ▪ Addresses the changing spatial economy and its impact on commitment to social reconstruction, sustainable growth, social justice and environmental integrity; ▪ Responds to spatial trends in terms of impact on infrastructure investment and development spending; ▪ And co-ordinates planning and policy in

			the three spheres of government.
Spatial Development Initiatives (Regional) (Department of Trade and Industry, 1999)	▪ The fostering of sustainable industrial development in areas where poverty and unemployment are at their highest	▪ Crowding in of investment; ▪ Public-Private Partnerships (PPPs); ▪ Inherent economic potential; ▪ Rapid planning and delivery; ▪ Restructuring the 'apartheid'; ▪ Space economy; ▪ Generating sustainable employment; ▪ Maximising private sector investment; ▪ Exploiting SA's under-utilised locational and economic advantages.	▪ Economic integration can yield greater developmental benefits by the collective use of economic policies; ▪ Public-private partnerships; ▪ Provision of opportunities in sectors such as agriculture, mining, tourism, environment, forestry, infrastructure and ports.
Growth potential of towns in the Western Cape, 2004. (Provincial) (Department of Environmental Affairs and Development Planning, 2004)	▪ Aim of this document is the urban audit of towns in the Western Cape.	▪ Identify salient growth criteria and indicators for urban development from the relevant literature and policy documents; ▪ Measure and quantify the growth performance of all rural towns in the Western Cape Province; ▪ Index, rank and categorise the towns according to their development potential and human needs; ▪ Comprehend the observed growth dynamic by ascertaining qualitatively the underlying economic base and place identity of the towns; ▪ Suggest recommendations for the optimal investment type for each town; and ▪ Avail the results as an input to the drafting of a statutory Provincial Spatial Development Framework (PSDF).	▪ Growth of towns will positively result in more job creation which will help in the struggle of poverty and thus the alleviation thereof.

West Coast Investment Initiative Appraisal, 1997. (Regional) (Wesgro, 1997)	▪ To focus interest, effort and investment in a specific location of potential, with under-utilised infrastructure and resources.	▪ Realize the growth potential of existing infrastructure and resources in the region; ▪ Encourage the involvement of small, medium and micro enterprises (SMMEs); ▪ Develop the export potential of the region through the port.	▪ Stimulate job creation; ▪ Healthy agricultural and fishing sectors; ▪ The growing tourism sector; ▪ The expanding industrial sector.
Integrated Poverty Reduction Strategy for the Western Cape Province, 2002. (Provincial) (Department of Social Welfare, 2002)	▪ This Poverty Reduction Strategy puts forward the fundamentals of what the province would consider as an appropriate response to the daunting challenge of comprehensively addressing poverty as a multi-dimensional threat to sustained prosperity and well being in the province.	▪ Importance of intergovernmental institutional arrangements; ▪ Projects and programmes devised to address poverty nationally and provincially.	▪ Expansion of marginal groups in the province; ▪ Women in poor communities and youth at large; ▪ Building of social partnerships; ▪ Reduction of absolute poverty.
West Coast Integrated Development Plan, 2006-2007. (Regional) (West Coast District Municipality, 2006)	▪ The Integrated Development Plan (IDP) should lead to the establishment and maintenance of viable communities within a framework of sustainability.	▪ Sustainable utilisation of resources and impact management; ▪ Holistic and integrated planning; ▪ Participation and partnerships in the management of strategic elements; ▪ Empowerment and environment awareness; ▪ Management of information; ▪ Formulation of an effective institutional framework and legislation.	▪ Addresses the existing needs of the communities through a framework of sustainability and identified roles and projects in the West Coast District.
National Education Policy, 1996. (National) (Republic of South Africa, 1996)	▪ Medium to long-term quality of human resources of a locality; ▪ Attraction of high calibre human resources.	▪ Level of location of spending on education; ▪ Quality of education offered by local schools and institutions; ▪ Other supporting infrastructure provided.	▪ Equitable access to high quality education for all the citizens; ▪ Effective maintenance and operation of infrastructure and services, particularly in poor areas.
Strategic Priorities for the National Health System, 2004-2007. (National) (Republic of	▪ Medium to long-term quality of human resources of a locality; ▪ Quality of life	▪ Level and location of spending on health infrastructure; ▪ Quality of local primary health	▪ Equitable access to high quality health services for all the citizens; ▪ Effective maintenance and operation of

South Africa, 2004)	▪ Attraction of high calibre human resources.	services.	infrastructure and services, particularly in poor areas.
Migration Framework for the West Coast District. (Regional) (West Coast District Municipality, 2001)	▪ The migration framework contributes to achieving economic and poverty alleviating goals.	▪ Economic growth; ▪ Region economics; ▪ Tourism; ▪ Conservation; ▪ Pollution; and ▪ Water.	▪ Housing Delivery; ▪ Services; ▪ Agriculture; ▪ Migration and urbanization; ▪ Progressive development; ▪ Employment creation.
Tourism Strategy for the West Coast Region(Regional) (West Coast District Municipality, 2000)	▪ The objectives for tourism development in the West Coast.	▪ Promote the development of tourist infrastructure that will enhance tourism in general and conform to place-specific architectural, environmental and aesthetic requirements; ▪ Ensure the restoration and maintenance of the character and natural aesthetics of the study area to communicate specific concepts and/or images to the tourist; ▪ Provide infrastructure that will enhance the experience of the tourist and conform with set architectural, environmental and aesthetic requirements; ▪ Ensure effective management of all facets of tourism at all levels; ▪ Promote tourism as a community based and community driven industry with substantial potential for providing direct and indirect benefit to the community.	▪ To create employment (poverty alleviation); ▪ To enhance the profile of tourism products offered by the West Coast; ▪ To compliment other initiatives and projects being undertaken at national, provincial and local levels by the private and public sectors; ▪ To stimulate sustainable and responsible investment; ▪ To create opportunities for the private sector and the local communities to work together for the benefit of all.
Municipal Infrastructure Policy, 1997. (National) (Republic of South Africa, 1997)	▪ Quality of life; ▪ Cost of production and distribution of goods and services; ▪ Transaction costs of participating in the economy, particularly for labour.	▪ Quality and extent of social and economic municipal infrastructure.	▪ Equitable access and affordability of services.
White Paper on Land Policy,	▪ Identifies development needs, the	▪ Facilitation of development	▪ Equitable access to land with particular

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1997. National. (Republic of South Africa, 1997)	nature of rural development support required and hence infrastructure needed; ▪ Facilitates access to land and eases framework for land development; ▪ Defines the nature of urban development and hence growth trends and development needs; ▪ Defines nature of rural development and hence growth trends and development spending needs.	through opening up of land to enhance income generating opportunities and the creation of economic and social infrastructure; ▪ Integrated rural and urban development planning; ▪ Enhanced backward and forward linkages between urban and rural economies.	emphasis on meeting the needs of poor communities; ▪ Supporting policies and programmes to enhance land utilisation and access to markets for small farmers and SMME's.
White Paper on National Transport Policy, 1996. (National) (Republic of South Africa, 1996)	▪ Determines what types of roads and railway lines and who should finance them; ▪ Ports and harbours to support development.	▪ Community transport system; ▪ Access to social infrastructure; ▪ Access to employment; ▪ Rural roads built; ▪ Urban reticulation road; ▪ Inter urban roads; ▪ Inter urban rural road; ▪ Transport corridors.	▪ Equitable distribution of transport infrastructure; ▪ Effective public transportation system particularly linkages between poor residential areas and economic growth nodes.
White Paper on Telecommunications, 2006. (National) (Republic of South Africa, 2006)	▪ Determines what types of infrastructure, where, how, and when	▪ Level of service and number of households serviced; ▪ Location of public telephones; ▪ Access to information technology infrastructure; ▪ Household with computers and their location.	▪ Equitable access to ICT infrastructure
Western Cape Housing Policy, 1996. (Provincial) (Republic of South Africa, 1996)	▪ Where housing will be located; ▪ How much housing and what supporting infrastructure will be allocated; ▪ Tenure arrangements; ▪ Housing finance; ▪ Funding Allocated; ▪ Number and quality of houses built; ▪ Where they have been built; ▪ Profile of community which has benefited and location.	▪ Equitable access to housing; ▪ Effective utilisation of housing subsidies; ▪ Rental housing stock in poor neighbourhood.	Location of households with access to the minimum required amounts of water.
Water Supply and Sanitation Policy, 1994. (National) (Republic of South Africa, 1994)	▪ Determines priorities, level of service, how, by whom and with what funding.	▪ Level of service and number of household serviced.	

2.5   Measuring Poverty

There are different approaches to the measurement of poverty. These depend on the objective of the analysis, the nature of the data and the method employed in measuring poverty.

A common method used to measure poverty is based on incomes or consumption levels. A person is considered poor if his or her consumption or income level falls below some minimum level necessary to meet basic needs. This minimum level is usually called the "poverty line". What is necessary to satisfy basic needs varies across time and societies. Therefore, poverty lines vary in time and place, and each country uses lines which are appropriate to its level of development, societal norms and values.

Information on consumption and income is obtained through sample surveys, with which households are asked to answer detailed questions on their spending habits and sources of income. Such surveys are conducted more or less regularly in most countries. These sample survey data collection methods are increasingly being complemented by participatory methods, where people are asked what their basic needs are and what poverty means for them. Interestingly, new research shows a high degree of concordance between poverty lines based on objective and subjective assessments of needs (World Bank, 2006).

The following sub-sections provide specific insight into the various ways in which poverty can be measured as mentioned previously.

2.5.1 Monetary Indicators of Poverty

When estimating poverty using monetary measures, one may have a choice between using income or consumption as the indicator of well-being. Most

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analysts argue that, provided the information on consumption obtained from a household survey is detailed enough, consumption will be a better indicator of poverty measurement than income for the following reasons: (World Bank, 2006)

o The poverty measurements can be more reliable if the consumption module in the household survey is well designed.

o Consumption may better reflect a household's actual standard of living and ability to meet basic household needs.

o Consumption is a better outcome indicator than income. Actual consumption is more closely related to a person's well-being in the sense defined above, that is, of having enough to meet current basic needs. On the other hand, income is only one of the elements that will allow consumption of goods; others include questions of access and availability.

o *Consumption may be better measured than income.* In poor agrarian economies, incomes for rural households may fluctuate during the year, according to the harvest cycle. In urban economies with large informal sectors, income flows also may be erratic. This implies a potential difficulty for households in correctly recalling their income, in which case the information on income derived from the survey may be of low quality. In estimating agrarian income, an additional difficulty in estimating income consists in excluding the inputs purchased for agricultural production from the farmer's revenues. Finally, large shares of income are not monetized if households consume their own production or exchange it for other goods, and it might be difficult to price these. Estimating consumption has its own difficulties. Consumption expenditures reflect not only the goods and services that a household can command based on its current income, but also whether that household can access credit markets or household savings at times when current income is low or even negative, perhaps because of seasonal variation, harvest failure, or other circumstances that cause income to fluctuate widely.

One should not be inflexible, however, about using consumption data for poverty measurement. The use of income as a poverty measurement may have its own advantages. For example, measuring poverty by income allows for a distinction to be made between sources of income. When such distinctions can be made, income may be more easily compared with data from other sources, such as wages, thereby providing a check on the quality of data in the household survey.

2.5.2 Non-Monetary Indicators of Poverty

Poverty is associated not only with insufficient income or consumption but also with insufficient outcomes with respect to health, nutrition, and literacy, and with deficient social relations, insecurity, and low self-esteem and powerlessness. Examples of dimensions of well-being include: (World Bank, 2006)

o *Health and nutrition poverty.* The health status of household members can be taken as an important indicator of well-being. Analysts could focus on the nutritional status of children as a measure of outcome as well as the incidence of specific diseases (diarrhoea, malaria, and respiratory diseases) or life expectancy for different groups within the population. If data on such health outcomes are unavailable, input proxies could be used, such as the number of visits an individual makes to hospitals and health centres, access to specific medical services (such as pre- and postnatal care), or the extent to which children receive vaccinations in time as an input for their future health status.

o *Education poverty.* In the field of education, one could use the level of literacy as the defining characteristic and some level judged to represent the threshold for illiteracy as the poverty line. In countries where literacy is nearly universal, one might opt for specific test scores in schools as the relevant outcome indicator to distinguish among different population groups. Another

alternative would be to compare the number of years of education completed to the expected number of years that, in principle, should be completed.

o *Composite indexes of wealth.* An alternative to using a single dimension of poverty could be to combine the information on different aspects of poverty. One possibility is to create a measure that takes into account income, health, assets, and education. It is also possible that information on income is unavailable though other dimensions are covered. It is important to note that a major limitation of composite indexes is the difficulty of defining a poverty line. Analysis by quintile or other percentile remains possible, however, and offers important insights into the profile of poverty.

2.6   Scope of the Poverty Alleviation Strategy

A PAS is an essential action plan for the state within the national, provincial and local level to alleviate poverty. This strategy allows the various role players to understand the current situation which exists regarding poverty in their cities, towns and settlements and what problems exists regarding poverty alleviation. It is essential that a common understanding of poverty is achieved in order to enhance the possibility of a common goal within all levels of government and other stakeholders.

Therefore a PAS provides a clear definition of what poverty is and what can be done to alleviate the poor through the implementation of specific programmes and projects etc. Thus the following sub-sections will provide an understanding of what poverty is and what can be done to improve the effectiveness of a PAS to ensure that the common goal of poverty alleviation is truly achieved in the highest degree possible.

Chapter Three: Geographical Information Systems

3.1 Introduction

This chapter explains the concept of Geographical Information Systems (GIS) and what the uses are for this system. The specific applications and benefits are discussed and how this system can be applied to poverty mapping. This chapter provides the third research variable in the thesis. The concept of poverty along with the concept of GIS will be used to illustrate its impact on the WCPAS.

3.2 What is GIS

Although there is no set standard definition of GIS it can broadly be classified as a Decision Support System. More specifically, GIS refer to a set of computer programmes which are designed to store, retrieve, edit and manipulate data that can be geographically referenced (Burrough & Cowen, 1986). A definition which describes the crux of the concept is that of Cloete and Needham (2002:3) "*GIS is a computer based information system which has the ability to store information together with its position on earth.*" Through these definitions it is easy to conceptualise the fact that GIS has the potential to enable government to capture, manage, analyse and call on land related data to solve complex planning and management problems.

GIS allows the visual displayed data along with a host of features, such as roads, health clinics, schools, voting districts, or police departments. Each of the maps which are generated has features which are associated with data or information. The feature data may make many forms and can be political, social or statistical in nature (Brown & Bradney, 1998). The following aspects of GIS deserve to be explored in more depth.

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3.3   The Use of GIS

Local governments have found GIS to be invaluable tools, whether they are used for improving emergency response, defining the best routes for garbage trucks or planning land use. However, developing and maintaining a GIS can be costly. Local governments have to purchase GIS software and expensive computer hardware, including servers.

Computerised geographic information systems are increasingly used by public and private organisations as tools for the manipulation of spatial and non-spatial data. Local governments find GIS technology attractive for three reasons (Budic & Godschalk, 1999):

1. Spatially referenced data represents a large proportion of data processing in local government agencies.
2. Information is considered a fundamental resource of government.
3. Pressure for improving government performance has prompted governments to look for more efficient ways of doing their work.

The Chorley Report (Chorley, 1987) recommends that there should be wide and varied use of GIS in the public sector. GIS is a powerful technology with many untapped markets. The GIS technology should be seen as being a decision support system which should be used by management and public officials. Local government exist to provide a service to its citizens and cannot operate in isolation from their customers which forms the community.

The community profile is constantly changing and making new demands for government services. Therefore local government has a need for information to determine the needs of their communities (Hawkins, 1994).

According to Batt (1992:41) "*GIS have been developing for some time and have looked like a solution waiting for an application.*" Therefore it can be deduced that GIS is an application which should be applied to the various information management demands of local government.

3.4   GIS Application

There are countless applications for a GIS in local government. GIS have many applications such as indicated in **Figure 3.1** below:
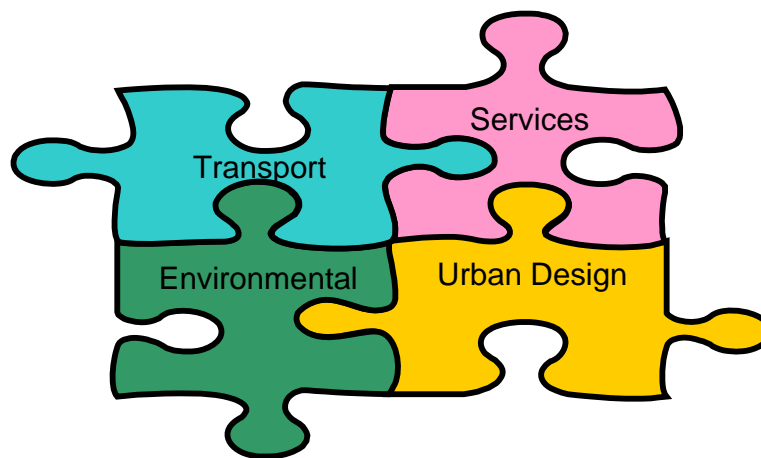
(Hawkins, 1994:14)

The following GIS application which will be discussed will serve to emphasize selected utilities to illustrate how the GIS application will assist in improving the quality of local government service delivery (Cloete & Needham, 2002).

GIS applications:
1. Managing the resources to carry out functions
2. Maintaining the physical environment
3. Managing residents needs
4. Achieving minimum performance measures

Managing resources: GIS can be used to help officials manage their resources more effectively. This can be specifically applied to a decision support application when projects and programmes have to be implemented e.g. when it has to be determined how to develop property as best as possible. Therefore the land resource is used efficiently. Information is a resource which has to be used as a decision support tool to empower decision makers and not to hamper the process (Yu & Han, 2001).

Maintaining the physical environment: GIS is used extensively in regional planning. The distribution and migration of a population can easily be detected using spatial features. This application of a GIS can be used when determining the population concentration and what their levels of services are with regard to water, sanitation and transport. GIS can be used to provide the spatial data to track and manage the progress of the service delivery in a community. This will enable the planner to determine for example the proportion of the population who has access to services.

GIS will enable town and regional planners to determine the location of properties and where development should take place. This is especially useful when land is needed for specific projects e.g. where to build a hospital. (Yu & Han, 2001).

