

**PUBLIC OPEN SPACE POLICY FOR DURBAN AND SURROUNDINGS :
IS IT SUSTAINABLE ?**

by

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**Submitted in partial fulfilment of the requirements
For the degree of Masters in Town and Regional Planning
University of Natal.**

**Durban
1998**

This dissertation has been the culmination of many years of life experience,
travels far and wide and the support and help of a many people.

For everything, thank you.

Special thanks to my supervisor, Dr. Alison Todes.

Thank you for the inspiration, to those that in the face of adversity still make
a difference.

ABSTRACT

This thesis provides an overview of the public open space policy for Durban and surroundings. The focus of the research is the sustainability of the open space policy with special emphasis on the integration of the natural environment, social aspects and economic factors within the open space system itself. Through this dissertation an attempt was made to ascertain to what extent the Open Space Policy of the Durban Metropolitan Area is sustainable. In order to achieve this it was necessary to specifically consider the status quo of the current open space policies internationally and locally with emphasis on the ecologically orientated Durban Metropolitan Open Space System. More appropriate public open space within the natural environment and urban context was considered, especially in respect of social needs and the aspirations and perceptions of communities with regards parks, sports fields, play areas, community areas, urban agriculture and natural areas. Social aspects, such as public participation and education, and economic implications were also investigated and considered.

In order to locate this work theoretically and contextually, current planning theory and sustainable development was analysed. In addition existing policies, initiatives and strategies responsible for shaping development and consequently the local public open space policy in the Durban Metropolitan area were investigated.

The dissertation argues that the success of a 'sustainable' policy is ultimately based in collaborative planning and implementation as well as appropriate management of the system. Current theory pertaining to sustainable management in the form of private / public partnerships was investigated and tested through selected case studies in Westville and Clermont.

This dissertation concludes that sustainability is a process and that the public open space policy of the Durban Metropolitan Area, although attempting to achieve overall sustainability requires to address specifically, social needs and more appropriate collaborative planning and management strategies. Broad strategies to achieve this were considered and guidelines for a more sustainable public open space were proposed.

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1. GENERAL INTRODUCTION

1.1 INTRODUCTION

Africa has the highest population growth rate and the highest rate of urbanisation in the world (Huntley, Sigfried & Sunter, 1989 in Sepping, 1995). Forecasts indicate that by the year 2010 South Africa will have a population of 54 million of which more than 55% (close to 30 million) will be urbanised and living in the four largest metropolitan areas (Integrated Planning Services (IPS), 1997). The Durban Metropolitan Area (DMA) is one of these areas, the location of which is shown in Figure 1. The population is about 2,3 million with 26% (565 000) living in informal settlements and 5% (115 000) in periurban areas. A further 400 000 people, just beyond the metropolitan boundary, are functionally part of the area (Spatial Development Framework (SDF), 1997).

The spread of unserviced informal settlements and the land required for housing, infrastructure and other competing land uses is placing considerable pressure on available land, especially Public Open Space (POS), both natural and developed (IPS, 1997). Over the years Durban's natural systems have been heavily transformed by human settlement and exploitation and are under severe pressure (Hindson *et al*, 1996).

As a result of our historical legacy, racial segregation created a spatial form that is racially structured, highly fragmented, sprawling and poorly integrated functionally, with the majority of the poor located in underserviced areas on the periphery, whilst residential densities around the central core are generally low. In addition the area is characterised by massive unemployment and a large range of social problems. Environmental degradation of natural assets and poor environmental quality of the townships and informal settlements is a threat to quality of life as well as natural resources (Spatial Development Framework, 1997).