Managing residents needs: The needs and demands of residents in a community regarding services, infrastructure, social needs etc. has to be met as best possible by the local authority. It is not always a physical need such as mentioned in the description of the physical environment. GIS can be used to enable translating a need such as levels of pollution, in various areas which have been captured in a data base into an illustration of areas with the various levels of pollution. When entered into a GIS, the outcome will enable the local authority to map areas and determine action plans for that area which have been badly

polluted etc. GIS is not a solution but an application to support decision-making and the implementation of possible solutions (Yu & Han, 2001).

Achieving minimum performance measures: Government is held accountable for their actions and levels of performance. This is in line with the specific set objectives which have been described in an IDP. The GIS can assist to illustrate the actual levels of performance i.e. a housing objective such as aiming to build a number of houses in a specific period of time in a specific area. The actual number of houses which were built can be illustrated and this can thus indicate the actual level of performance and assist managers in performance management decisions.

3.5   GIS Benefits

The assessment of benefits of GIS is used as an indirect measure of the success of implementing GIS for the appropriate applications. According to Eason (1998) there are four categories of benefits which can be derived from GIS:

1. *Cost reduction*: Direct and indirect cost saving
2. *Improved productivity*: Improved use of technology to increase output of government etc.
3. *Improved support*: Improved information, decision support, computer aided support
4. *Organisational enhancement*: New forms of integration

It is important to mention that there are tangible benefits as well as intangible benefits. The tangible benefits are mostly deemed as being able to increase efficiency in terms of cost (Tomlison, 1987). The intangible benefits relates to qualitative benefits such as better quality decision (Keen, 1981).

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GIS can benefit public organisations by increasing the productivity of the officials and other role-players as well as improving the quality and processes of decision making and benefiting the citizens through improved service delivery. GIS can benefit the planning and development application regarding (Wiggin & French, 1991):

o Productivity in providing public information
o Efficiency in updating maps
o Tracking and monitoring growth and development over time
o Aggregating data for specific sub-areas
o Performance and display of different types of professional analysis
o Policy formulation

These abovementioned benefits serve only as an indication of the success of GIS implementation and can relate differently, to the specific manner in which the GIS has been applied to meet the needs and demands of government and citizens alike. The following chapter will provide the background to the case study in terms of the West Coast Region where GIS and specifically poverty mapping could be use to illustrate the practical application benefits for a local municipal body to utilise GIS and for improved decision-making.

3.6 GIS Poverty mapping

The mapping of poverty in developing countries has become an increasingly important tool in the search for ways to improve living standards in an economically and environmentally sustainable manner (UNEP/GRID-Arenal, 2003).

Mapping poverty is more than a cartographic exercise. The measurement of human well-being itself is difficult and raises many methodological issues. The

most important reason for measuring poverty is to make comparisons such as: (www.povertymap.net/publications/doc.henninger , 2006)

o Has poverty increased or is it lower in a certain region?
o By how much has poverty changed over a specific time period?

These basic questions can be answered through the application of a poverty mapping. One of the most common methods which is used to measure poverty is to apply economically metric models of statistical data which were used as poverty indicators.

Various indicators are usually combined to give an index of poverty or human development (*Such as the Human Development Index, a composite of life expectancy, literacy and income*).

The most common aim of a poverty map is to enable efficient and effective planning of sectoral investments by combining data gathered from surveys and various other statistical data sets such as census data to create poverty maps to indicate where the greatest needs are and to ensure that the relevant stakeholders and policy makers focus scarce resources and efforts to those areas (Poverty Mapping Net, 2006).

To measure poverty, four essential questions need to be answered (Ravallion, 1992):

1. How is human-well-being defined?
2. What is measure, the aspects of human well-being or well-being in itself?
3. When is a person seen as being poor?
4. How is a measurement of well-being at an individual or household level combined to give an aggregate poverty measurement, both along one dimension and along different dimensions of well-being?

3.6.1 Purpose of Poverty Mapping

Poverty maps is a very useful tool as it allows for relatively straightforward comparison of different poverty indexes and indicators as mentioned above. These indexes include access to services, household income, access to educational facilities and access to healthcare facilities.

According to Poverty Mapping Net (2006) poverty maps can specifically be used in terms of the fast provision of information on the spatial distribution of poverty that in turn proves the targeting of intervention or development projects. GIS based poverty analysis makes it easier to integrate poverty data from various sources. Geo-referenced information can free analysis from the restrictions of fixed geographical boundaries. For instance, data can be converted from administrative to ecological boundaries which are often more meaningful in a natural management context. Mapping information on the levels and distribution of poverty make the results of analysis more easily understandable to a non-specialist audience.

Therefore poverty mapping can greatly assist government specifically in the implementation process of the policy process relating to development projects and ensuring that they are focused on key poverty pockets in terms of geographical locations.

3.6.2 Advantages of Poverty Maps

One of the key advantages which poverty maps signify is that it allows for increased legibility. Maps are powerful tools which are used in presenting complex information in a visual format that is easy to understand. Maps can be used to recapitulate the various complex aspects of poverty measurements in a visual format that is much easier to understand and comprehend.

Poverty maps can summarize multiple dimensions of poverty in a straightforward display, which is often very difficult to comprehend otherwise. The desegregation by geographical area may for example be used to simultaneously display two or more poverty indicators such as household income and illiteracy. Mapping encourages visual comparisons and makes it easy to look for spatial trends, clusters, or other patterns which exist in a community which is trapped in poverty.

3.7   Sustainable Poverty Maps

It is essential that poverty mapping is a sustainable practice. The maps which will be developed using GIS should be used as a tool to enhance sustainable management practices. In order for poverty maps to be implemented effectively, the following seven steps have to be taken in order to ensure a sustainable approach to poverty alleviation through the decision-support application of poverty mapping within the region according to Henniger & Snel (2002:37). The seven step approach has been graphically illustrated in **Figure 3.1** below:

Figure 3.1: Seven Steps to Sustainable Poverty Mapping

(Henniger & Snel, 2002)

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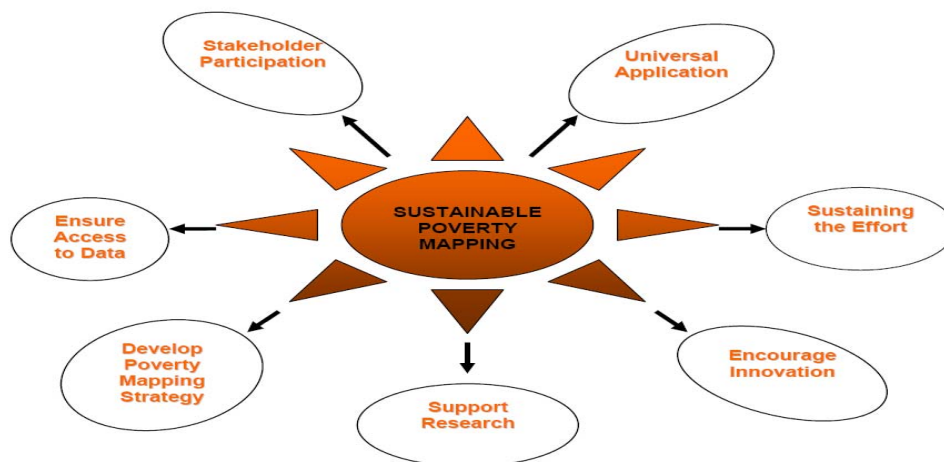
The seven steps are as follows:

STEP ONE: Recognising the need for universal application

STEP TWO: Involving stakeholders from the very start

STEP THREE: Sustaining the effort

STEP FOUR: Ensuring access to data

STEP FIVE: Encouraging innovative uses

STEP SIX: Supporting research methods

STEP SEVEN: Developing a poverty mapping strategy

These seven steps need to be adhered to throughout the poverty mapping process to ensure that the poverty maps are sustainable.

3.8   Deductions

Chapter Three provides an overview of the key concepts which form part of the research objective which has been discussed in terms of poverty alleviation. The policy framework introduced the macro and micro views of government in all three spheres which provides a clear indication of the manner in which poverty alleviation is set to take place.

The concept of poverty is contextualised in and the manner in which poverty alleviation is to take place using applications such as poverty measurement. The GIS approach is linked to poverty measurement as it ensures better decision-support for management to ensure that poverty mapping which is an application of GIS is used to ensure that the best possible tools are made available to management and policy makers in order to achieve the goals and objectives which national and provincial government set regarding poverty alleviation. The following chapter will discuss the proposed case study of the WCPAS which will further be analysed in Chapter Five regarding the preceding concepts which have been analysed.

Chapter Four: West Coast District Municipality Case Study

4.1 Introduction

The WCDM has been identified as a case study for this research assignment. The WCDM plays a key role in poverty alleviation in the West Coast Region and a PAS has been compiled to assist them in alleviating poverty in specific ways. The first two research variables i.e. poverty and GIS will be evaluated in terms of the WCPAS. The WCPAS used various poverty criteria to measure poverty, these poverty criteria made use of economic and socio-economic profiles of the West Coast. This enabled various poverty ratings to be given. This will further be described in **Section 4.6**.

The economic and socio-economic information will provide insight into the poverty situation of the West Coast as well as enable an understanding of the various poverty ratings. The WCPAS will be evaluated to establish in what context it can be linked to GIS and specifically the function of poverty mapping as a GIS application.

4.2 WCDM Profile

This chapter will provide the necessary background information relating to the West Coast Region's economic and social environment from which a PAS was compiled.

The West Coast Region is situated along the Atlantic Ocean and borders on the Cape Metropole in the South. The Cederberg Mountains form the boundary in the East and the region borders on the North Western Cape in the North. The region covers a total of 31 099 km$^{2.}$ The area known as the West Coast comprises 5 municipalities and a District Management Area (DMA). The five municipalities are:

o   Swartland Municipality with Malmesbury as administrative centre

o   Bergrivier Municipality with Piketberg as administrative centre

o   Matzikama Municipality with Vredendal as administrative centre

o   Cederberg Municipality with Clanwilliam as administrative centre

o   Saldanha Bay Municipality with Vredenburg as administrative centre

The WCDM administers and makes rules for the district, which includes more than one local municipality. The district municipality and local municipalities share the responsibility for local government in their areas and ensures that all communities, particularly disadvantaged communities, have equal access to resources and services.

Therefore the district municipality assists some of the local municipalities who don't have the capacity (finances, facilities, staff or knowledge) to provide services to their communities. It will also help to cut the costs of running a municipality by sharing resources with others. The 'richer' areas will help the 'poorer' areas.

These 5 municipalities are served by the WCDM which is also responsible for the District Management Area (DMA) area north of Van Rhynsdorp and including the settlements, Bitterfontein, Rietpoort, Kliprand and Nuwerus. Statistics South Africa (2001) estimated the population of the entire West Coast Region at (282 671). Of these 107 285 is employed formally and/or informally, while 17 212 is unemployed and 63 687 is economically inactive. This region is populated mostly by Coloured households (60%, 47 245) followed by White households (20%, 17 712) with Black households representing 10% (8 327). An estimated 44% of the households surveyed have an imputed monthly household income of between R801 - R3200. Government grants contribute to 19% of this figure.

Some of the functions and powers of district municipalities include (Cape Gateway, 2006):

o To plan for development for the district municipality as a whole

o Bulk supply of water that affects a large proportion of the municipalities in the district

o Bulk supply of electricity that affects a large proportion of the municipalities in the district

o Bulk sewerage purification works and main sewerage disposal

o Waste disposal sites for the whole district municipality area

o Municipal roads for the whole district municipality area

o Regulating passenger transport services

o Municipal health services for the whole area

o Fire-fighting services for the whole area

o Control of fresh produce markets

o Control of cemeteries

o Promoting local tourism for the whole area

o Municipal public works

4.3   Economic Profile

The following section will provide an overview of the various municipalities economic profiles as well as their social profiles which make up the West Coast District Municipal area. These profiles will be used along with the results of the survey and various secondary sources to enable the rating of the poverty criteria to compile a poverty line for the WCPAS.

4.3.1 Economic Contribution

The economic profile of the WCDM is based on the most recent economic data as extrapolated from Quantec database and census data of 2004 as well as other secondary data sources which were used in the WCPAS. **Figure 4.1**

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illustrates the Sectoral contribution of each sector in the Gross Geographical Value Added (GGVA) of the West Coast Region.

Figure 4.1 West Coast Sectoral Contributions, 2004
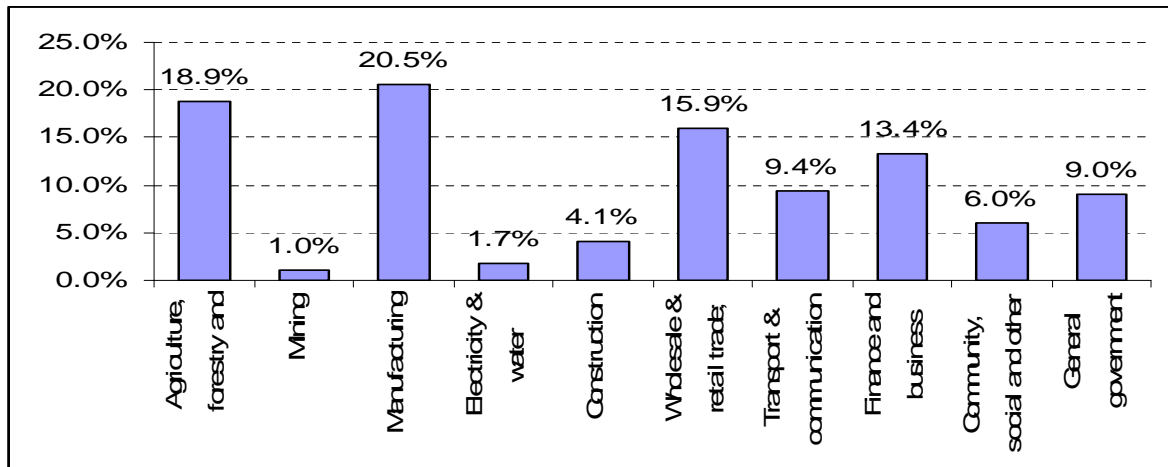
(Quantec, 2006)

As shown in **Figure 4.1** the sector which contributes the most to the GGVA of the West Coast Region is the manufacturing sector which contributes 20.5% of the GGVA. This is followed by the agriculture industry which contributes a total of 18.9%. Manufacturing is the largest contributor of the GGVA and this is related to the manufacturing of the sub-sector of food and beverages which consisted of 41.7% and the sub-sectors of metal products which contributed 31.7% of the total manufacturing sector. The agricultural and especially the fishing sub-sector of agriculture form a very large part of the economic activities within the West Coast. The impact of these sectors on the local economy can be described not only in their monetary value but also in terms of their impact on employment and other multiplier effects. This will be discussed in the following sub section.

Figure 4.2 illustrates the GGVA contribution which each municipality makes to the GGVA of the WCDM.

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Figure 4.2: GGVA Contribution of West Coast Region, 2004
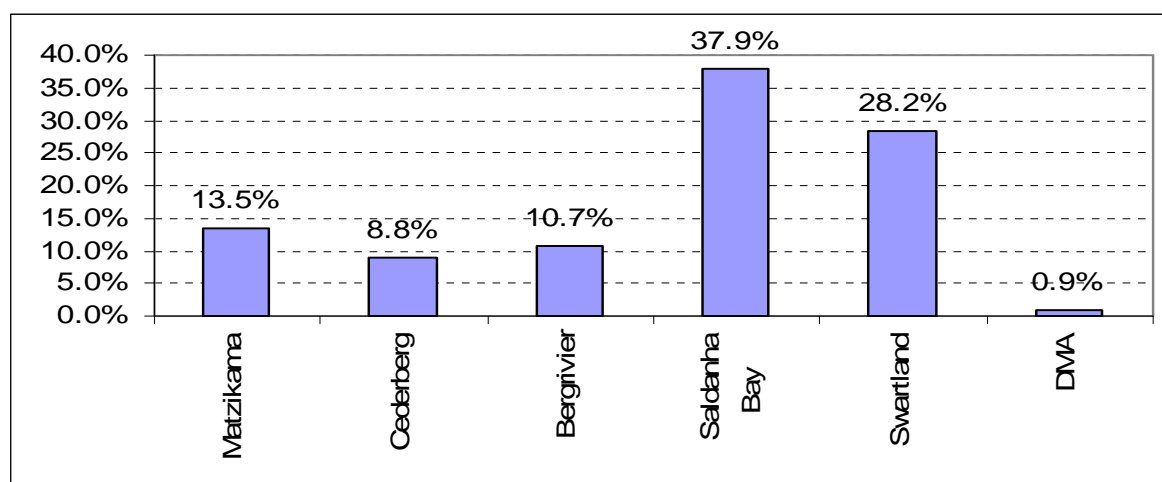
(Quantec, 2006)

According to **Figure 4.2** Saldanha Bay Municipality contributed 33.6% followed by Swartland Municipality which contributed 29% of the total GGVA which was generated in 2004 (R 58 397 822).

Table 4.1 illustrates the Sectoral distribution of the local economy to the GGVA in the West Coast.

Table 4.1: West Coast Sectoral Distribution, 2004

	Matzikama	Cederberg	Bergrivier	Saldanha Bay	Swartland	DMA
Agriculture, forestry & fishing	17.7%	27.1%	32.7%	11.5%	19.4%	20.5%
Mining	4.3%	0.1%	1.2%	0.4%	0.4%	2.5%
Manufacturing	13.0%	12.4%	12.4%	29.3%	20.8%	5.1%
Electricity & water	3.5%	1.1%	0.7%	1.0%	2.4%	0.0%
Construction	3.6%	3.2%	3.1%	4.7%	4.4%	5.7%

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	Matzikama	**Cederberg**	**Bergrivier**	**Saldanha Bay**	**Swartland**	**DMA**
Wholesale & retail	17.4%	22.8%	15.1%	14.5%	14.7%	15.3%
Transport & communication	9.3%	5.6%	8.1%	15.3%	4.3%	17.8%
Finance and business services	11.7%	11.7%	11.3%	9.7%	20.3%	2.1%
Communication Services	8.3%	6.0%	1.9%	6.5%	5.4%	20.4%
Government services	11.3%	10.0%	13.4%	7.1%	8.0%	10.6%

(Quantec, 2006)

According to **Table 4.1** the Municipalities with the greater GGVA contribution from the agriculture, forestry and fishing sector is Bergrivier and Cederberg. The mining sector forms a very small percentage of the municipal GGVA as it is only the Matzikama Municipality which contributes 4.3% to mining. The Manufacturing sector forms a significant part of the Saldanha Bay and Swartland Municipality.

The utilities sector is also a very small GGVA contributor for the West Coast, where the highest contributor is Matzikama Municipality with 3.5% of its total GGVA. The retail sector's contribution is relatively important for all six municipal areas. The highest contributor to the GGVA is in the Cederberg and Bergrivier Municipalities. The transport and communication sector forms a large part of the GGVA for the DMA and Saldanha Bay. This is significant especially due to the fact that the transport and communication industry is very poorly developed in the West Coast Region. The finance and business services sector contributed the highest in the Swartland Municipality GGVA which constituted 20.3% of the local GGVA. The services sector constituted the most of the DMA's GGVA. This sector

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formed 20.4% of the local GGVA but was not a very high contributor of the other local Municipalities GGVA. Bergrivier and Matzikama's government services sector contributions was the highest of their respective local GGVA Sectoral contribution of 13.4% as well as 11.3%.

4.3.2 Economic Growth

The economic growth rate for the West Coast Region between 1996 and 2005 is illustrated in **Figure 4.3**.

Figure 4.3: West Coast Economic Growth Rate
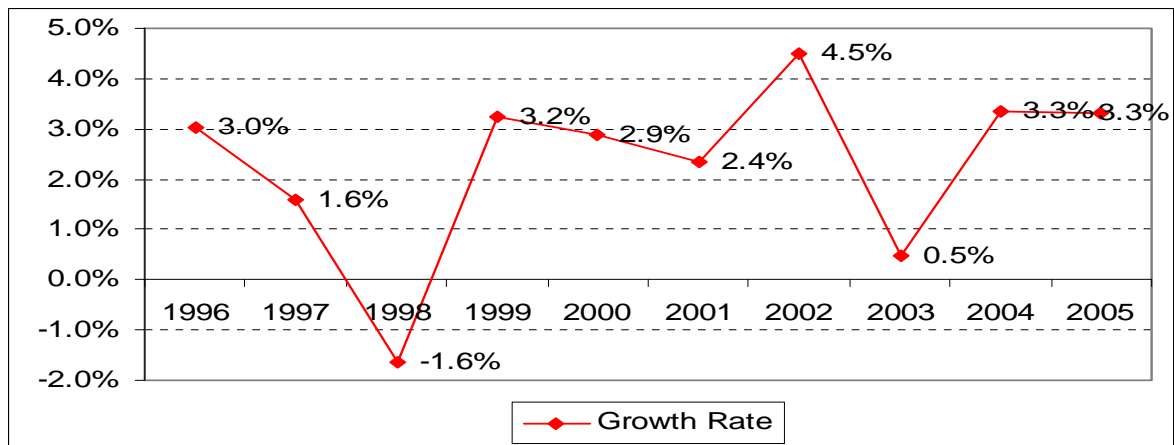
(Quantec, 2006)

Figure 4.3 illustrates that the economic growth rate for the West Coast Region experienced a steady increase between 1995 and 2005 of 2.5% and remained constant between 2004 and 2005 at 3% against a similar national average.

The growth in the economy could be attributed to the growing manufacturing and trade sectors. This illustrates that the overall growth in the study area is very positive.

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Based on the location quotients, historic performance trends and current market conditions, it is expected that the economy of the West Coast will continue to grow at approximately 3% per annum. It is envisaged that the economic structure of the Region will remain relatively constant in the medium to long term, with the agricultural, manufacturing and service sectors remaining dominant. This implies that, based on the market related principle of agglomeration, manufacturing activities would most likely remain concentrated in the Vredenburg and Malmesbury regions, whilst the Agricultural sector will continue to dominate both production and employment in the other districts. It is, however, considered possible that the relative contribution of the trade and services sectors would increase, in the event that the Region's tourism potential is developed.

4.3.3 Sectoral Employment

The employment rate refers to those economically active people who are unemployed and looking for work as well as persons who are unemployed and not looking for work but would accept work if it was offered to them. This category also includes the not economically active population, which are people who are not working, and includes housewives, scholars/full time students, pensioners and disabled people not wishing to work.

It is significant that 35% of the employed population has jobs within the agricultural and fishing sector, which is seasonal in nature. This has both social and economic implications because these workers are only employed for certain periods of the year, which results in their incomes fluctuating. This situation, combined with the fact that 79% of the population receives monthly wages of less than R1600, contributes to the high levels of poverty in the region (StatsSA, 2001). Besides the agricultural sector, employment opportunities are concentrated in the manufacturing, trade and service sectors.

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The decline in employment in the manufacturing sector has had a direct effect on the industrial market, whereas the decline in employment in the construction sector has a direct negative impact on the residential and retail markets. On the one side, without enough workers, less development can take place, and on the other side without development taking place, less job creation will occur.

The employment profile of the WCDM, within the different economic sectors is illustrated in **Figure 4.4**.

Figure 4.4   Sector Employment Distributions, 2001 & 2004
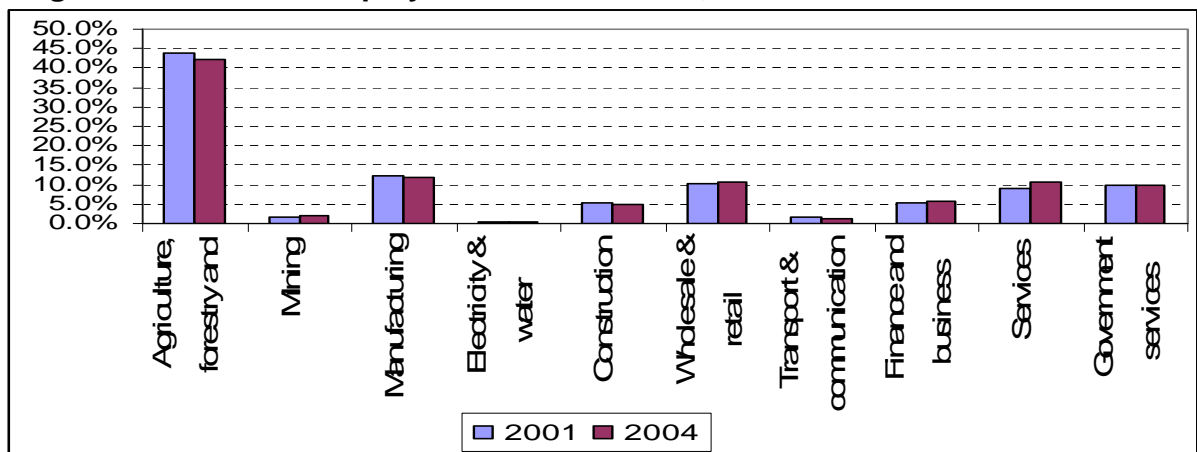
(Quantec, 2006)

The dominant employment sectors include agriculture, manufacturing, retail and services sectors which are all labour intensive. The sectors that had an increase in employment were the mining sector, the retail sector, the business sector as well as the services sector.

The employment distribution within these sectors is illustrated in **Table 4.2** according to each municipal area's Sectoral employment distribution.

Table 4.2: West Coast Employment Distribution, 2004

Sector	Matzikama	Cederberg	Bergrivier	Saldanha Bay	Swartland	DMA
Agriculture	45.1%	59.4%	55.8%	18.9%	40.1%	33.1%
Mining	7.0%	0.0%	1.6%	1.1%	0.8%	9.1%
Manufacturing	7.0%	6.0%	7.1%	24.0%	13.0%	3.1%
Electricity	0.5%	0.2%	0.2%	0.2%	0.2%	0.0%
Construction	4.5%	2.8%	3.6%	6.2%	5.6%	8.6%
Trade	10.5%	9.0%	7.5%	14.5%	10.9%	11.2%
Transport	1.2%	0.8%	0.8%	3.2%	0.7%	4.6%
Finance	5.5%	4.2%	4.1%	8.9%	6.2%	3.3%
Community services	9.7%	10.4%	5.8%	11.6%	13.9%	13.0%
Government services	8.9%	7.3%	13.3%	11.4%	8.6%	14.1%

(Quantec, 2006)

According to **Table 4.2** the following sectors contribute the most to employment within each municipality:

o Matzikama: The agricultural sector contributes 45.1% of the total employment in the local municipality. This is followed by the trade and community services sector which contributes 10.5% and 9.7% respectively. Therefore the agricultural sector is the strongest employment sustaining sector within the Matzikama Local Municipality.

o Cederberg: The agricultural sector similarly to that of Matzikama contributes 59.4% to employment within the local municipality. This indicates that this sector is very well developed within this local municipality and that various economic activities occur in the sub-sectors relating to agriculture. The community services sector is the second largest employment contributing industry.

o Bergrivier: Agriculture contributes 55.8% of the employment in the local municipality. This is followed by government services sector which contributes 13.3%.

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o Saldanha Bay: This is the only municipality whose population is predominantly employed in the manufacturing sector followed by the agricultural sector.

o Swartland: The agricultural sector contributes 40.1% of the employment within the area. The second largest contributor is the community services sector which employs 13.9% of the population.

o DMA: The agricultural sector employs 33.1% of the population living in the DMA followed by the government services sector which employs 14.1% of the population.

4.4   Socio-Economic Profile

The purpose of this section is to provide an overview of the socio-economic situation of the West Coast Region's population based on the data acquired from the 2001 Census Data and standardised data from Statistics South Africa. This was done in order to understand the overall situation in the study area in terms of population, employment and unemployment, skills level and income levels of the resident population.

4.4.1 Population

The total population for the West Coast Region (which encompasses both rural and urban areas) was estimated to be 282 671 in 2001 as extrapolated from StatsSA, 2001 Census data. According to StatsSA standardised data, the population of WCDM increased from 245 497 in 1996 to 290 973 in 2004. This represents a 2.1% growth rate per annum between 1996 and 2004.

A large number of the towns in the West Coast have previously disadvantaged communities which are characterized by large-scale poverty and unemployment. This is evident in the statistics as provided below. The population distribution in the West Coast Region is illustrated in **Figure 4.5** below.

Figure 4.5: West Coast Population Distribution, 2004
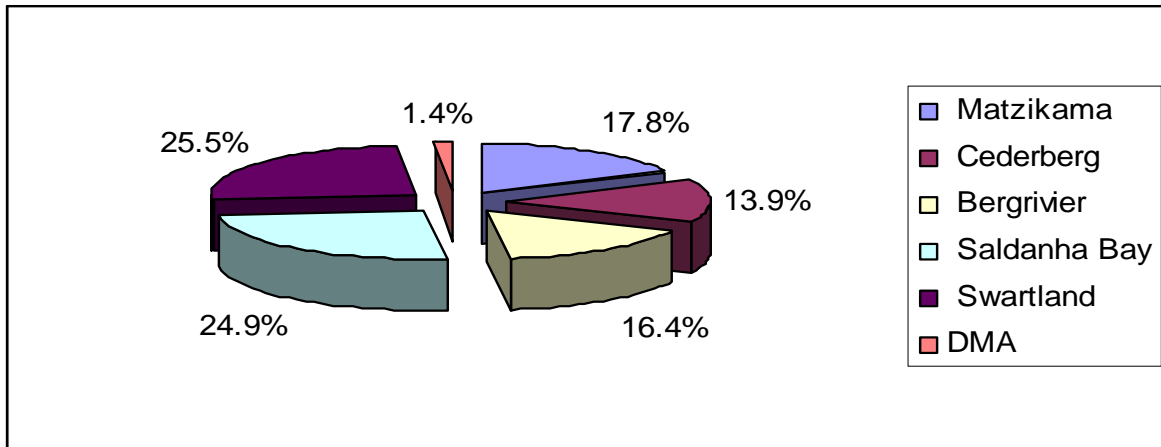
(Quantec, 2006)

Most of the West Coast population is located within the Swartland Local Municipality (25.5%), followed by the Saldanha Bay Local Municipality (24.9%) and Matzikama Local Municipality (17.8%). The area which has the least inhabitants is the DMA with only 1.4% of the population living there.

4.4.2 Unemployment

Figure 4.6 indicates the unemployed and employed persons, who comprise the economically active labour force as extrapolated by Stats SA Census 2001 results.

Figure 4.6: Employment Status per Area, 2001
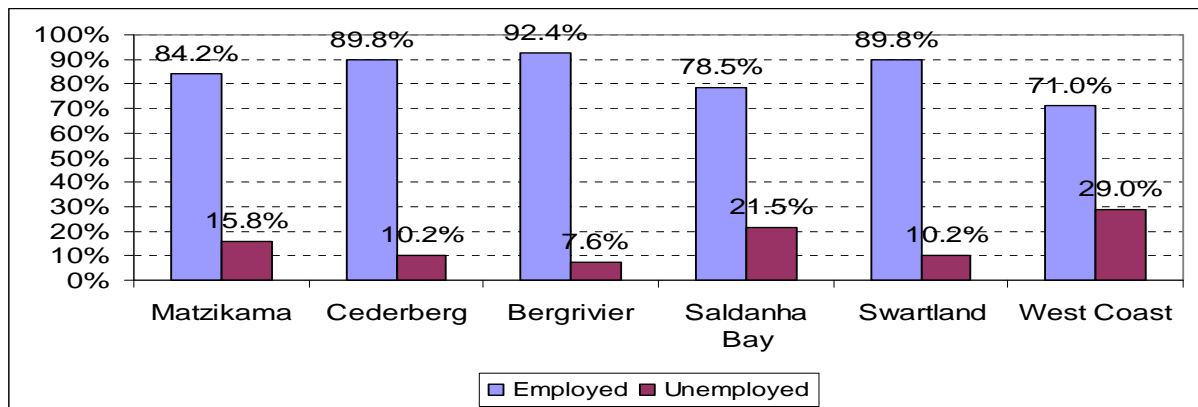
(Quantec, 2006)

It is evident from **Figure 4.6** that the number of unemployed persons is the lowest for the Bergrivier, Swartland and the Cederberg Municipalities. The Bergrivier, Cederberg and Swartland Municipalities also have the highest employment rates. Over the eight year period from 1996 until 2004 the employment rate has decreased by 5.5% in the whole West Coast.

The unemployment rate for each of the above Municipalities should be seen as being related to the poverty indicators as set out in the previous section which provides a true reflection of the extent and state of poverty that unemployed persons/households within impoverished communities find themselves in.

4.4.3 Skills level

Table 4.3 illustrates the skills levels of the population of the West Coast Region for 1996 and 2001.

Table 4.3 West Coast Occupations per Skill Category, 2001 & 1996

Category of skills	Total employment by skills level 2001 (%)	Total employment by skills level 1996 (%)
Unskilled	51.2%	51.0%
Semi-skilled	8.3%	10.2%
Skilled	33.4%	29.9%
Management	4.0%	3.6%
Professional	3.0%	5.2%
Total	**100.0**	**100.0**

(StatsSA, 2001)

Table 4.3 indicates that the skilled category[2] increased from 29.9% to 33.4%. The skilled category was the largest category in 2001, which comprised of the individuals employed in the community service, trade, construction and manufacturing sectors, service sector and also the tourism industry. The number of unskilled labours has increased from 51.0% in 1996 to 51.2% in 2001.

The above could be attributed to the increase in demand for seasonal workers in the agricultural and fishing industry and illustrates that the West Coast Region needs to promote skills development and entrepreneurial skills development. The skilled professionals within the West Coast Region often commute to the larger metropolitan areas within the Western Cape and this results in an outflow of skilled workers to other areas. This could have a negative impact on the local and regional economy.

It can be assumed that the demand for unskilled workers will possibly decrease in the foreseen future due to trends in advanced technological applications being

- 2 Unspecified: people younger than 15 years and those without work are not included in the figures
- Unskilled: includes elementary occupations
- Semi-skilled: includes craft and related trade workers
- Skilled: includes plant operators and assemblers, skilled agriculture and fishery workers, service workers, shop and market sales workers, clerks, technicians and associated professional
- Managerial: includes legislators, senior officials and managers
- Professional: includes professional persons

applied to primary sectors such as agriculture. Therefore the need for skilled or semi-skilled labourers becomes a more pressing issue in the light of poverty alleviation and empowerment of local communities. The objective of local economic development is to strive for a balanced mix of skills in the West Coast Region. An assessment of the skills levels in the West Coast Region indicates the ratio of skilled, professional and managerial development strategy (job creation initiatives) is to further increase this ratio, hence the need for a human resource development plan.

The type of skills available for persons living in the West Coast Region area is illustrated in **Table 4.4**. These skills are pertaining to the specific type of occupation which the economically active population has. From the table it can be assumed that most of the people living in the West Coast have some form of skill which is used in an elementary occupation (*see note below*): (StatsSA, 2001)

Note:

1. Sales and services elementary occupations
2. Domestic Workers
3. Street Vendors and related Workers
    - Street Food Vendors
    - Street Vendors, non-food products
    - Door-to-Door and telephone salespersons
4. Shoe Cleaning and other street cleaning services elementary occupations
5. Domestic and related helpers, cleaning and launderers
    - Helpers and Cleaners in offices, hotels and other establishments
    - Hand launderers and pressers
6. Building caretakers, window and related cleaners
7. Messengers, porters, doorkeepers and related workers
    - Messenger, package and luggage porters and deliveries
    - Doorkeepers, watchpersons and related workers
    - Vending machine money collectors, meter readers and related workers
8. Garbage collectors and related labourers
    - Garbage collectors

- Sweepers and related labourers

9. Scavengers

10. Selling goods on street

11. Sales and services elementary occupations

12. Agricultural, fishery and related labour

- Farm-hands and labourers
- Forestry labourers
- Fishery, hunting and trapping labourers

13. Labourers in mining construction manufacturing and transport

- Mining and quarrying labourers
- Construction and maintenance labourers: roads, dams and similar constructions
- Building construction labourers
- Assembling labourers
- Hand packers and other manufacturing labourers

14. Transport and freight handlers

- Hand or pedal vehicle drivers
- Drivers of animal drawn vehicles and machinery
- Freight handlers

15. Labourers in mining construction manufacturing and transport

Table 4.4: Percentage of Skills per Area

Type of Occupational Skill	Matzikama	Cederberg	Bergrivier	Saldanha Bay	Swartland	DMA
Legislators; senior officials and managers	3.6%	3.3%	3.4%	4.6%	3.8%	2.9%
Professionals	2.5%	2.0%	2.0%	4.5%	2.8%	1.8%
Technicians and associate professionals	5.5%	3.5%	3.6%	6.6%	4.9%	5.4%
Clerks	7.4%	4.8%	5.0%	10.1%	7.5%	8.8%
Service workers; shop and market sales workers	6.2%	4.4%	10.2%	8.7%	5.7%	4.4%
Skilled agricultural and fishery workers	6.0%	7.5%	6.8%	7.7%	4.4%	14.6%
Craft and related trades workers	6.8%	4.7%	5.2%	12.1%	8.6%	9.1%
Plant and machine	4.1%	3.5%	3.5%	10.0%	6.3%	4.9%

Type of Occupational Skill	Matzikama	Cederberg	Bergrivier	Saldanha Bay	Swartland	DMA
operators and assemblers						
Elementary occupations	53.7%	61.3%	57.6%	30.3%	47.7%	46.1%
Undetermined	4.3%	5.0%	2.8%	5.5%	8.3%	2.0%

(StatsSA & Census, 2001)

It is important to note that not all of the people recruited received skilled training through a formal institution, rather many of them have picked up their skills through practical experience. This indicates the need for these people to formalise their skills, through training programmes, so that these skills can be utilised to provide businesses with the skills they require. This should be taken into account by the West Coast Region concerning the labour requirements as appropriate training must be made available to ensure that community upliftment forms part of the activities and projects of the WCPAS.