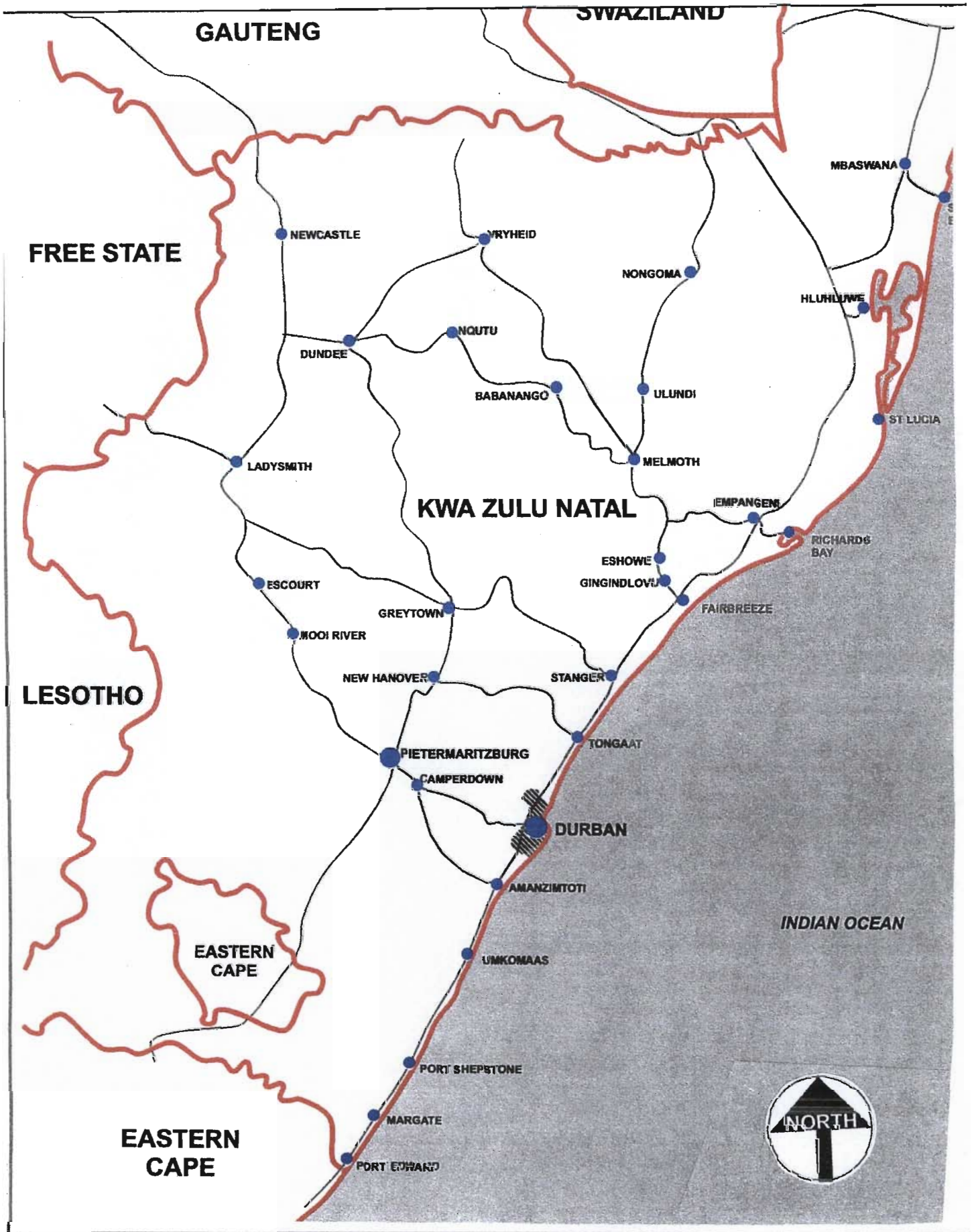


Figure 1: Locality of DMA

After: IDP 1998

As the city's environment and resource base are destroyed there is a growing realisation that past models of development are not working successfully (Hindson *et al*, 1996). As Durban is a city of great contrasts, rich with many different cultures and vast disparities between the wealthy and the poor, it faces the challenges of balancing appropriate development, in a way similar to those disparities experienced on a global scale, between the developed north and underdeveloped south. In order to survive successfully into the future,

'Durban will have to seek a middle path between rich and poor, expectations and reality, growth and sustainability. It will need to involve all its people in building a vision which draws on the city's abundant human and natural resources today, in ways which will not destroy its environment and development tomorrow'. Hindson et al (1996: executive summary).

Within this framework, sustainable development is considered an appropriate paradigm as it places increased emphasis on the value of natural, built and cultural environments, the pursuit of social justice for disadvantaged communities, and a growing concern for the well being of future generations.

The role of open spaces in ensuring the sustainability of the urban environment is well documented and are referred to as 'Open Space Services' (Durban Metropolitan Open Space System (D'MOSS) Framework Plan, Discussion Document, 1998). Open spaces within the city helps regulate climate by reducing heat islands, reduces air pollution, absorbs rainwater runoff, reduces the occurrence and severity of flash floods, absorbs noise, and provides various educational, recreational, aesthetic and psychological benefits. In addition, urban open space is valuable in maintaining biodiversity and conserving local indigenous fauna and flora. (An Open Space Structure Plan for Greater Cato Manor (CMDA), 1995).

In 1989 the Durban Metropolitan Open Space System (D'MOSS) was designed and implemented as a network of open spaces linking conservation and recreational areas to sustain both natural habitats and ecological systems within the Durban Municipality. The design of this system was predominantly based on nature conservation and ecological principles (D'MOSS, 1994). With the emergence of sustainable development and collaborative planning practice, it has been necessary to re-evaluate the original D'MOSS. A more comprehensive framework incorporating environmental economics and public participation exercises is currently being developed by the City Council.

However, open spaces particularly in lower income areas provide for more than just the need for conservation and the sustainable use of the natural resource base, they improve human quality of life. As open spaces form an essential element of urban infrastructure they can form the primary social infrastructure of successful urban environments if they are appropriately planned and managed. The human 'need' for open space is even greater in the context of high unemployment, high density and low income areas as it acts as extensions of private dwellings and provides opportunities for social interaction and visual relief from the built environment (CMDA, 1995; IPS, 1997; Hindson *et al*, 1995)).

'Positively made and celebrated public spaces (hard and soft spaces) are the essential social infrastructure of successful urban environments.... When people are poor, the full range of a family's needs cannot be met through the individual dwelling unit.... The public spaces however, can represent the foci of an entire community's energies and resources. They are places where most social experiences are played out ... operating as extensions to the private dwelling unit....' Khan in D'MOSS, (1994:72).

In the light of the above, the relevance and success of a 'green' ecological system as provided by the D'MOSS needs to be evaluated. It would thus

be appropriate to consider marginalised societies and their interaction with the environment. A better understanding of 'brown' environmental issues and social needs, which are closely linked to survival and livelihoods, should be considered. The perceptions and experiences of different cultures regarding their environments and POS needs to be investigated and acknowledged. This can be done through interviews and public meetings or alternatively graphically through art. Examples of some contemporary South African artworks depicting cultural issues have been included in this document.

This dissertation considers the current provision and sustainability of POS, inclusive of both active and passive open spaces within the Durban Metropolitan Area. The original D'MOSS and the updated D'MOSS framework that is based on the current policy and initiatives pertaining to public open space in the DMA, was investigated. In order to critically analyse the current system it was necessary to determine through literature research, the design principles and management strategies necessary for a socially and ecologically sustainable open space system. Ideally, such a system should appropriately integrate the protection of diversity and stability of the ecosystem with social needs for open and recreational space and at the same time address the wider problems of environmental degradation and its associated hardships. The degree to which the POS of Durban and its surroundings incorporate these principles was examined.

More specifically the actual provision and management of POS was investigated through two case studies in the DMA. One of the case studies was in Westville, an affluent residential area, and the other in Clermont, a historically disadvantaged area. The findings of this investigation could inform the process of the sustainable provision of POS as well as public involvement and management principles specifically suited to different socio economic areas. Furthermore, the principles

emerging out of this work could perhaps be applied to other urban processes, so that ultimately development and upliftment is appropriate and implemented through the empowerment of local communities.

The logical conclusion would be to incorporate the issues of sustainable environmental management. How can POS policy be implemented and managed successfully? From the literature it would appear that it is within this realm of management and implementation where the biggest gaps and opportunities for research present themselves. In order for a system to be sustainable and successful, true community participation and empowerment is necessary. Partnerships need to be formed between the local government institutions and communities. This dissertation considers the general principles of sustainable environmental management in conjunction with the specific case studies.

The findings of the theoretical research and empirical study will enable an informed decision to be made regarding the D'MOSS and the proposal of appropriate recommendations and guidelines for the provision of a more sustainable POS.

As with all planning issues, POS policy is interrelated and complex. The dynamics of this project may change as research advances and theory develops. This research is thus relevant, for the moment, within its contextual background and the current theory of planning.

1.2 BACKGROUND

1.2.1 Rationalisation of Urban Parks

The interest in this subject originated as a reaction to a NIMBY (Not in my back yard) issue. The public open space opposite our house is currently under investigation by the City Council to be rezoned into residential housing. As this 'park' provides the community with a successful social

and ecological environment within an urban residential area, objections to the rezoning were formulated.

In order to formulate objections, investigations were conducted and it was established that the land has not been released for disposal and has not been identified by the Town Planning Statutory Planning Division as being surplus in terms of the Town Planning Scheme. Rather, the Parks and Gardens have identified it as being surplus in terms of their maintenance budget and the Environmental Division has identified it as being surplus so that it can be sold to fund their Durban Metropolitan Open Space System (D'MOSS) program.

It appears that many 'surplus' open spaces within our city have been earmarked for rezoning and disposal in order to fund the D'MOSS project. Although D'MOSS is admirable in ecological and environmental terms it should not be given precedent over local parks within our city that are socially successful. It is felt that city parks and open spaces should not be sold off to fund the D'MOSS project. As a result the sustainability of the underlying policies and implementation component of the D'MOSS was questioned.

The D'MOSS is a large interconnected open space system initially scientifically identified for ecological reasons. This project was initiated in the 1980's and focused on the ecological and natural environment. Associated with this system are environmental resource centres, braai and picnic areas and trail systems. These areas are very large and it appears that security, maintenance and squatter control have been found to be problematic and the trail systems and social usage has not been that successful. Despite the above and for the benefit of future generations, it is recognised that natural ecological open space should be protected and integrated into an appropriate strategic open space framework.