4.4.4 Gender and Age

The gender and age profile of each municipality in the West Coast Region is illustrated in **Figure 4.7**.

Figure 4.7: West Coast Gender & Age Distribution

(StatsSA & Census, 2001)

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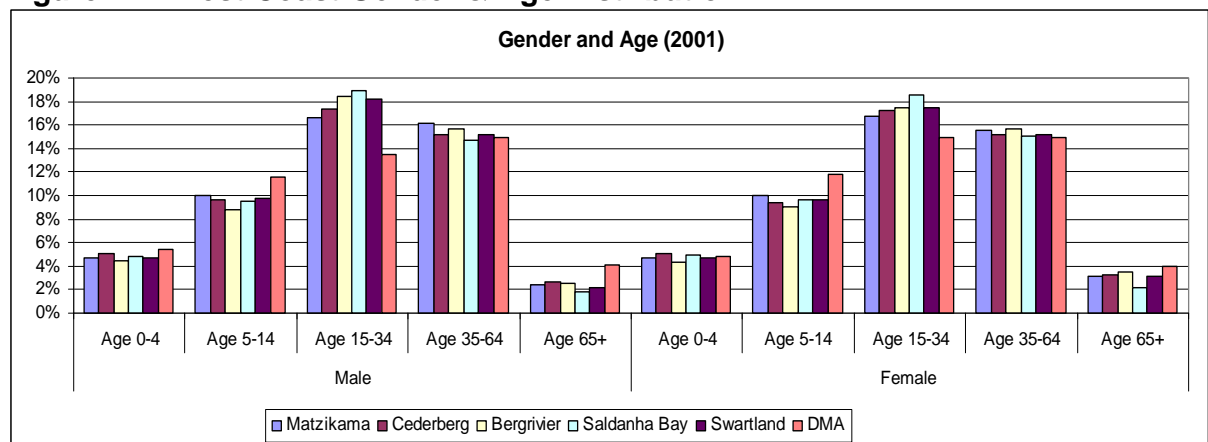
The above figure indicates that in the West Coast Region the highest population group is between the ages of 15 and 64 which include the economically active population. The gender distribution is fairly even and the Swartland Municipality has the most males and females.

4.4.5 Household Income

Household income levels are generally used as a basis for determining poverty levels in a community. Additionally the income levels of a particular area provide some insight into the economic behaviour of a particular community, i.e. the buying power of that community and the potential poverty levels that a community might be experiencing. **Table 4.5** illustrates the annual household income in the West Coast Region for 2001.

Table 4.5: West Coast Region Annual Household Income

Household Income Category	Percentage of Households
	2001
None	6.8%
R1-4800	3.2%
R4801-9600	13.9%
R9601-19200	21.4%
R19201-38400	22.7%
R38401-76800	16.1%
R76801-153600	10.0%
R153601-307200	4.2%
R307201-61440	1.0%
R614401-1228800	0.3%
R1228801-2457600	0.3%
>R2457600	0.2%

(Stats SA & Census, 2001 & 1996)

Estimates extrapolated from **Table 4.5** and population figures suggest that 6.8% of households in West Coast Region had no income in 2001. The table indicates

that the majority (22.7%) of households earn an income of between R19 201-R38 400 per annum and (21.4%) earn an income between R9 601-R19 200 per annum. Over 23.9% of the population earned less than R1 600 per month. The above paragraphs illustrate that a large percentage of the West Coast Region population lives in conditions of poverty and that this situation has been worsening since 1996. Many households make use of social grants to supplement their household income in order to survive. There are various types of social grants. According to data from the Department of Social Services and Poverty Alleviation (2006) approximately 39 364 individuals receive a social grant on a monthly basis in the West Coast Region. **Figure 4.8** indicates the various types of social grants and the percentage per type as received by the individuals.

Figure 4.8: Social Grant Distribution
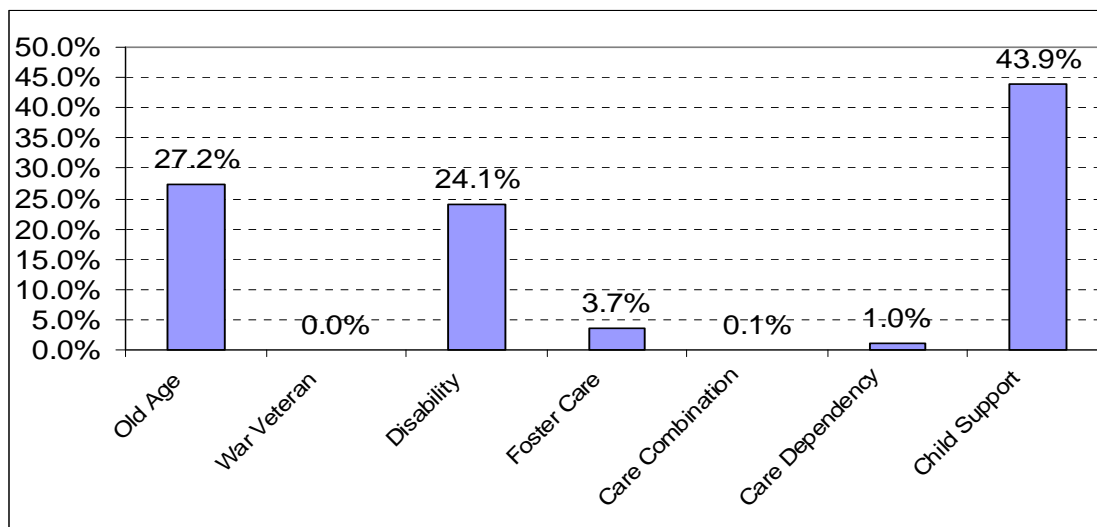
(Department of Social Welfare and Poverty Alleviation, 2006)

Figure 4.8 indicates that the grant which is mostly accessed by individuals is the child support grant where 43.9% of social grant recipients are eligible for. The old age grant is received by 10 716 individuals. Therefore this indicates that a large portion of the population is dependant on social grants to provide for their children as well as the older retired population.

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The Socio-Economic profile of the study area has indicated that there is a definite need for numerous poverty alleviation initiatives to be implemented within the various local municipalities. This is essential as the proposed projects which will be discussed in the following sections will relate to the various needs which have been identified by the surveys and the socio-economic indicators.

The above profile will be linked to the next sub-section where the WCPAS is mentioned. A poverty profile was done using the above socio-economic background to complete the poverty criteria which will be discussed. Therefore it is essential that these sections be read parallel to one another. This will enable all monetary and non monetary aspects of the identified poverty measurements to be captured to enable the compilation of a poverty profile which will indicate the various aspects of the data sets which could be mapped using GIS.

4.5   West Coast Region Poverty Alleviation Strategy

The West Coast Region is facing many challenges regarding community upliftment and poverty alleviation. It therefore becomes imperative that a strategy was developed from which programmes, projects and various action plans resulted in order to achieve the poverty eradication and provincial priorities regarding the level of poverty in the West Coast Region.

The strategy aimed at providing a definition of poverty which forms part of aided in identifying the key poverty indicators in the West Coast. These criteria enabled poverty thresholds to be conceptualised. This was used to conduct a situational analysis of the area to gain understanding of the level of poverty in the area and which projects are currently underway regarding poverty alleviation. **Map 4.1** illustrates the level of poverty in the West Coast through the utilisation of the identified poverty criteria. This is an indication of how the statistical data was utilised to illustrate poverty in the various regions through a visual aid.

Map 4.1: Poverty Situation in the West Coast
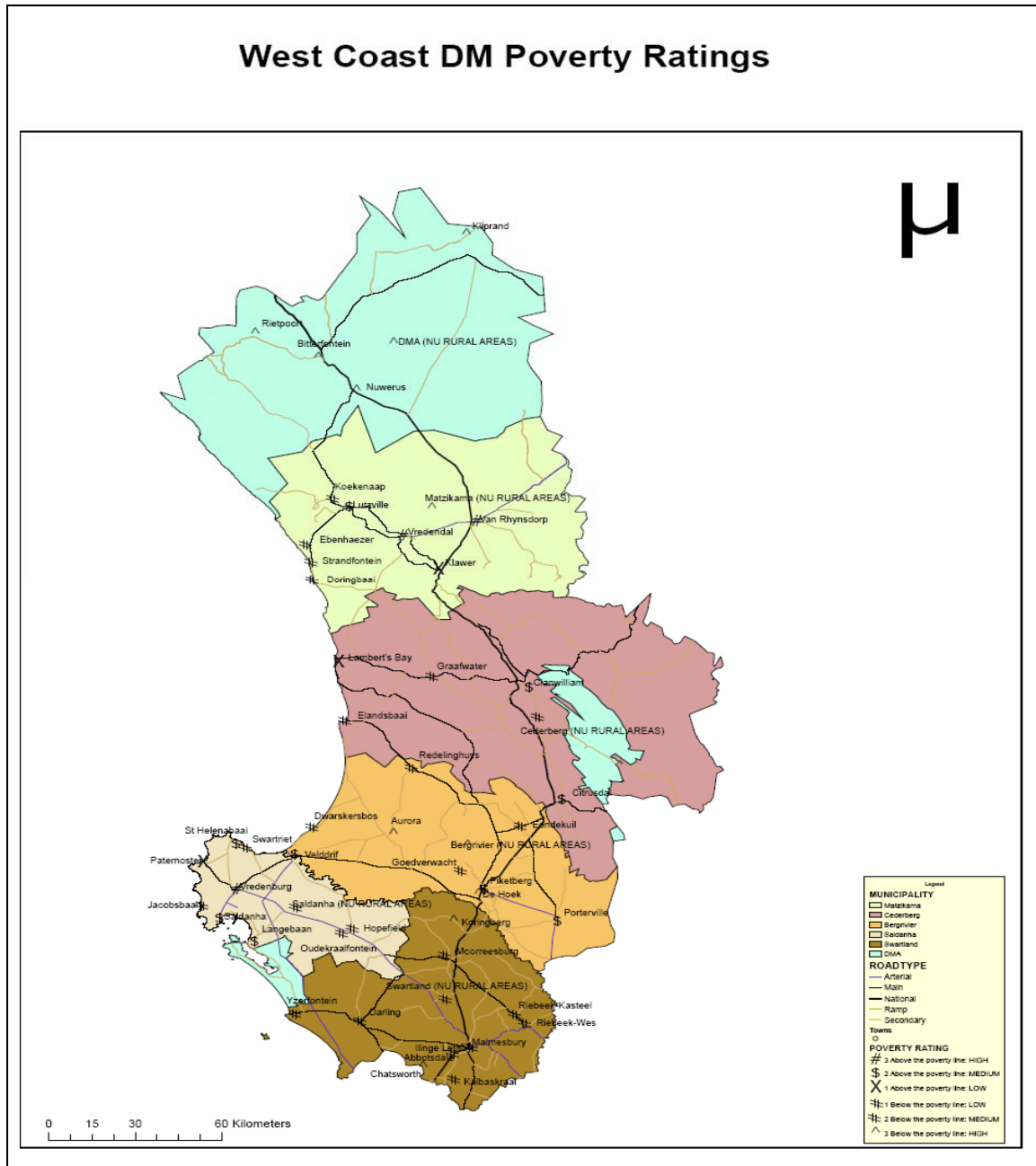
(Basson, 2006)

The strategy is aimed at the development and identification of opportunities, programmes and projects which will effectively utilise and apply the local resource base for the benefit of local communities in the various local municipalities in the West Coast Region. It will increase the living standards of communities living in poverty and enable the municipality to provide more and

better services and facilities. Development of the human resource potential and opportunities for development is more likely to occur through the linkages which will result between the developed and underdeveloped areas in the West Coast.

The purpose of the strategy is therefore to identify the multiple dimension of poverty and try and find ways in which to alleviate poverty with practical actions in a holistic manner through the participation of all stakeholders and role-players involved in the process.

The Western Cape's PAS is value based and therefore it is suggested that (Western Cape Integrated Poverty Alleviation Strategy, 2005):

o The strategy places people and their needs at the forefront – Batho Pele;
o The strategy advocates for social, economical and environmental sustainability;
o The strategy promotes integration and acknowledges that all elements of society are interrelated and linked;
o The strategy does not unfairly discriminate against any person or groups of vulnerable and disadvantaged groups;
o Equitable access to the benefits of the strategy is pursued vigorously;
o The strategy takes into account the consequences of each program throughout its life cycle;
o The participation of all interested and affected parties be ensured;
o Decisions be taken in an open and transparent manner;
o Vulnerable groups who suffer discrimination beyond poverty, such as women, the disabled, older persons and children are given specific attention

It is therefore of utmost importance that the PAS for the West Coast Region be aligned and linked to the Western Cape's Integrated Poverty Reduction Strategy, as well as national and other provincial strategies. Of importance are also the Local Economic Development Strategies and Integrated Development Plans of

the different local municipalities. Both of these strategies have at the core of their business the eradication and/or alleviation of poverty as well as sustainability (sustainable development). This will ensure that the province has an integrated and holistic approach to eradicating poverty in the Western Cape.

4.6   Poverty Mapping as part of the WCPAS

As part of the strategy it was necessary to develop a scientific approach to identify various poverty pockets within the West Coast. The researcher formed part of the project team which developed these poverty criteria. The process which was followed by the project team was as follows:

STEP 1: Determine poverty criteria.
STEP 2: Quantify each of these criteria, so that each alternate can be given a rating.
STEP 3: Rate the poverty criterion according to potential poverty line
STEP 4: Tabulate results to determine the poverty pockets.
STEP 5: Illustrate the results on a map of the West Coast

The poverty matrix will then rate the different criteria in terms of the quantified ratings which have been given to each criterion. This rating system is discussed more fully in the following sub-section. The objective of this method of poverty criteria rating is to determine which areas are above or below the poverty line and map the results to indicate the extent of poverty on the West Coast.

4.6.1 Criteria & Rating for Poverty Alleviation

This section will define the identified criteria and their specific rating which will be used in the poverty matrix. It is important to mention that the poverty line will be determined in terms of being above the poverty line which will result in a score as follows:

It is necessary to determine whether the current PAS for the West Coast Region is fitting for a GIS application. This will make use of the existing data models to develop a model which can be used to assist the WCDM in making decisions to specifically alleviate the poverty in the various poverty pocket areas which have been identified in the WCPAS.

The poverty criteria which have been developed specifically for the West Coast Region are as follows: (West Coast Poverty Alleviation Strategy, 2006)

Criteria 1:   Access to Training

Criteria 2:   Level of Education

Criteria 3:   Access to Educational Facilities

Criteria 4:   Access to Health care facilities

Criteria 5:   Access to trauma care facilities

Criteria 6:   Access to medical emergency care

Criteria 7:   HIV/Aids Awareness Programmes

Criteria 8:   Access to sport facilities

Criteria 9:   Access to recreational and leisure activities

Criteria 10:   Employment Status

Criteria 11:   Household Income & Expenditure

Criteria 12:   Tourism Development

Criteria 13:   SMME Development

Criteria 14:   Access to Security

Criteria 15:   Access to Grants

Criteria 16:   Access to Youth Care Facilities

Criteria 17:   Youth Development

Criteria 18:   Elderly Development

Criteria 19:   Access to Identity Documents

Criteria 20:   Access to Rehabilitation Centers

Criteria 21:   Nutritional Services

Criteria 22: Affordability

Criteria 23: Affordability of Financial Services

Criteria 24: Affordability of Government Services

Criteria 25: Access to financial and business support services

Criteria 26: Access to Banks & ATM's

Criteria 27: Access to Telephones

Criteria 28: Access to Computers and Internet

Criteria 29: Land Reform

Criteria 30: Access to Transport

Criteria 31: Access to Water

Criteria 32: Access to Energy

Criteria 33: Access to Sanitation

Criteria 34: Dwelling Type

Criteria 35: Tenure

Criteria 36: Access to Housing

Data elements which exist for the West Coast Region in terms of spatial data are:

- o **Economic data:**
  - Gross Regional Product per local municipality
  - Economic Growth per local municipality
  - Sectoral Employment per local municipality
  - SMME opportunities per settlement

- o **Social data:**
  - Population per settlement
  - Unemployment per settlement
  - Skills level per settlement
  - Gender and Age of individuals per settlement
  - Household Income per settlement
  - Nutritional Services per municipal area

- Dwelling type of households per settlement
- Tenure of households per settlement
- Access to Basic Services of individuals per settlement
- Social Grant Distribution of individuals per settlement
- Level of Education of individuals per settlement
- Access to Training Facilities which individuals have per settlement
- Access to Sport and Recreational Facilities per settlement
- Tourism potential per settlement
- Access to Police Stations per settlement
- Access to Financial and Government Services per settlement
- Access to Communication Facilities of individuals per settlement
- Land Reform per settlement
- Access to Transport services of individuals per settlements

The above economic and social criteria has been captured through using existing statistical databases such as StatsSA and Quantec standardised data as well as primary research which was done through surveys in the West Coast Region. The statistical data which was accumulated and captured in a data set according to the six municipal areas and where possible according to settlement within the municipal area was then used to determine various poverty pockets within the West Coast Region.