1.2.2 Urban Parks Versus D'MOSS

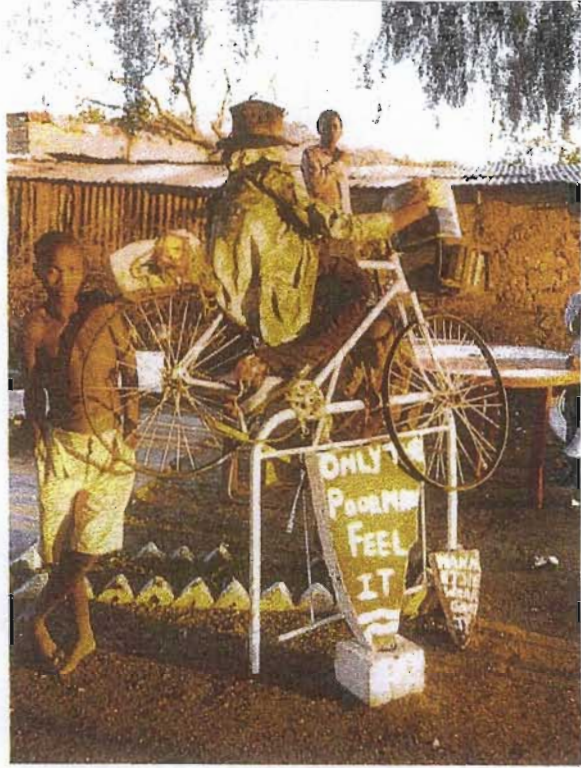
It is argued through this dissertation that perhaps the city's POS might be focusing too much on the natural environment rather than incorporating the social and financial aspects. It is considered to be too 'green' and it is feared that particularly in areas where communities have been historically disadvantaged, 'brown' issues and social needs may be sidelined. As a result of budget cuts and the need to strategically allocate scarce resources, successful social open spaces such as sports fields and community areas might be overlooked in favour of the ecological D'MOSS program.

Recent research done in the Clermont township, for example, indicates that the people aspire to 'pretty' parks with flowers and grass and that areas of natural vegetation are regarded as unsafe as they harbour criminals and is a place for illegal dumping of litter and rubble. (Oelofse, 1998, personal communication). Another example of social influences is the concept of 'Peace Parks' which are not based on ecological criteria but were created for social reasons. Open spaces in the townships in Gauteng were cleared of rubbish and beautified by planting of flowers and shrubs by unemployed youths (see plates 1 and 2). Ornamentation and creative sculptures decorated these area as well as neighbouring streets and gardens. These Peace Parks were, at the time, a resistance to the suppression of cultural and political beliefs and were unfortunately destroyed by the security forces (Young, 1993). Perhaps they could be reinstated as a celebration of a victorious people and their culture and incorporated into a POS.

1.2.3 Implementation without community consultation

In addition, there appeared to be little or no community consultation regarding the POS and D'MOSS and dealings with the Council were found to be intimidating. It was felt that most members of the community would probably not have the knowledge or confidence to challenge, question or become involved in POS decisions affecting them and their communities.

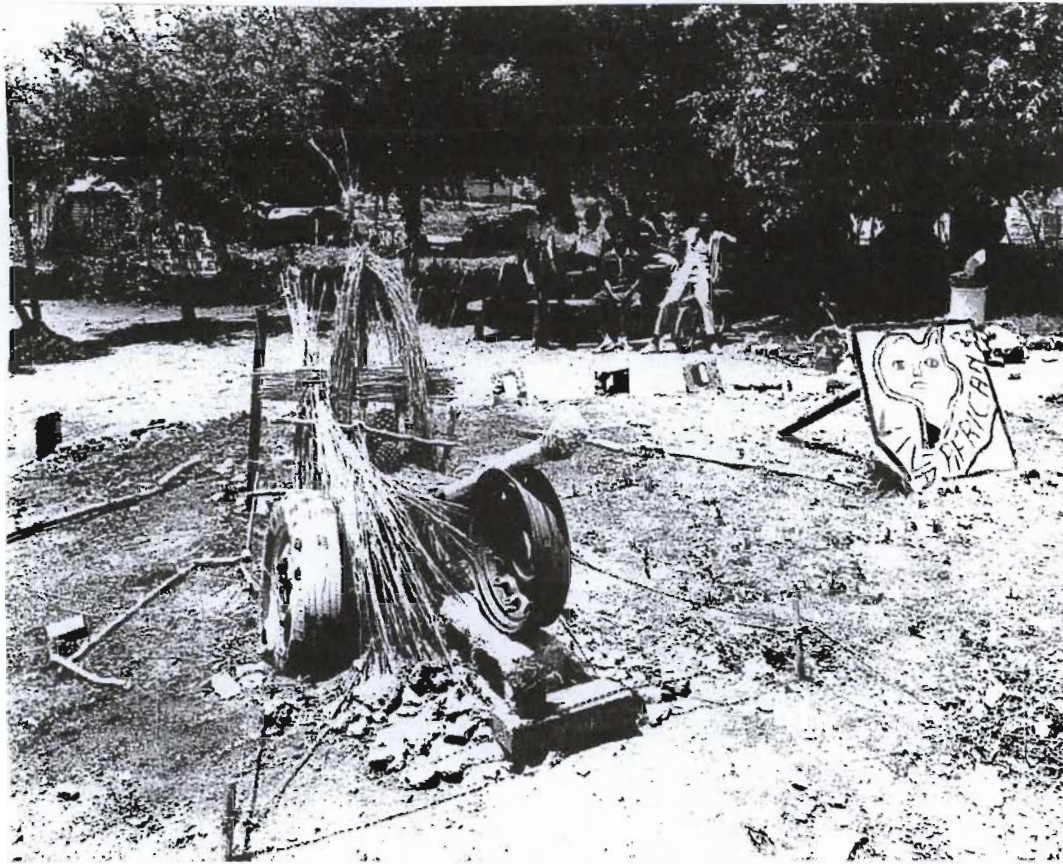
► 'ONLY POORMAN
FEEL IT'
OUKASIE TOWNSHIP
BRITS 1985