Therefore the data sets can be projected onto a map using GIS as the various areas have spatial coordinates and the data can therefore be mapped. The following chapter will evaluate what application benefits a GIS could have for the WCDM in terms of assisting in their planning and decision-making processes.

4.7   Deduction

The profile for the West Coast Region has been described, both in terms of the economic and socio-economic means. The profiles indicated that poverty is strife within the various communities in the West Coast. The economic and socio-economic statistical data has served the purpose of illustrating the baseline information for this region. In order for the strategy to become more useful this data must be extrapolated to serve the purposes of a GIS nature.

The WCPAS is a strategy which can effectively be used to strategically alleviate poverty in the identified poverty pockets in the West Coast Region. The PAS can be improved by utilising the current poverty data more effectively through the application of a GIS. This will ensure that the data gap is removed regarding spatially integration of statistical data with decision-making processes of key individuals within the WCDM.

The strategy is currently not being applied in this manner although it has addressed the need for a spatial illustration of the poverty pockets, the existing poverty data can be used in a much more effective manner for the benefit of many stakeholders.

In **Chapter Five** the application possibilities of utilising GIS within the boundaries of the case study, will be explored. This will result in the identification of the various application possibilities of a GIS for poverty alleviation specifically for the WCPAS.

Chapter Five: Developing GIS to be used as a Poverty Alleviation Tool

5.1   Introduction

The possibilities which exist for the potential uses of GIS are countless. This relates directly to the numerous decisions which have to be made on a daily basis by various decision-makers who need the best tools possible to ensure that the optimal choice is made to preserve resources and improve effectives. In this chapter key GIS applications will be identified which are relevant to the WCPAS and specific requirements which need to be met in order to determine whether a GIS tool can be developed and implemented. This is constantly aligned to the case study and its relevance to improving the effectiveness of the strategy.

5.2   GIS Possibilities and Options

Countless land-related decisions are made by local spheres of government in South Africa and worldwide. Municipal authorities deal with real property, development, infrastructure etc. Many other data bases which store information such as health and crime data are referenced by geographic location. Individual decisions of local units of government typically have a limited scope and impact.

A key policy which has a large impact in the Western Cape concerning infrastructure development is the Strategic Infrastructure Plan (2005) (SIP). This plan is aimed at fulfilling the one government's responsibilities to provide the secure institutional and physical framework within which citizens can exercise their initiative to reach their full potential as part of its partnership with the people of the province. It deals with the infrastructure such as water supply and sewerage disposal, electrical power provision, and transport of all kinds, hospitals, schools and cultural facilities that makes normal economic and social activity possible.

As infrastructure provision and maintenance is expensive, difficult choices have to be made when allocating available resources amongst these different sectors. The purpose of the Strategic Infrastructure Plan is to help determine these choices by showing how development plans in each of the various infrastructure sectors will work together to achieve agreed aspirations of the citizens of the Western Cape.

The plan sets both broad and specific priorities. The Strategic Infrastructure Plan will be an ongoing process of appraisal and refinement of infrastructure delivery in the Province.

The Strategic Infrastructure Plan will liaise with other elements of the Province's development strategy to ensure that future infrastructure investment is directed to sectors where it will yield the best overall returns to society. As the instrument of public sector agencies to support economic growth, labour market participation and general well being of the Province, the Strategic Infrastructure Plan will involve a number of provincial and national departments, local authorities and parastatals in its development and execution. This plan will form the basis upon which decisions on infrastructure investment by the Province will be made.

However, as a whole these various policy documents shape the way land is used and the built environment is managed. Geographic information systems have tremendous potential at local government level such as in the case of the WCDM, both in allowing decision making to be more objective and in elucidating the cumulative effect of incremental decisions.

Technology is currently not being used to its best potential at grass root level of government. Local government has the most difficulty using analytic and decision-support aspects of technologies. Because great potential and great problems exist, this research study is focused on GIS at the local level specifically for the application of poverty mapping.

To account for performance promised by purveyors of the technology, Ventura (1995) asks "does the technology provide better information? Which is faster, cheaper, more reliable, more precise, more available, and more understandable?" It is critical to note that the question is "does," not "can." The question concerns its actual uses - not it's potential.

Successful use of GIS depends on technical choices and on the ability, capacity, and willingness of an organization to absorb and use new forms and quantities of information. Organizational and institutional factors may be a greater barrier to the implementation and success of GIS.

It is therefore necessary to determine how GIS could be implemented in the WCDM and whether such a decision-support application is feasible and possible. Will the actual use of GIS actually improve the information which is transferred to various stakeholders? This is a question which needs to be addressed.

5.3   Poverty mapping in the West Coast Region

GIS has many benefits as was mentioned earlier (See Chapter 3.3 and 3.4). The objective of poverty mapping in the West Coast has become clearer throughout the mentioned application benefits of a decision-support tool such as GIS which can be utilised for Poverty Mapping.

This tool can be used to improve the standard of living in an economically and environmentally sustainable manner. The poverty mapping application of GIS has numerous policy implications for any government body. This section will evaluate the practicality and benefits of mapping poverty, specifically applied in the West Coast Region and specific areas indicated in the PAS as poverty pockets. The process of developing and implementing a GIS poverty mapping application can be broken down into four steps:

STEP ONE: Develop a spatially integrated poverty database

STEP TWO: Produce maps of various scales to indicate smaller settlements (rural areas) as well

STEP THREE: Examine relationships between poverty, land-use and policy variables

STEP FOUR: Communicate results and return data to data providers at the municipal level in appropriate formats

The above four steps will be essential in ensuring that the WCDM establishes an effective GIS specifically focused on poverty alleviation. This will enable the GIS to be used in numerous applications to implement the WCPAS in an effective and efficient manner. These steps are needed to plan the process properly in order to ensure that the GIS are developed with the goal of poverty alleviation and the specific variable in mind.

5.4   Poverty Mapping Application

As was mentioned in the previous sub-section the first step in developing a poverty map application which can be used for the West Coast is to develop a spatially integrated poverty database.

The poverty map application has been completed as part of the PAS process. The main information sources which were utilized for the socio-economic information as described in **Chapter 4** were gained from census data as well as other statistical databases and surveys which were done throughout the region.

The survey data provided information on a broad range of dimensions of living standards and their determinants and correlations to measuring poverty as set out within the parameters of the poverty indicators of the WCPAS. One gap that has been identified with regards to surveys is that they only cover a relatively small subset of the households and the individuals within the West Coast. Thus

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the statistical results have to be reviewed as estimates which represent an aggregate portion of the population such as a region etc. This was due to a lack of funds and the limited time available. The data needs to be supplemented as best possible in the GIS.

With regards to the poverty map application the sources of information i.e. the census data and the survey data were combined and the strengths and weaknesses of both data sets were taken into account in order to obtain detailed information that is representative at a very low level of disaggregation.

This is the first step in developing poverty maps for the West Coast Region. The second step is yet to be initiated and it is required that the spatially integrated poverty database be used as inputs into a GIS which will enable the development of maps at various scales.

These maps will enable the decision-makers to examine the relationship between poverty and the existing land uses of various geographical areas as well as large scale developments within the West Coast, and how this related to the policy variables of not only local government but provincial and national government policy documents such as the SIP as well. **Map 5.1** illustrates how poverty can be mapped in terms of welfare indicators where the accessibility to services is measured. This is done by determining the nearest clinics for instance and the distance that has to be traveled to reach these facilities.

Map 5.1: Poverty Map – Welfare indicators
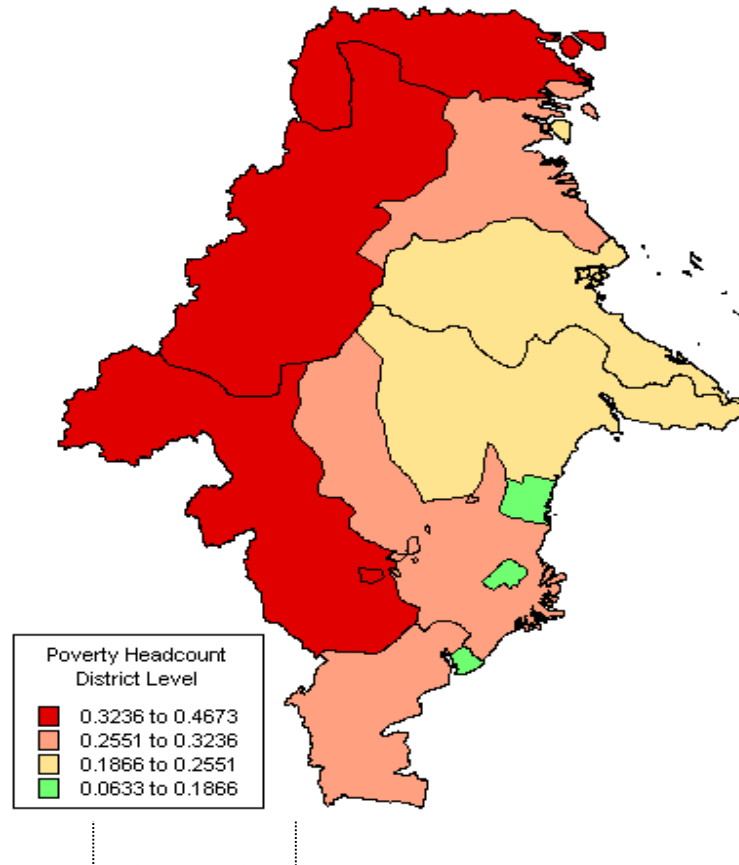
(Suryahadi, 2004)

If a similar approach is followed to the illustrated example above, then these results will empower the policy makers and decision-makers at the WCDM. They will be able to understand the statistical data to an even higher level of variable integration. This will be communicated to them in a visual format such as a map which is less complex than a statistical data table. The possible applications and benefits will be discussed as in the following sub-sections.

5.5   GIS Requirements

There are countless applications for GIS in relation to poverty mapping but one of the first reservations is that in order for poverty maps to be efficient it is essential

that these maps have a high spatial resolution in terms of being able to indicate the smaller settlements. This will enable the maps to be used as an effective decision-support tool to enable poverty alleviation and improve the functionality of the GIS. In order for such high quality maps for poverty estimates to be produced, the following requirements have to be met: (Poverty Mapping Net, 2006)

1. Data has to be referenced according to their geographical location in order for it to be disaggregated at large scale
2. A system such as the proposed GIS has to be utilized in order to allow for the integration of various data series which are set spatially
3. Numerous statistical methods have to be used to estimate the missing variables at local scale.

If these principles are used in conjunction with the previously mentioned STEP 1 then the quality of the poverty maps which will be produced for the West Coast will be of a high quality and will enable further effective decision-making to enable poverty alleviation.

Therefore the question remains of, "*what can be done with the data sets which have been integrated and what applications exists for the GIS which relates specifically to the West Coast and its poverty situation*?"

The specific question has numerous answers as the list of applications is quite extensive. If applied to the case study the applications are according to the manner in which the WCPAS has defined and quantified poverty in the region. The poverty mapping applications can relate clearly to the various poverty thrust which have been quantified.

This section includes the strategic Thrusts which will be used to alleviate poverty in the West Coast Region District Municipal area according to the WCPAS. The

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following sub-section will provide a brief introduction of the alleviation strategy and its components, followed by a short description of each component.

5.5.1 Strategic Thrusts

From a strategic development facilitation point of view, it is necessary to ensure that the appropriate linkages and interactions between programmes and projects be established. Such an integrated approach is needed to ensure the optimal rate of implementation and social and economic development in the communities in the West Coast Region, this is illustrated graphically in **Figure 5.2** below.

For the purpose of this thesis, a thrust can be defined as "actions aimed at encouraging stakeholders to take action or make greater efforts in the hope of alleviating poverty" (West Coast Poverty Alleviation Strategy, 2006).

Figure 5.2: Integrated Development Approach
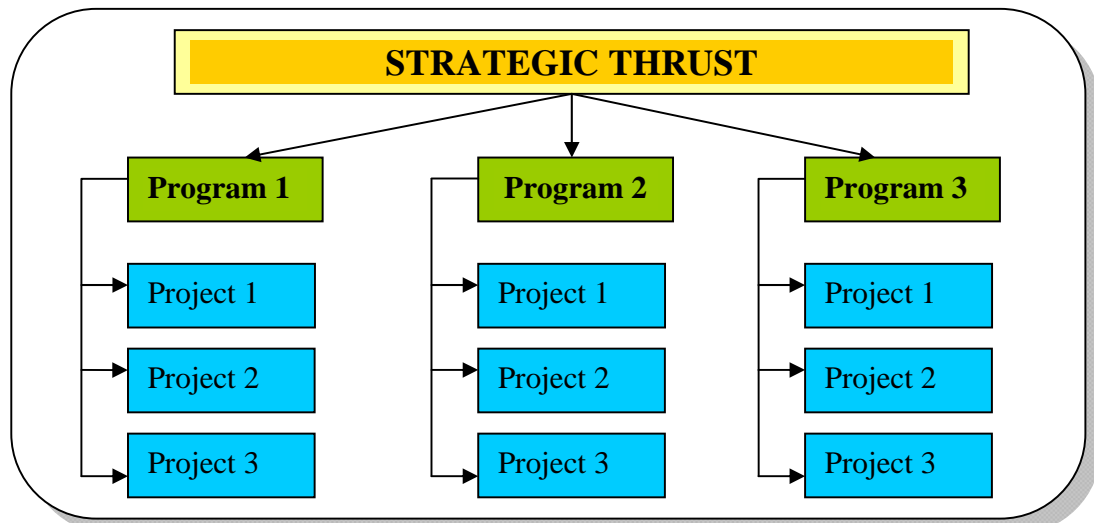
(West Coast Poverty Alleviation Strategy, 2006)

Based on the illustration provided in **Figure 5.2**, it is clear that for each thrust a number of programmes and projects have to be identified. The development of

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the poverty thrusts is based on the status quo of the poverty profiles and the specific identified criteria.

These thrusts aim at using existing economic and social environmental strengths and opportunities by transferring these into workable programmes and projects. Programmes are developed to support the various poverty thrusts with the main aim of addressing a specific poverty issues. Distinct projects are formulated with explicit actions in order to reach the targets of each programme.

The 12 thrusts for the West Coast Region's economy were identified and these include the following:

Thrust One	:	Education
Thrust Two	:	Health
Thrust Three	:	Sport and Recreation
Thrust Four	:	Local Economic Development
Thrust Five	:	Safety
Thrust Six	:	Social Development
Thrust Seven	:	Financial and Government Services
Thrust Eight	:	Communication
Thrust Nine	:	Land Reform
Thrust Ten	:	Transport
Thrust Eleven	:	Basic Services
Thrust Twelve	:	Housing
Thrust Thirteen	:	Environment

Each of the above-mentioned thrusts will be discussed in the following paragraphs. The thrusts were used in the WCPAS to group the various poverty alleviation interventions in terms of various programmes and projects relating to the results of the poverty criteria measurements and the various levels of poverty which could be translated into action programmes and an implementation plan to

strategically target the key identified poverty causing situations. The thrusts will be discussed in terms of the relevance to poverty mapping. Especially how the poverty alleviation actions and the implementations plans can be improved by the use of poverty maps for the WCDM as well as the Local Municipalities which are also included as stakeholders in the poverty alleviation process within the West Coast Region.

5.5.2 Implementation Benefits

The thirteen identified thrust have been identified according to the thirty-seven poverty criteria which were discussed in **chapter four**. Every criterion is appended to a specific thrust. The programmes that have been identified are as a result of the levels of poverty which have been identified for each specific area. From these programmes more specific poverty alleviation projects were developed which addresses these levels of poverty in terms of practical strategic measures and interventions by government and other stakeholders.

The possible manner in which poverty mapping will add value to the implementation plan of the WCPAS are discussed in **Table 5.1** below in terms of the various thrusts and their objectives and the numerous stakeholders which form part of the decision-making process and whether it can be related to poverty mapping and finally what the specific application benefit will be in terms of poverty mapping. **Table 5.1** is a basic indication of the potential applications of poverty mapping and is not a complete list of all the inclusive uses but only the very basic applications. The results of each thrust according to the poverty criteria have been illustrated visually using maps.