▼ STREET CORNER MURAL
MAMELODI TOWNSHIP
PRETORIA 1985



Plate 1: Peace Parks



▲ CROSSROADS PEOPLE'S PARK, OUKASIE TOWNSHIP, BRITS

▼ THE GARDEN OF PEACE, ALEXANDRA TOWNSHIP, JOHANNESBURG

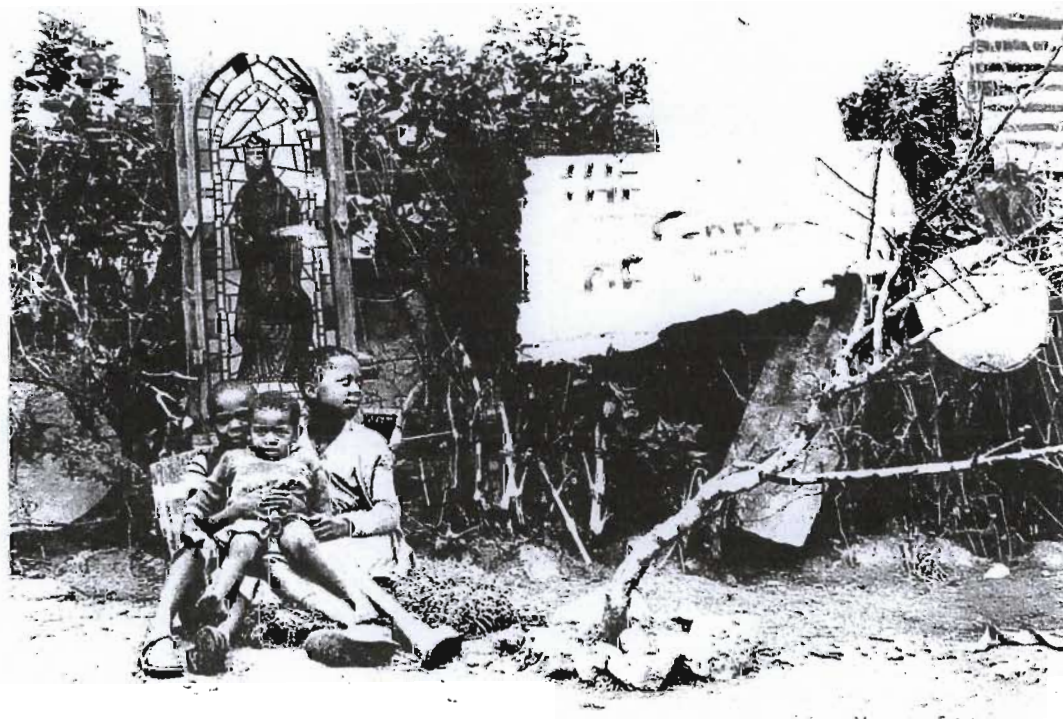


Plate 2: Peace Parks

Public participation and community involvement appeared to be non-existent. With the merging of the Local Councils, the extent of the Metropolitan area has been greatly increased. Figure 2 illustrates the extent of the DMA. There are currently projects underway to extend the D'MOSS program into peripheral semi-rural areas and there was a concern with this that possibly the lack of public participation and passionate ecological ideals further marginalise communities living or farming in and adjacent to D'MOSS areas.

1.2.4 Integrated Public Open Spaces

Assuming that sustainable development principles are the basis for successful development, the extent to which the POS in the Durban Metropolitan Area incorporate and balance social, economic and financial factors as well as appropriate community participation, was investigated in this dissertation. The sustainability of POS itself was challenged, although the important role the natural environment, as largely provided for through the POS, plays in the overall sustainability of the city is acknowledged. In Figure 3, the role the natural environment plays in overall sustainable development is depicted by the outside circle and the inner circle shows the sustainability of the public open space system. If the inner circle is dysfunctional or unsustainable it will affect the balance in the outer circle.