Table 5.1: Poverty Mapping Relevance

Thrust	Programme	Objective	Stakeholder	Poverty Mapping Applications
Thrust 1: Education	1)Infrastructure Development 2) Training and Development 3) Programmes	To ensure that all individuals living in the West Coast Region have equal access to education and training facilities as well as sufficient educational and skill development programmes to promote an increase in the level of education and skills base of the population.	▪ Dept Education (FET College) ▪ B - Municipalities ▪ Dept of Education ▪ Dept of Public Works & Transport ▪ Farm owners/managements ▪ Farm workers ▪ WCDM ▪ Private Sector ▪ Private sector, ▪ Local Government ▪ Dept of Social Services	▪ Use statistical data to determine where there is current low levels of educated individuals ▪ Use data to map where educational facilities are ▪ Correlate these two variables to determine where a demand exists for educational and training facilities according to level of education ▪ Map this data accordingly
Thrust 2: Health	1) Infrastructure Development 2) Medical Services 3) Medical Programmes 4) Training and Development	To ensure that all communities have equal access to basic health care and basic emergency and trauma care facilities and services.	▪ West Coast District Municipality ▪ Dept of Health ▪ Air Mercy Services ▪ B-Municipalities	▪ Use data to map where health facilities such as clinics etc. are located ▪ Use survey data to determine where there is a high demand for medical facilities ▪ Correlate these two variables to determine where a demand exists for health care facilities according to level of education ▪ Map this data accordingly to indicate where new facilities should be constructed
Thrust 3: Sport & Recreation	1) Infrastructure Development 2) Training and Development 3) Programmes	All children have the right to play in a safe environment and all members of a community should be able to access sport and recreational facilities and be provided with the needed equipment to take part in sport and	▪ B-Municipalities ▪ WCDM ▪ Private Sector ▪ Construction Sector ▪ West Coast Regional Office (Sport and Recreation) & Sport Forum	▪ Use the statistical data to determine where the current supply of sport facilities are in the West Coast Region ▪ Use the survey data to determine the level of access poor individuals have to these facilities and whether the supply meets the demand ▪ Map this gap analysis and indicate exactly where potential new infrastructure

Thrust	Programme	Objective	Stakeholder	Poverty Mapping Applications
		recreational facilities. The accessibility of leisure activities is just as essential in providing development opportunities for under-privileged individuals.		investment is to take place and where service delivery i.t.o sport and recreation can be more efficient to allow poorer individuals to access existing facilities etc.
Thrust 4: Local Economic Development	1) Infrastructure Development 2) Training and Development 3) Employment Strategy 4) Tourism Activities	The importance of a growing economy which will be able to have the sufficient labour absorption capacity to support the individuals residing within it is essential. The unemployment level has to be addressed to ensure that the households can sustain themselves through having a sufficient income and being able to access SMME development opportunities to further supplement their household incomes etc. The impact of tourism on the labour market and entrepreneurial base is forms a key aspect of the local economy.	▪ B-Municipalities ▪ WCDM ▪ Dept of Economic Development ▪ Deloitte, Touché Business Equity Initiative ▪ MENNGOS ▪ Dept of Education ▪ Private Sector ▪ Dept of Labour ▪ Dept of Transport, ▪ Regional Tourism Offices	▪ Use statistical data to determine where the settlements are with the highest unemployment levels ▪ Use statistical data to determine where the areas are with the lowest levels of household income ▪ Correlate these two variable to gain an understanding of where the greatest economical need is for job creation activities etc.
Thrust 5: Safety	1) Infrastructure Development 2) Training and Development 3) Community Involvement 4) Safety Programmes	All individuals have the right to live in a safe environment where they can access security and the relevant assistance of the South African Police Service.	▪ Dept of Public Works ▪ SAPS ▪ Dept of Education ▪ Dept of Social Services ▪ B-Municipalities	▪ Use the data from the South African Police Service to map where all the existing police stations are. ▪ Use the survey data to indicate where the highest demand for police services are ▪ Use the above supply and demand for safety services to map areas where a demand exists and where the SAPS could construct new satellite police stations etc. or improve the service which is currently

Thrust	Programme	Objective	Stakeholder	Poverty Mapping Applications
				provided at existing facilities to meet the demand.
Thrust 6: Social Development	1) Infrastructure 2) Communication 3) Service Delivery 4) Social Development Programmes	To ensure that disadvantage individuals can gain access to social support through grants and various programmes such as youth development programmes, elderly development programmes and certain support structures such as rehabilitation and trauma centres and youth care centres. The importance of various feeding schemes is essential in ensuring a healthy community. The aspect of affordability of goods and services to these disadvantaged communities is just as important to ensure that they can access basic goods and services to improve their current standard of living.	▪ Dept of Social Services ▪ Dept of Public Works ▪ Dept of Correctional Facilities ▪ B-Municipalities ▪ Dept of Health ▪ WCDM ▪ Private Sector ▪ Dept of Technology ▪ Dept of the Premier ▪ Dept of Home Affairs ▪ NGO's ▪ Dept of Education ▪ Farm owners ▪ Farm worker communities ▪ Department of Culture and Sport ▪ Department of Social Services ▪ Redo Door Initiative West Coast Region Business Development Centre	▪ Use the data which has been supplied by the Department of Social Services to indicate where the areas are with the highest number of individuals receiving social grants ▪ Use statistical data to determine where the various households with low income levels are ▪ Combine these two variables to map areas where social interventions is mostly needed in terms of social welfare demand
Thrust 7: Financial & Government Services	1) Infrastructure Development 2) Training and Development 3) Affordability	All individuals should be able to access financial services such as banking facilities and government services such as social	▪ Banking Sector ▪ Centre for e-Innovation ▪ Dept of Education ▪ Dept of Home	▪ Use the data which is given by the various financial institutions such as ABSA and FNB regarding their locations of ATM's etc. and map this ▪ Use the survey data according to access

| Thrust	Programme	Objective	Stakeholder	Poverty Mapping Applications
		welfare programmes to improve their standard of living. This should not be hampered by administrative and logistical aspects.	Affairs ▪ Dept of Social Services ▪ B-Municipalities ▪ Red Door Initiative and West Coast Region Business Development Centre	to financial services such as banks and ATM's and map their locations within the West Coast ▪ Combine these two variables to determine where the highest demand is for ATM's and banks especially in poorer areas
Thrust 8: Communication	1) Infrastructure Development 2) Training and Development 3) SMME Development	All individuals should be able to access communication means such as a telephone or a cell phone. The importance of computers and the internet is also stressed which will enable knowledge transfer and even more effective service delivery to take place.	▪ Telkom ▪ B-Municipalities ▪ Cell phone Service Providers ▪ WCDM ▪ Department of Communication ▪ South African Broadcasting Corporation Limited (SABC) ▪ Radio Broadcasting Facilities ▪ Dept of Education ▪ Private Sector ▪ Red Door Initiative ▪ West Coast Region Business Development Centre	▪ Use the statistical data to indicate how many households have access to a telephone ▪ Determine where the areas are where there aren't any telephones such as a pay phone etc. ▪ If these two datasets are correlated and mapped the map will illustrate where the areas are where new pay phones and other communication devices are most needed

Thrust	Programme	Objective	Stakeholder	Poverty Mapping Applications
Thrust 9: Land Reform	1) Infrastructure Development 2) Training & Development 3) Programmes	The land reformation process will enable individuals who were previously disadvantaged to gain access to land and enable them to gain tenure and start farming which will enable them to provide for their families. This process is crucial in alleviating poverty in rural communities.	▪ Dept of Agriculture ▪ Dept of Land Affairs ▪ Dept of Land Reform ▪ Dept of Transport ▪ WCDM ▪ Private Sector ▪ Red Door Initiative ▪ West Coast Region Business Development Centre ▪ Agri Western Cape ▪ NAFU ▪ Agriculture Industry organisations ▪ Agri-businesses ▪ Auditing firms ▪ B-Municipalities	▪ The Land reform statistics can be mapped in terms of the statistics of the actual land which is available for redistribution and what the take-up proportion is of this land in terms of the rollout of the land reform process to determine how effective the program is etc.
Thrust 10: Transport	1) Infrastructure Development 2) Training and Development 3) Safety 4) Affordability 5) Accessibility	To enable individuals to access a mode of transport that is affordable, accessible and safe.	▪ Dept of Transport ▪ Private Sector ▪ Dept of Public Works ▪ Education (schools) ▪ Dept of Transport ▪ Golden Arrow Bus Services ▪ Traffic Department	▪ The statistics on the number of individuals who do not have access to a mode of transport such as a bus or taxi etc. can be graphically illustrated ▪ The number of individuals who have access to transport according to survey data in the various areas can be mapped to indicated ▪ If these two variables are amalgamated then the results can be mapped in order to visually illustrate where the greatest need is for a better transport network in the West Coast

Thrust	Programme	Objective	Stakeholder	Poverty Mapping Applications
Thrust 11: Basic Services	1) Infrastructure Development 2) Training and Development 3) Service Delivery	To ensure that all people living in the West Coast Region have equal and accessible access to basic services such as water, electricity and sanitation.	▪ Eskom ▪ Dept of Housing ▪ B-Municipalities ▪ Dept of Education ▪ Dept of Environmental Affairs	▪ Use the statistical database to determine the areas where the number of households who do not have access to basic services such as electricity is given ▪ Use this data to map the areas where there is low levels of access and this can be mapped to help guide decision-making in terms of where electricity boxes etc. need to be installed etc.
Thrust 12: Housing	1) Infrastructure Development 2) Public Participation 3) Transport	The equal distribution of equitable access to formal housing for all individuals and increased tenure possibilities to secure an asset base for the poor.	▪ Dept of Housing ▪ B-Municipalities ▪ Dept of Education ▪ WCDM ▪ Religious Organisations ▪ Dept of Social Services ▪ Dept of Transport ▪ Private Sector	▪ Determine using statistical data the number of households who are living in formal dwellings ▪ Use statistical data from the department of housing to determine where new housing developments will be developed over a period of time ▪ Map this current supply and then correlate it with the areas where according to statistical data households live in informal dwellings and the results will illustrate where the greatest demand is for formal housing and where government should invest in a housing programme etc.
Thrust 13: Environment	1) Recreational Activities 2) Urban Agriculture 3) Working for Water 4) Working for Fire 5) Expanded Public Works Programme 6) Renewable Energy 7) Water Conservation 8) Pollution 9) Organic Farming	To ensure that the environment is conserved and that sustainability within the environmental sphere is achieved specifically relating to all poverty alleviation strategic objectives within all the communities of the West Coast Region.	▪ Cape Nature Conservation Board ▪ Provincial Nature Reserves ▪ Department of Agriculture ▪ Department of Environmental and Tourism Affairs ▪ Department of Water and Forestry ▪ West Coast Business Development Centre	▪ The statistical data which is available for this thrust is not sufficient therefore the mapping possibilities are limited as a result of this statistical inefficiency.

Thrust	Programme	Objective	Stakeholder	Poverty Mapping Applications
	10) Eco-Tourism		▪ Red Door ▪ Department of Public Works ▪ Department of Social Development and Poverty Alleviation ▪ Department of Energy Affairs ▪ Department of Solid Waste ▪ Department of Solid Waste ▪ West Coast Tourism ▪ Cape Town Tourism	

(West Coast Poverty Alleviation Strategy, 2006)

Map 5.2: Education
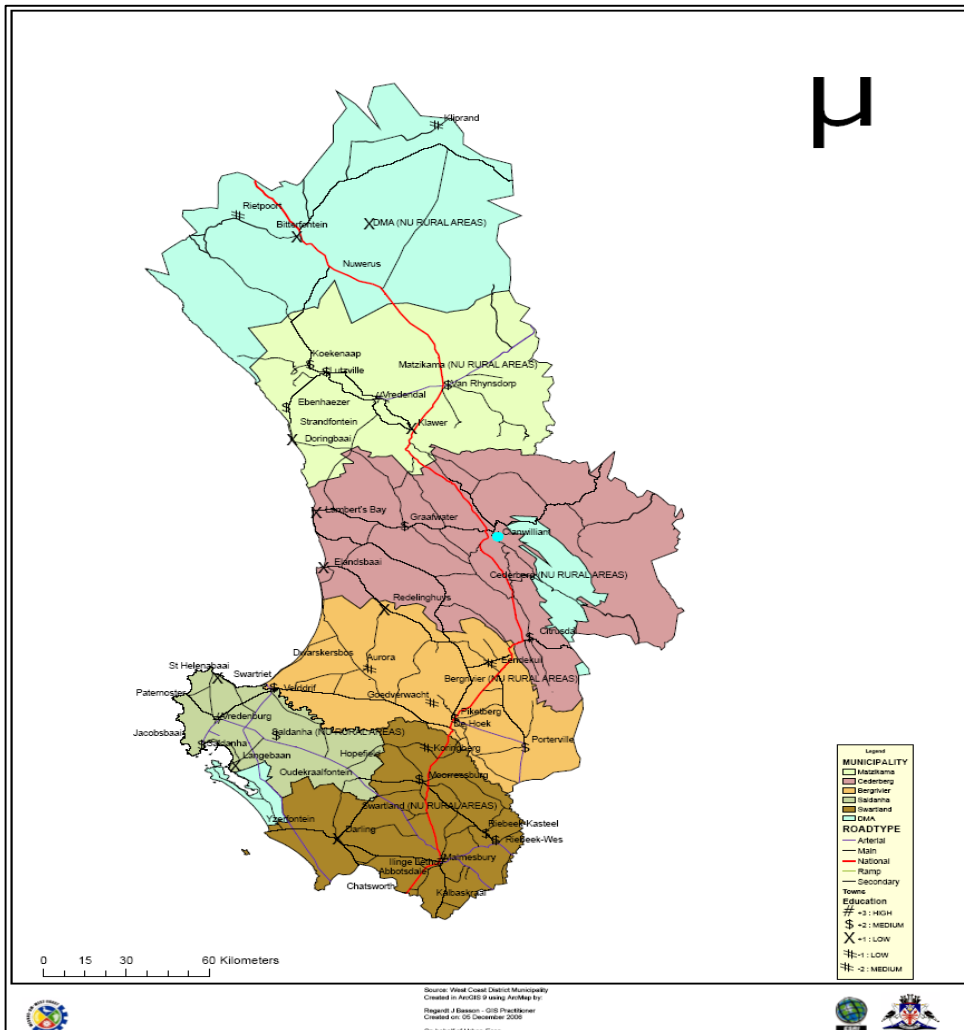
(Basson, 2006)

Map 5.2 is a GIS illustration of the results of the poverty criteria which have been mentioned and can be found in Appendix A. These criteria were rated and the results were combined for each of the thirteen thrusts. Specifically for the first thrusts which incorporates the poverty criteria relating to education. Therefore this map indicates where the settlements are in the West Coast Region where there is a rating of above or below the poverty line in relation to certain aspects such as:

1. Access to Educational Facilities

2. Level of Education

3. Access to Training

Therefore the map indicates where educational programmes and projects such as the construction of a primary school should be located. **Map 5.3** illustrates the poverty criteria rating for specific health related criteria.

Map 5.2: Health
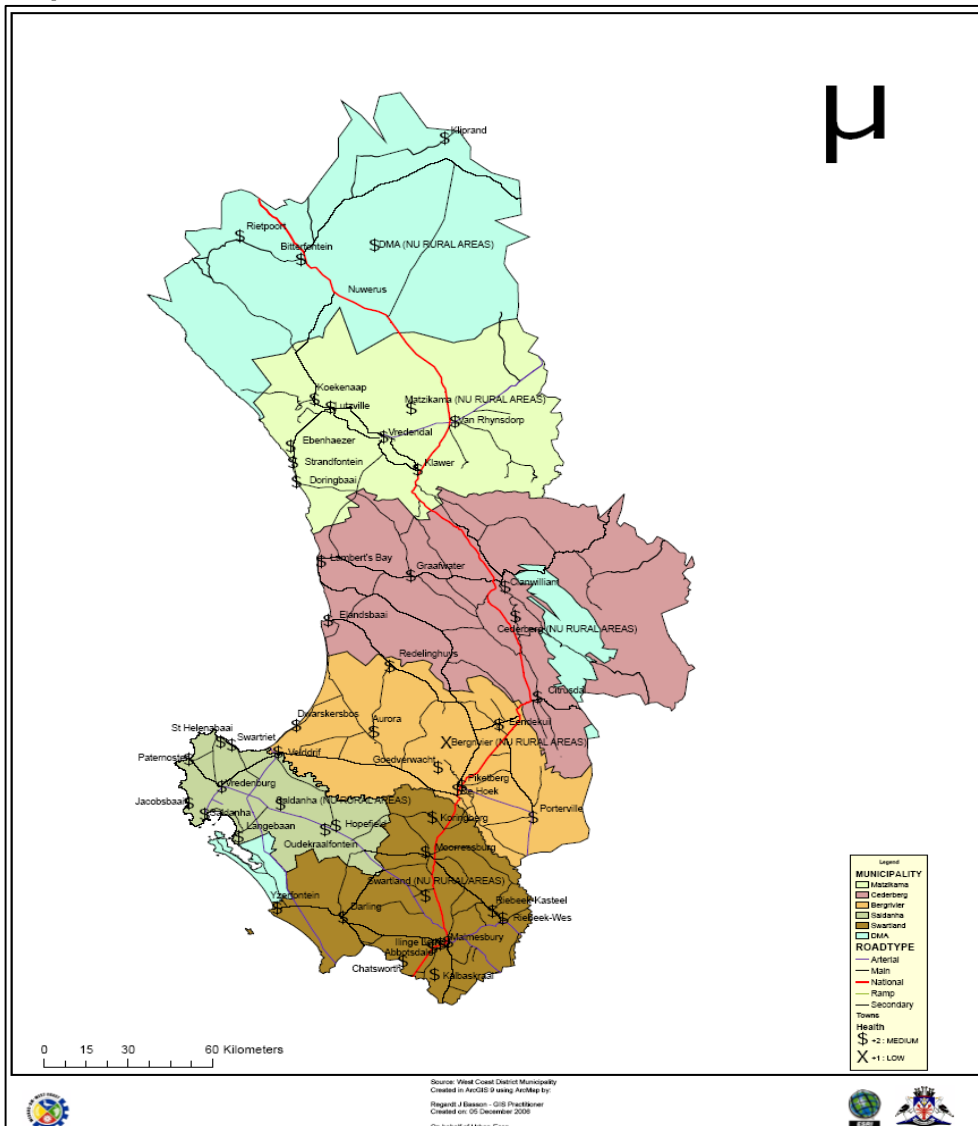
(Basson, 2006)

The above map indicates specific areas where poverty alleviation programmes and projects which are related to health care such as HIV/Aids awareness programmes need to be initiated. The areas with a specific health related needs are clearly indicated on the map using a specific legend. This will enable the local and district officials along with the specific role-players to identify where the greatest demands are.

5.6   Deduction

This chapter has been an indication of the various ways in which poverty mapping can add value to the WCPAS through various application benefits.

The major role of social policies such as the PAS is to ensure that all citizens who are trapped in a poverty cycle have the right to equal and fair access to services and are given a fair opportunity to exit the cycle which they were born into or because of inherent circumstances find themselves in.

The poverty mapping application has been practically applied to determine whether it wil add value to the WCPAS. The benefits which this decision support system can provide should provide the WCDM with motivation to utilise the GIS for poverty alleviation purposes which can be used for many purposes and specifically for poverty mapping to further increase the strategic decision-making process for all stakeholders involved in the process has been clearly illustrated.

The maps which will be generated through GIS will specifically enable the decision makers to make strategic decisions regarding where specific poverty pockets are. In terms of the poverty thrusts such as health where the physical location of clinics are mapped and where there is a low score in terms of access to health care facilities this will enable better planning to take place. Thus the various budgets for the various departments can make use of the GIS to align their projects which have been incorporated in the WCPAS to ensure effective

implementation. This is not just for physical infrastructure but it will enable decision makers to map poorer areas with the specific poverty criteria and further plan the implementation process of the poverty alleviation projects in a more effective manner. Thus the GIS will be a key tool in the poverty alleviation process.

Chapter Six: Recommendation and Conclusion

6.1   Introduction

To conduct a systematic examination of the applications and use of poverty maps, the researcher made use of a case study approach. Such an approach which made use of a series of data gathering methods was identified as a rapid, cost effective way to document successful and appropriate uses of poverty maps.

The major patterns and themes which emerged from the case study and the literature review which were conducted indicated towards various best practices which should be followed and which are recommended by other government bodies that currently make use of a GIS for poverty mapping.

The four major aspects which will be discussed as recommendations for the WCDM, which will enable them to avoid key mistakes if they implement the proposed GIS within their organisation and specifically for poverty mapping is as follows:

1. Demand issues – Status Quo
2. Dialogue, collaboration and dissemination
3. Capacity development
4. Long-term sustainability

6.2   Demand Issues

Linkages between user demand and subsequent applications of poverty maps form a key aspect of poverty mapping's effectiveness. There is a strong linkage between the production of maps and the demand which is created by the decision-makers who make use of the maps. One of the key observations which have been documented is that when users of poverty mapping have a high

demand for the maps and have been involved since the start then they were in a better position to influence critical decisions, such as methodological and datasets to be used as well as the level of map resolution. Therefore this increase in user participation meant that the proposed poverty maps were suitable for immediate application upon their completion etc.

A strong user demand can also lead to more fundamental changes in the process of public decision-making. The poverty maps ensures that there is a scientific application tool which can assist public officials in allocating funds and their strategic planning tasks for their demarcated area.

6.3 Dialogue, Collaboration & Dissemination

The support of senior staff members is of utmost importance. This level of support is crucial to the success of poverty map production and use, especially when there are issues of data access and testing of new statistical methods. There is a very large need to collaborate the various efforts of the different parties involved. This is specifically for the producers and users of the poverty maps. Finally the extensive and strategic dissemination of poverty maps is crucial if poverty maps are to be widely used to influence decision-making in government and among other users in society.

6.4 Capacity development and long-term sustainability

One of the most significant impacts of poverty mapping is on the institutional strengthening through capacity development of any organisation of government body which makes use of poverty mapping. The technical skills of the members of the organisation who make use of the GIS for poverty mapping will rise.

Experience with poverty mapping has led to greater institutional awareness of the need for better co-ordination of efforts especially with respect to survey and census design, data issues such as:

o Collection
o Processing
o Analysis
o Data standards
o Data sharing

The poverty mapping approach will only be effective if the data sets that is compiled not only for current analysis but for future usage is of long-term standards which requires better co-ordination among institutions responsible for baseline data, such as surveys and statistic and GIS.

6.5   Recommended actions

The following recommended actions are necessary for the WCDM to have a sustainable poverty mapping system. Firstly it is essential that a preliminary poverty mapping needs assessment that identifies the following steps are taken which will assist in the development of a useful and accurate map of the poor in the West Coast Region:

o Definition of purposes and expected uses of mapping
o Statistical and mapping agencies and universities that should be involved in the development of data, mapping and analyses
o Methodological approaches and datasets to be used
o Assessment of optimal level of map resolution and data quality for expected uses and whether this level is currently achievable technically
o Technical support required
o Budget and funding sources

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o Outreach strategies to reach target audience

o Evaluation of the process, including monitoring of how maps are used, by whom, and user feedback.

The above steps are essential in ensuring the successful use and continued effectiveness of the proposed poverty mapping application within the municipality. After the preliminary poverty mapping needs assessment has been conducted, it is essential that the municipality approached the poverty mapping application in a sustainable manner. How this can be achieved is discussed below.

6.6   Sustainable Poverty Maps

The PAS in the West Coast Region has to take into account the sustainable poverty mapping principles as discussed in **Chapter 3.7**. The maps which will be developed, have to enhance the tools for development and for this to be implemented effectively, the seven steps for sustainable poverty mapping have to be taken in order to ensure a sustainable approach to poverty alleviation through the decision-support application of poverty mapping within the region according to Henniger & Snel (2002:37).

The seven steps will be discussed accordingly to indicate how they should be incorporated into the poverty mapping process of the WCPAS and the specific GIS.

STEP 1: Recognising the need for universal application: Policies such as the WCPAS require solid, detailed information about where poor people live and the resources the poor can use to improve their lives. Poverty maps should have the following four characteristics: (Henniger & Snel, 2002)

1. The data must be timely

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2. Mapping should be done over time so that changes in poverty can be monitored and assessed

3. Poverty maps should be based on high-resolution data so that citizens and authorities at all levels of government can assess their status and use the data for improvement

4. The data should be of known quality

STEP 2: Involving stakeholders from the very start: Stakeholders should be involved from the start of the process through a multi-institutional, multi-stakeholder approach with the support of the national, provincial and local community (Henniger & Snel, 2002).

STEP 3: Sustaining the effort: Mapping the poor is a technical and political task. It is essential that government takes steps to cultivate political support to sustain the technical effort over decades. These actions involve gaining support in relation to: (Henniger & Snel, 2002)

o Financial resources – GIS is a costly information system and this should be kept in mind especially concerning its efficiency. Many local municipalities do not have the budget to develop and maintain such a system.

o Providing training for key staff – A GIS specialist is required to manage such a system and various staff members need training in order to utilise the system properly.

o Developing a cadre of broadly trained analysts

o Creating incentives to retain skilled analysts in the public sector

o Securing appropriate equipment – Appropriate software and hardware is required.

o Conducting a high quality census and periodic regional household surveys to generate essential data

o Developing data and map standards

- o Providing support to Universities and research centres that can assist with map development as well as rigorous analysis and evaluation of map uses and impacts
- o Committing to more transparent decision-making that takes into account both technical and political considerations

STEP 4: Ensuring access to data: It is essential that the legislative framework which has been set by national, provincial and local government is adhered to as far as possible concerning poverty alleviation as set out in chapter three. This is essential in that the distribution of poverty information has to be for all those who have a need for this type of information. The various spheres of government need to ensure that their GIS is compatible with each other to ensure that the GIS can maintain a certain standardised output (Henniger & Snel, 2002).

STEP 5: Encouraging innovative uses: Poverty maps are an important tool for developing poverty reduction strategies. In the case of the West Coast, the strategy was developed first ahead of the maps although many of the poverty mapping principles were applied. The maps can add value to the existing strategy through countless applications to improve the decision-making process tremendously (Henniger & Snel, 2002).

STEP 6: Supporting research on methods: A number of methods can be used to map the poor. Some are more statistically sound than others, some though less rigidly methodological, are less costly and still valuable for selected applications. Thus various research methods should be valued on the output rather than the strict methodological approaches behind the application (Henniger & Snel, 2002).

STEP 7: Developing a poverty mapping strategy: Enabling the WCDM to develop and maintain the poverty maps and make them widely available will take time, strong technical and institutional support, and leveraged funding. A poverty

mapping strategy has to develop according to the long terms objectives of the Municipality regarding poverty alleviation (Henniger & Snel, 2002).

6.7   Conclusion

This thesis has been conducted to determine what the potential use of GIS poverty maps could be to the WCDM who recently developed a PAS.

The Poverty Mapping application is drawn from a larger geographical application in terms of the GIS which can be used for poverty mapping specifically. The poverty mapping applications are countless and it has been clearly indicated that there are numerous ways in which such an application can be implemented within the District Municipality and the effect which it will have in terms of improving the quality of decisions which have to be made by council and various other stakeholders is extremely positive.

The poverty mapping application can add value to the strategic management of the regions resources, but this has to be done in a scientific and sustainable manner to ensure that the technical and financial commitment which is required in order for poverty mapping application to be a success.

Therefore given these findings, it is vital that poverty mapping is recommended for the WCDM in terms of a GIS which will have a positive effect on numerous other departments within the municipality and not just the department of Social Development.

Therefore the findings of this research indicate that the poverty mapping application will support the effective implementation of the poverty alleviation process in the West Coast Region.

It assists in addressing poverty alleviation and human development most effectively through the creation of enabling environment where decisions are made, by ensuring that the information which is required is given in an effective and efficient manner which can be illustrated on **Map 6.1** below to improve the process.

Map 6.1: Poverty Criteria Ratings for WCPAS
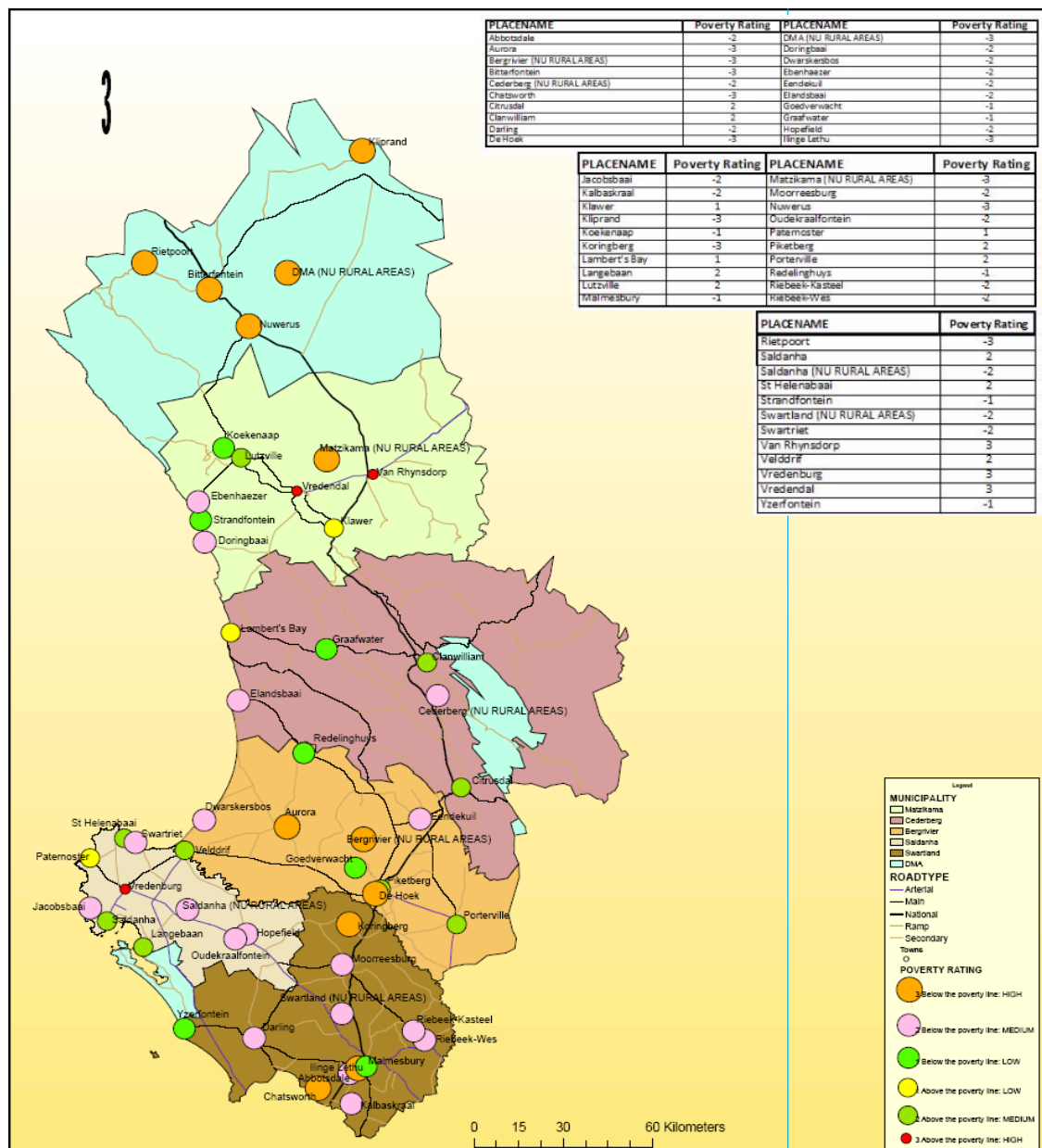
(Basson, 2006)

Map 6.1 illustrates the various areas where there is a poverty rating above the poverty line and where the areas are which have received a rating below the poverty line. This map can help the planning and implementation process of the PAS.

It is essential to note that the poverty mapping application will have a very positive impact on the actual implementation process of the numerous poverty alleviation programmes and projects which form part of the WCPAS. Therefore the potential which the WCPAS has to alleviate poverty will be fully realised through an added application to ensure that the strategy is implemented to the optimal level of strategic thinking and decision-making.

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Appendix A

A.1 Poverty Criteria Ratings

The following section will define the identified criteria and their specific rating which will be used in the poverty matrix. The matrix was developed as part of the PAS (Urban-Econ, 2006). It is important to mention that the poverty line will be determined in terms of being above the poverty line which will result in a score as follows:

Above poverty line:

+3 (**High**)

+2 (**Medium**)

+1 (**Low**)

 0 (**Not Applicable**)

Below the poverty line:

-1 (**Low**)

-2 (**Medium**)

-3 (**High**)

Therefore each criterion will receive a score according to the specific degree of poverty as indicated above.

Criteria 1:   Access to Training

All individuals who do not have access to a training facility are below the poverty line. Specifically this includes all towns where there are none of the following facilities for individuals to access:

☐   Adult learning Centers (High -3)

- Learning Centre (Medium -2)
- Community Learning Centers (High -3)
- Military Academy literacy school or Multi-Purpose Centre (Low -1)
- College (Medium -2)

All individuals who do have access to a training facility are above the poverty line. Specifically this includes all towns where there are certain or all of the following facilities for individuals to access for training purposes:

- Adult learning Centers (High +3)
- Learning Centre (Medium +2)
- Community Learning Centers (High +3)
- Military Academy literacy school (Low +1)
- College (High +3)

Criteria 2:   Level of Education

All individuals who do not have a formal education up to Grade 7 are classified as being below the poverty line. This is indicated as follows:

- No education (High -3)
- Some primary (Medium -2)
- Complete Primary up to Grade 7 (Low -1)

All individuals who do have a formal education up to Grade 12 as well as a tertiary qualification are classified as being above the poverty line. This is indicated as follows:

- Some secondary (Low +1)
- Complete Secondary up to Grade 12 (Medium +2)
- Tertiary (High +3)

Criteria 3:   Access to Educational Facilities

All individuals who reside in a town where there isn't an educational facility such as a Crèche, Pre-primary school and a Primary School are below the poverty line. If an educational facility such as a High School is further than 20km away then they are also below the poverty line. This is measured as follows:

☐   Primary (High -3)

☐   Pre-primary or Crèche (Medium -2)

☐   High School (further than 20km) (Low -1)

All individuals who have access to the following educational facilities are classified as being above the poverty line. This is indicated as follows:

☐   Tertiary Facilities (High +3)

☐   High School (Medium +2)

☐   Primary School, Pre-Primary and Crèche (Low +1)

Criteria 4:   Access to Health care facilities

If an individual does not have access to any type of clinic then they are below the poverty line. Individuals who have access to a hospital are above the poverty line. This is measured in the following categories in terms of being below the poverty line:

☐   Satellite Clinic (High -3)

☐   Mobile Clinic (Medium -2)

☐   Clinic (Low -1)

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All individuals who do have access to the following healthcare facilities are classified as being above the poverty line. This is indicated as follows:

☐ Private Hospital (High +3)

☐ Hospital (Medium +2)

☐ Community Health Centre (Low +1)

Criteria 5: Access to trauma care facilities

Any individual who does not have access to a trauma care facility (i.e. at a police station) is below the poverty line. This is directly dependent on access to security therefore as all police stations have a trauma care facility the results will be the same i.t.o access to security and access to a trauma care facility. This is indicated as follows for being below the poverty line:

☐ Not at a Police Station or a Hospital (High -3)

☐ Not at a Hospital (Medium -2)

☐ Not at a Police Station (Low -1)

All individuals who do have access to a trauma care facility are classified as being above the poverty line. This is indicated as follows:

☐ At a Hospital and Police Station (High +3)

☐ At a Hospital (Medium +2)

☐ At a Police Station (Low +1)

Criteria 6: Access to medical emergency care

All individuals in the West Coast who do not have access to medical emergency care in the form of an ambulance, air medical rescue etc. are below the poverty line. This is indicated as follows for being below the poverty line:

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- No Metro Ambulance Service (High -3)
- No Net care Ambulance Services (Medium -2)
- No Air Medical Services (Low -1)

All individuals who do have access to the following medical emergency services are classified as being above the poverty line. This is indicated as follows:

- Air Medical Services and an Ambulance Service (High +3)
- Net Care Ambulance Services (Medium +2)
- Metro Ambulance Services (Low +1)

Criteria 7:   HIV/Aids Awareness Programmes

This criterion cannot be measured specifically for an area as various HIV/Aids programmes are implemented at the **majority of towns in the West Coast**. The individuals who do not have access to these programmes are mostly people living in rural settlements and farm workers etc. Therefore it won't be illustrated, as in most urban settlements and towns there are existing HIV/Aids awareness programmes. **Therefore the rating for this criterion will be 0 as it will not be applicable in terms of being a poverty indicator.**

Criteria 8:   Access to sport facilities

There are various recreational facilities in the West Coast and the rating will be given in terms of the access to these facilities in each town. A rating of one will be given if there is a sport facility in a settlement and -1 if there is no such facility.

This is indicated as follows for being below the poverty line:

- No sport facilities (High -3)

- No School ground Sport facilities (e.g. rugby field) (Medium -2)
- No Basic Sport Facilities (e.g. municipal sport grounds) (Low -1)

All individuals who do have access to the following recreational facilities are classified as being above the poverty line. This is indicated as follows:

- Sport Centre (High +3)
- Basic Sport Facilities (Medium +2)
- School ground Sport facilities (Low +1)

Criteria 9:   Access to recreational and leisure activities

The access to leisure activities will be rated according to whether there is a leisure activity such as a hiking trail, golf course etc. which can be accessed easily by the general public.

This is indicated as follows for being below the poverty line:

- No leisure activities (High -3)
- No basic leisure and recreational activities (e.g. picnic ground, golf course etc.) (Medium -2)
- No exclusive leisure activities (e.g. yachting) (Low -1)

All individuals who do have access to the following leisure activities are classified as being above the poverty line. This is indicated as follows:

- Exclusive Leisure activities (High +3)
- Leisure and recreational activities (e.g. bowls etc.) (Medium +2)
- Basic leisure and recreational activities (e.g. picnic ground) (Low +1)

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Criteria 10: Employment Status

The employment status will be rated regarding whether the individuals are employed which will put them above the poverty line and unemployed will put them below the poverty line. **As there are only two levels this criterion will only receive a rating of +3, +2 or -3, -2.**

This is indicated as follows for being below the poverty line:

☐   Unemployed (High -3)
☐   Seasonal Employment (Medium -2)

All individuals who are employed are classified as being above the poverty line. This is indicated as follows:

☐   Employed (High +3)
☐   Economically Active (Medium +2)

Criteria 11: Household Income & Expenditure

The household income and expenditure will be rated according to the income per household in each settlement. The poverty line will be any monthly household income below R1, 518 and will be classified as being below the poverty line.