1.3 PROBLEM STATEMENT

1.3.1 Research Problem

It is evident that the current Durban Open Space Policy focuses on the environmental D'MOSS program which was established in the 1980s based on the theoretical concepts of environmentalism and conservation which were prevalent at the time. However, current trends in planning theory advocate a more collaborative approach based on public involvement from the initial planning stages through to joint implementation and management. In addition, sustainable development

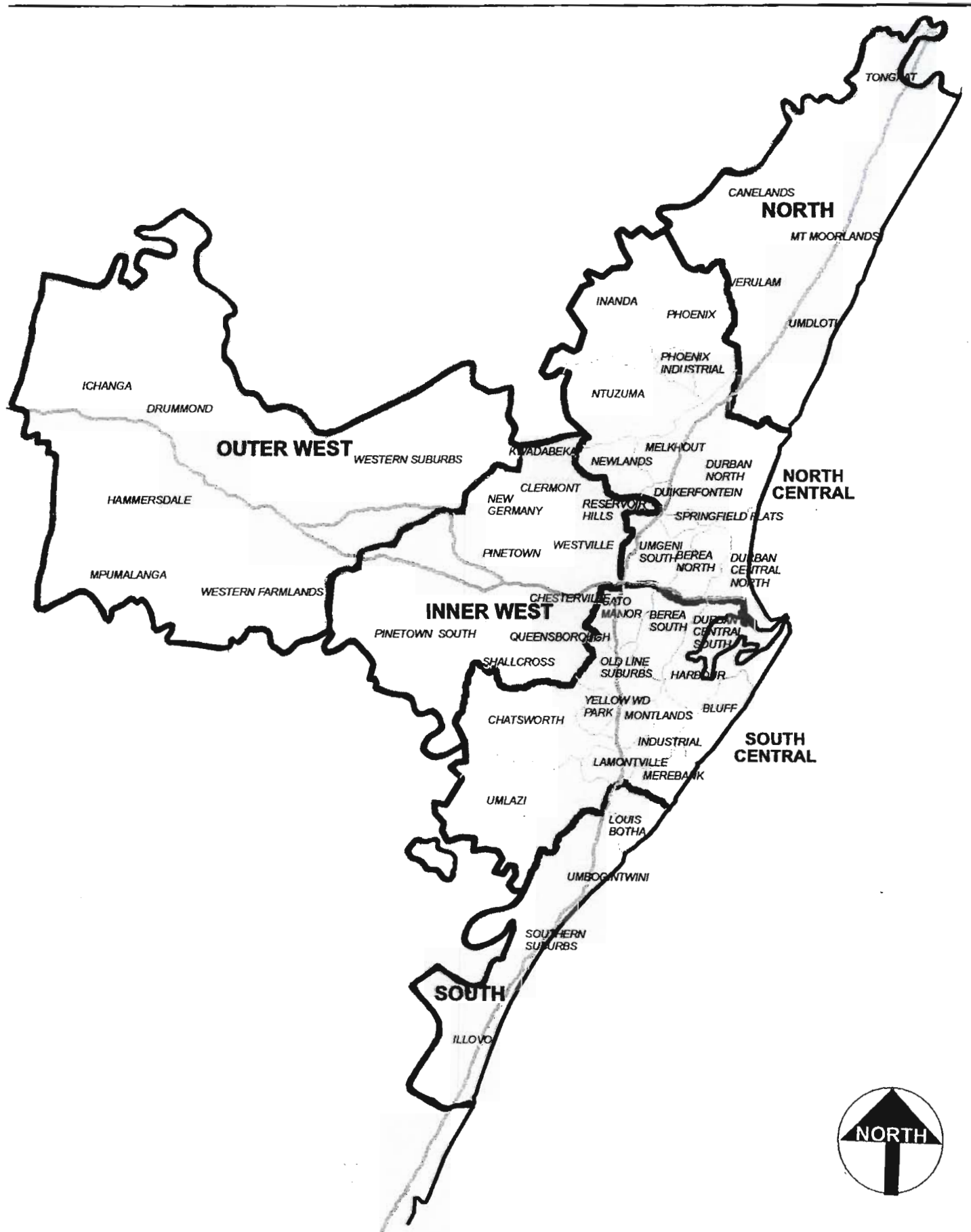


Figure 2: Map of the DMA

After: IDP 1998

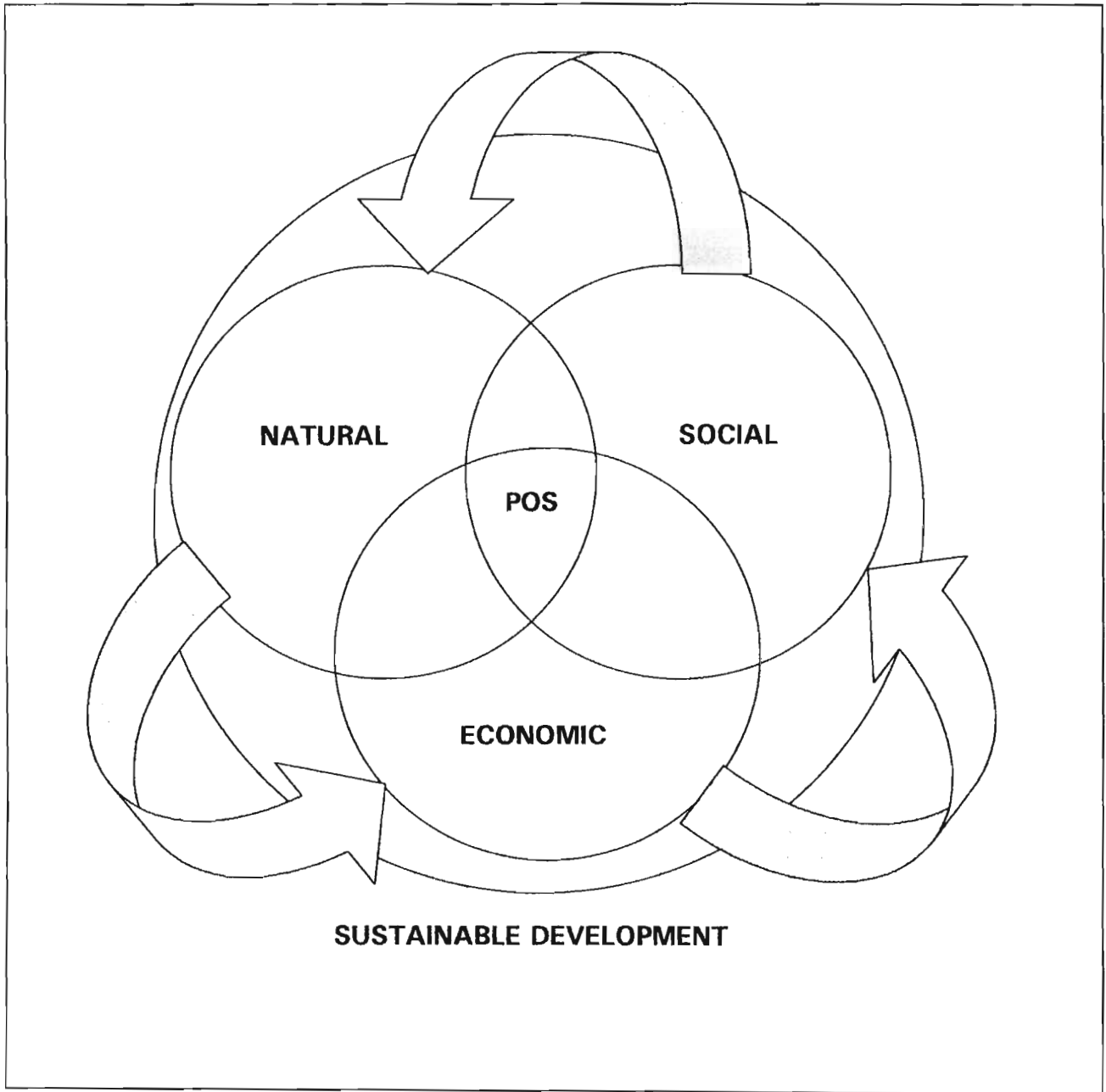


Figure 3: Sustainability of Public open Space

principles highlight the importance of balancing ecological, economic and social aspects with a strong emphasis on public involvement throughout the process.

In the light of these current trends in planning theory and sustainable development the Durban POS policy appears to be inadequate in addressing social and economic issues, including public participation and education of local communities. The sustainability of a proposed extended D'MOSS into outlying areas could thus be problematic. In addition, the viability of Durban's POS could be seriously challenged and detrimentally affected by increasing pressure from more pressing urban processes such as housing and service provision.

1.3.2 Research Question

Is the current open space policy of Durban meeting all the needs of the city and surroundings? Is it sustainable?

1.3.3 Hypothesis

THE PUBLIC OPEN SPACE POLICY OF DURBAN AND SURROUNDINGS IS NOT SUSTAINABLE.

1.4 RESEARCH CONTEXT

It is obvious that the scope of this dissertation will need to include a number of emerging issues pertinent to urban planning and sustainable development. This topic provides for a most suitable vehicle through which to incorporate the issues challenged by planners, environmentalists and development agencies in an effort to ensure that urban development and management is appropriate and sustainable. The scope of the work is broader by virtue of the fact that Durban is a diverse city with many cultures and enormous disparities, it is thus placed firmly within the context of postmodern theory. Although the scope of the theoretical analysis is wide, the obvious links between planning and sustainability in initial planning stages, policy initiatives, implementation and management

of POS, have been identified and will be considered in this dissertation. Figure 4 graphically illustrates the theoretical framework.

Within this broad theoretical framework it is necessary to focus on POS policy both internationally and more specifically at a local scale. It is also necessary to consider local planning policies and initiatives that have influenced the POS policy of the DMA. For example, the local environmental policies of Local Agenda 21, the Spatial Development Framework as well as those currently under consideration, namely the Environmental Policy Initiative and the Open Space System Framework Plan. Figure 5 illustrates this contextual framework.