This is indicated as follows for being below the poverty line:

☐   R 0 (High -3)
☐   R 1 – R 800 (Medium -2)
☐   R 801 – R 1 600 (Low -1)

All individuals who earn the following monthly incomes are classified as being above the poverty line. This is indicated as follows:

- R 25 601 + (High +3)
- R 6 401 – R 25 600 (Medium +2)
- R 1 601 – R 6 400 (Low +1)

Criteria 12: Tourism Development

The tourism potential for each area will be rated in terms of the specific tourism activities in the area is the opportunities which these activities present to the individuals residing in the area. Therefore the various number of tourism activities in the area will be used to determine the impact it will have on job creation and various multiplier effects will be used to finally rate the level of tourism development in each town and the effect it will have on employment etc. This will act as a poverty indicator and will not be given a poverty rating. **The rating will therefore be 0 as it is non applicable.**

Criteria 13: SMME Development

The SMME Development will be rated in terms of the access which individuals have to a business development centre. The poverty line will be measured in terms of the individuals who live within 100km of a business development centre. The town with business development centre will be above the poverty line but any other towns which are situated further than 100km from the centre will fall below the poverty line.

This is indicated as follows for being below the poverty line:

- No Business Development Centre (High -3)
- Business Development Centre within a radius of 200km (Medium -2)

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☐   Business Development Centre within a radius of 100km (Low -1)

All individuals who do have access to a business development centre are classified as being above the poverty line. This is indicated as follows:

☐   Access to Business Development Centre and Red Door Initiative (High +3)

☐   Access to a Red Door Initiative (Medium +2)

☐   Access to a Business Development Centre within a radius of <100km (Low +1)

Criteria 14: Access to Security

The number of police stations and other related facilities and activities will be used to rate the level of access which an individual has to security. This will be limited to a facility within each town. If there is not a police facility in the town then the rating will be below the poverty line.

This is indicated as follows for being below the poverty line:

☐   No Police Stations and Neighborhood Watch Programs (High -3)

☐   No Police Stations (Medium -2)

☐   No Neighborhood Watch Programs (Low -1)

All individuals who do have access to the following security services are classified as being above the poverty line. This is indicated as follows:

☐   Police Stations and Neighborhood Watch Programs (High +3)

☐   Police Stations (Medium +2)

☐   Neighborhood Watch Programs (Low +1)

Criteria 15:   Access to Grants

The number of grants per area will be used to provide a rating for access to grants. If there is an area which does not have a pay point then it will be rated as being below the poverty line. The following criterion will be rated only in terms of one level of measurement i.e. 3 if there is a pay point in towns and -3 if there is no pay point in a town.

This is indicated as follows for being below the poverty line:

☐   No Pay Point (High -3)

All individuals who do have access to a pay point are classified as being above the poverty line. This is indicated as follows:

☐   Pay Point (High +3)

Criteria 16:   Access to Youth Care Facilities

This criterion will be rated according to the number of youth care facilities in the region. There is currently not a youth care facility in the West Coast therefore the criterion will be rated as being below the poverty line.

This is indicated as -3 for being below the poverty line for all settlements within the West Coast Region.

Criteria 17:   Youth Development

This criterion will not be used to provide a rating for each town in the West Coast due to the lack of information available for all existing youth programmes. This criterion will be used to provide a situational analysis and the potential impact

which youth development could have on poverty alleviation. **The rating will therefore be 0 as it is non applicable.**

Criteria 18: Elderly Development

This criterion will not be used to provide a rating for each town in the West Coast due to the lack of information available for all existing elderly development programmes. This criterion will be used to provide a situational analysis and the potential impact which programmes for the elderly could have on poverty alleviation etc. **The rating will therefore be 0 as it is non applicable.**

Criteria 19: Access to Identity Documents

The access to identity documents can only be measured according to the survey data and therefore as the Dept of Home Affairs do not have formal statistical data available per geographical area, this criterion will be used as a poverty indicator and not measurement as was discussed in Chapter 5. **The rating will therefore be 0 as it is non applicable.**

Criteria 20: Access to Rehabilitation Centers

The access to a substance abuse rehabilitation centre is a key poverty criterion. There are no state rehab centers in the West Coast therefore all citizens have no access and the rating will be below the poverty line. The ratings will only be high and medium as there are only two categories.

This is indicated as follows for being below the poverty line:

- No Rehabilitation Centers (High -3)
- No Private Rehabilitation Centers (Medium -2)

All individuals who do have access to the following medical emergency services are classified as being above the poverty line. This is indicated as follows:

☐   Private and Public Rehabilitation Centers (High +3)
☐   Public Rehabilitation Centers (Medium +2)

Criteria 21: Nutritional Services

The nutritional services will be used to provide an indication of the number of people who make use of these services. The rating will be in terms of access to these services. Many of these feeding schemes are not done by a formal organization and therefore this rating will be done in terms of information which was gathered during the survey. If there are nutritional services in the towns then it will receive a rating of being above the poverty line etc. **The nutritional services will be evaluated up to a municipal level as the data available for towns and other settlements is not available. Therefore a rating will be given for the municipality as a whole but the settlements will receive a rating of 0 for not applicable**.

This is indicated as follows for being below the poverty line:

☐   No nutritional services (High -3)
☐   No soup kitchen (Medium -2)
☐   No food parcel or meal voucher (Low -1)

All individuals who do have access to the following nutritional services are classified as being above the poverty line. This is indicated as follows:

☐   Access to soup kitchen(High +3)
☐   Access to food parcel (Medium +2)
☐   Access to meal voucher (Low +1)

Criteria 22: Affordability

The affordability criterion will be used to determine whether the individuals living in the West Coast can actually afford various basic goods and services. The affordability rating will service as an indicator and not in terms of a specific rating measurement. Therefore the affordability criterion will provide an indication of what a less privileged individual can afford and what not in terms of their monthly household expenditures etc. **The rating will therefore be 0 as it is not applicable.**

Criteria 23: Affordability of Financial Services

Various financial services which are provided by financial institutions such as a bank which can provide access to loans, banking facilities etc for all individuals will be rated. This criterion will be measured in terms of the affordability of these services. This will relate to the average banking costs for a normal current account at a bank and whether it is affordable. A generic budget for a poor household will be calculated and the disposable income will be used as an indication of affordability and whether basic financial services such as a bank account can be afforded. The average household in a region which falls below the poverty line in terms of household income will be used in terms of the budget along with data from the survey to rate the percentage of households who fall below the poverty line in terms of affordability of financial services.

This is indicated as follows for being below the poverty line:

- R 0 (High -3)
- R 1 – R 800 (Medium -2)
- R 801 – R 1 600 (Low -1)

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All individuals who earn the following monthly incomes are classified as being above the poverty line in terms of affordability. This is indicated as follows:

▢ R 25 601 + (High +3)
▢ R 6 401 – R 25 600 (Medium +2)
▢ R 1 601 – R 6 400 (Low +1)

Criteria 24:   Affordability of Government Services

The affordability of Government services will be determined according to the number of households in a town who earn an income of less than R1, 640 and qualify for an equitable share subsidy. These individuals cannot afford basic services and therefore qualify for a subsidy. This is indicated as follows for being below the poverty line:

▢ R 0 (High -3)
▢ R 1 – R 800 (Medium -2)
▢ R 801 – R 1 600 (Low -1)

All individuals who earn the following monthly incomes are classified as being above the poverty line and do not qualify for an equitable share subsidy. This is indicated as follows:

▢ R 25 601 + (High +3)
▢ R 6 401 – R 25 600 (Medium +2)
▢ R 1 601 – R 6 400 (Low +1)

Criteria 25:   Access to financial and business support services

This criterion will be used to measure the number of people who have access to financial and business support services. The towns within a 40 km radius of a

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bank or a business support centre will be rated as having access and therefore being above the poverty line. All towns that are outside of this radius will be seen as not having access and therefore will be classified as being below the poverty line.

This is indicated as follows for being below the poverty line:

☐   No bank and business support centre (High -3)
☐   No bank (Medium -2)
☐   No business support centre (Low -1)

All individuals who do have access to the following financial and business support services are classified as being above the poverty line. This is indicated as follows:

☐   Bank and business support centre (High +3)
☐   Bank (Medium +2)
☐   Business support centre (Low +1)

Criteria 26:   Access to Banks & ATM's

The number of ATM's and banks in the West Coast will be compared to the settlements. If the bank or ATM is further than 20km from the settlement then access is restricted and all individuals are seen as not having access to these facilities and will be classified as being below the poverty line. This criterion will only be measured in terms of one category.

This is indicated as follows for being below the poverty line:

☐   No Banks and ATM's (Low -1)

All individuals who do have access to Banks and ATM'S are classified as being above the poverty line. This is indicated as follows:

☐ Banks and ATM's (Low +1)

Criteria 27:   Access to Telephones

All individuals who have access to a telephone within their home or a cell phone are classified as having access and being above the poverty line. Individuals who do not have this type of access are below the poverty line.

This is indicated as follows for being below the poverty line:

☐ No Telephone (High -3)
☐ No Cell phone (Medium -2)
☐ No Public phone (Low -1)

All individuals who do have access to telephones are classified as being above the poverty line. This is indicated as follows:

☐ Access to a telephone and a cell phone (High +3)
☐ Access to a cell phone (Medium +2)
☐ Access to a public phone (Low +1)

Criteria 28:   Access to Computers and Internet

Access to computers can be defined as individuals who have access to computers within their dwellings or at a nearby neighbour or facility such as an internet café or a MPC. Anybody who cannot access a computer at any of the above mentioned facilities or locations are classified as being below the poverty

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line. Therefore the following criterion will only have two categories and will only receive a medium and high.

This is indicated as follows for being below the poverty line:

☐   No Computer and Internet (High -3)
☐   No Internet(Medium -2)

All individuals who do have access to computers and internet are classified as being above the poverty line. This is indicated as follows:

☐   Access to Internet and Computer (High +3)
☐   Access to Computer (Medium +2)

Criteria 29:   Land Reform

This criterion is an indication of the availability of land to previously disadvantaged individuals. It will not be rated but will act as a poverty indicator in terms of the land reform process and the actual access which individuals have and the criteria they have to meet in order to get access to land etc. **The rating will therefore be 0 as it is non applicable.**

Criteria 30:   Access to Transport

Access to transport will be measured according to the mode of transport which individuals use to get to school and work. All individuals who do not use a formal mode of transport but travel on foot etc. do not have access to transport and are classified as being below the poverty line. This criterion will only be measured according to high and medium measurements.

This is indicated as follows for being below the poverty line:

☐   Travel on foot (High -3)

☐   Travel by bicycle (Medium -2)

☐   No subsidised transport system (Low -1)

All individuals who do have access to the following transport are classified as being above the poverty line. This is indicated as follows:

☐   Travel by Car (High +3)

☐   Travel by Public Transport (Medium +2)

☐   Subsidized transport system (Low +1)

Chapter 31: Access to Water

All individuals who can access piped water at their own dwellings on site and at a public tap less than 200 meters away have basic access to water. All individuals who make use of other sources of water are classified as being below the poverty line in terms of access to water.

This is indicated as follows for being below the poverty line:

☐   No access to water (High -3)

☐   Access to other water sources (Medium -2)

☐   Piped water on community stand: distance greater than 200m (Low -1)

All individuals who do have access to piped water are classified as being above the poverty line. This is indicated as follows:

☐   Piped water inside dwelling (High +3)

☐   Piped water inside yard (Medium +2)

☐   Piped water on community stand: distance less than 200m (Low +1)

Criteria 32:   Access to Energy

This criterion is classified as individuals who have access to the following types of energy are above the poverty line and individuals who do not have access to electricity are below the poverty line.

This is indicated as follows for being below the poverty line:

☐   No immediate access to Electricity (High -3)

☐   No immediate access to Gas (Medium -2)

☐   No immediate access to Paraffin (Low -1)

All individuals who do have access to the following types of energy are classified as being above the poverty line. This is indicated as follows:

☐   Access to Electricity (High +3)

☐   Access to Gas (Medium +2)

☐   Access to Paraffin (Low +1)

Criteria 33:   Access to Sanitation

The level of access for sanitation services are described according to the sanitations facilities which are connected to a sewerage system and a septic tank and a chemical toilet. All individuals making use of other sanitation facilities are below the poverty line.

This is indicated as follows for being below the poverty line:

☐   No sanitation facilities (High -3)

☐   Bucket latrine (Medium -2)

☐   Pit latrine (Low -1)

All individuals who do have access to the following sanitation facilities are classified as being above the poverty line. This is indicated as follows:

☐   Flush toilet (sewerage) (High +3)
☐   Flush toilet (septic) (Medium +2)
☐   Chemical toilet (Low +1)

Criteria 34:   Dwelling Type

All individuals who live in informal dwellings will be classified as being below the poverty line in terms of the dwelling type poverty criterion.

This is indicated as follows for being below the poverty line:

☐   Informal dwelling (High -3)
☐   Traditional dwelling (Medium -2)
☐   Caravan or tent (Low -1)

All individuals who do have access to the following dwelling types are classified as being above the poverty line. This is indicated as follows:

☐   House (High +3)
☐   Town house, cluster, semi-detached house (Medium +2)
☐   Room, flatlet (including a room or a flatlet in backyard) (Low +1)

Criteria 35:   Tenure

The tenure type criterion will be a poverty indicator and will be used to indicate the number of individuals in each settlement who actually own their own property

etc. This will enable an understanding of asset base potential for the poor. This criterion will only be measured according to high and medium measurements.

This is indicated as follows for being below the poverty line:

☐ Occupied rent free (High -3)

☐ Rented (Medium -2)

All individuals who do have access to the following types of tenure are classified as being above the poverty line. This is indicated as follows:

☐ Owned and fully paid off (High +3)

☐ Owned but not yet fully paid off (Medium +2)

Criteria 37:   Access to Housing

The access to housing criterion will serve as an indicator in terms of the number of low cost houses which have been built in the West Coast and the current projects which are underway. This will enable the comparison between the demand for houses and the current supply by government to meet this demand and whether everyone has equal access etc. **The rating will therefore be 0 as it is non applicable.**

Appendix B

Map B.1 Poverty Pockets in West Coast region
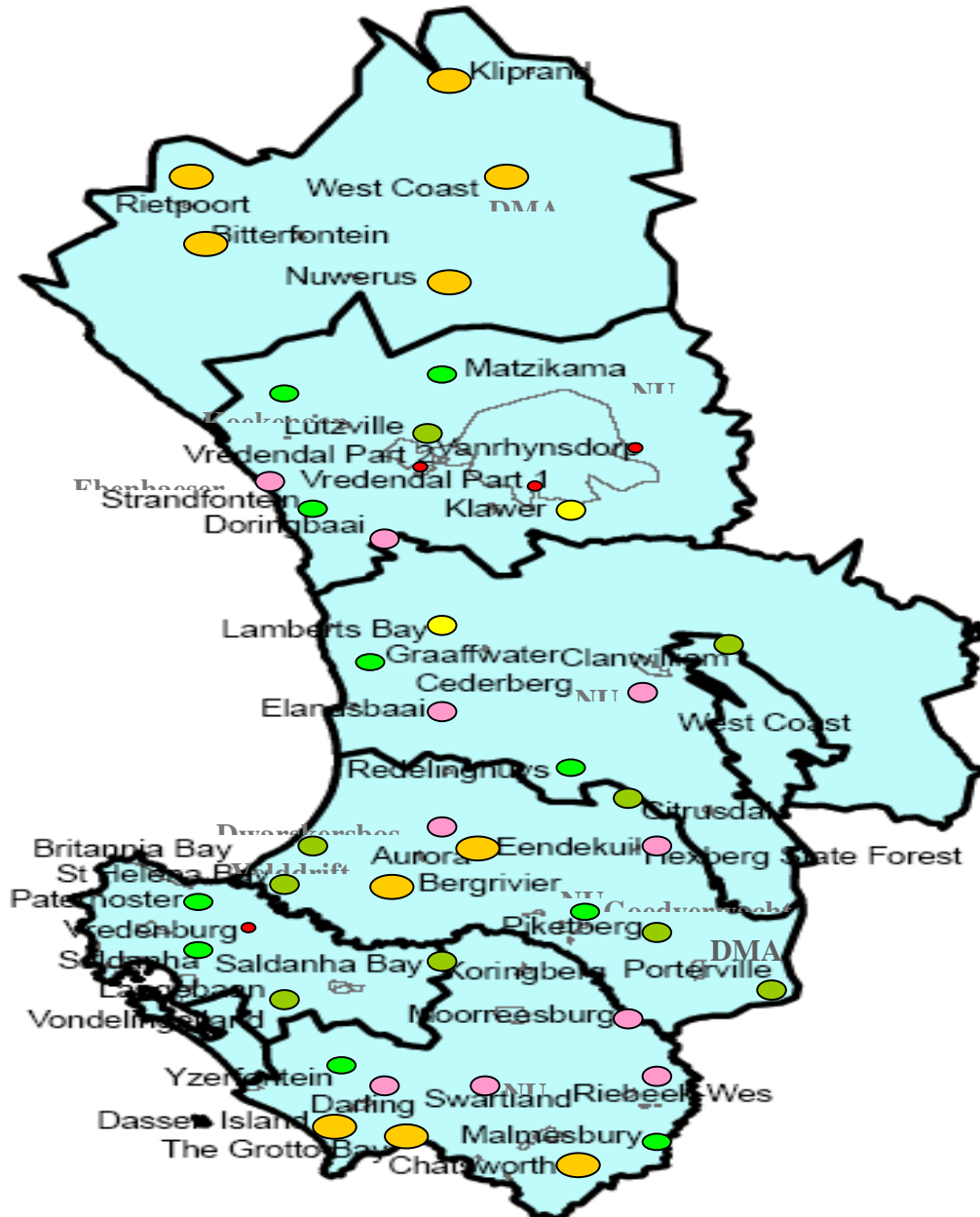
(West Coast Poverty Alleviation Strategy, 2006)

Poverty Map Key:

KEY	POVERTY LINE	RATING
🟠	-3 Below the Poverty Line	High
🟣	-2 Below the Poverty Line	Medium
🟢	-1 Below the Poverty Line	Low
🟡	+1 Above the Poverty Line	Low
🟢	+2 Above the Poverty Line	Medium
🔴	+3 Above the Poverty Line	High