With this information providing for the relevant theoretical and contextual background it will, hopefully, be possible to ascertain the extent to which the Durban Public Open Space System is sustainable. The ultimate test of appropriate sustainability is implementation and management and by using two different communities as case studies, this aspect will be put to the test.

1.5 METHODOLOGY

The tasks necessary to ascertain the sustainability of Durban's POS would require a combination of exploratory, descriptive as well as interpretative and explanatory deductions and investigations.

1.5.1 Primary Research

Many interviews were conducted with selected council officials, consultants, and experts in conservation and community facilitation, researchers and members of the public. The interviews were always commenced with a short introduction pertaining to the dissertation and followed by specific questions that were of relevance to the interviewee. Generally after answering the questions the interview proceeded informally allowing time for general discussion. Often further issues would

THEORETICAL FRAMEWORK

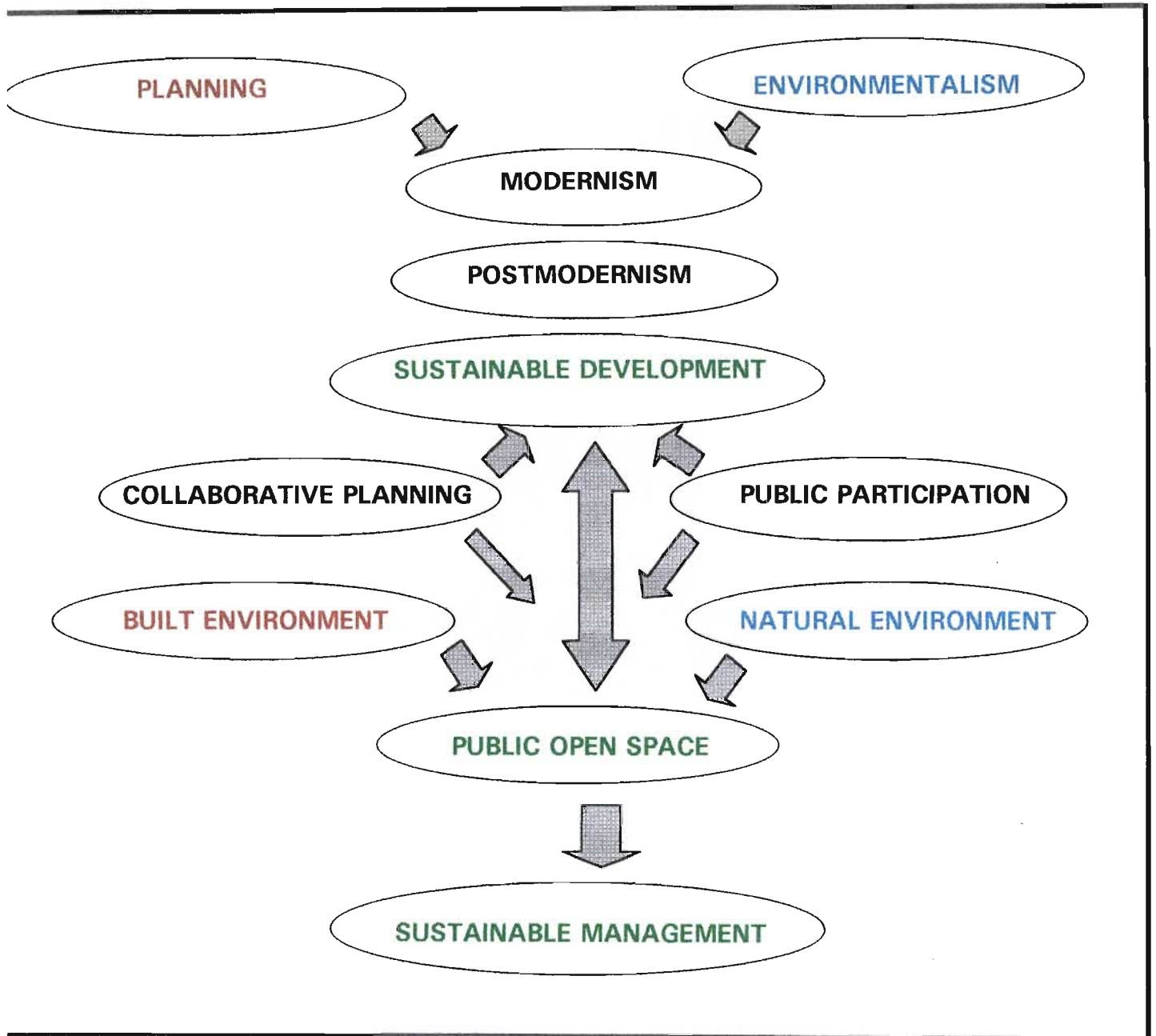


Figure 4: Theoretical Framework

CONTEXTUAL FRAMEWORK

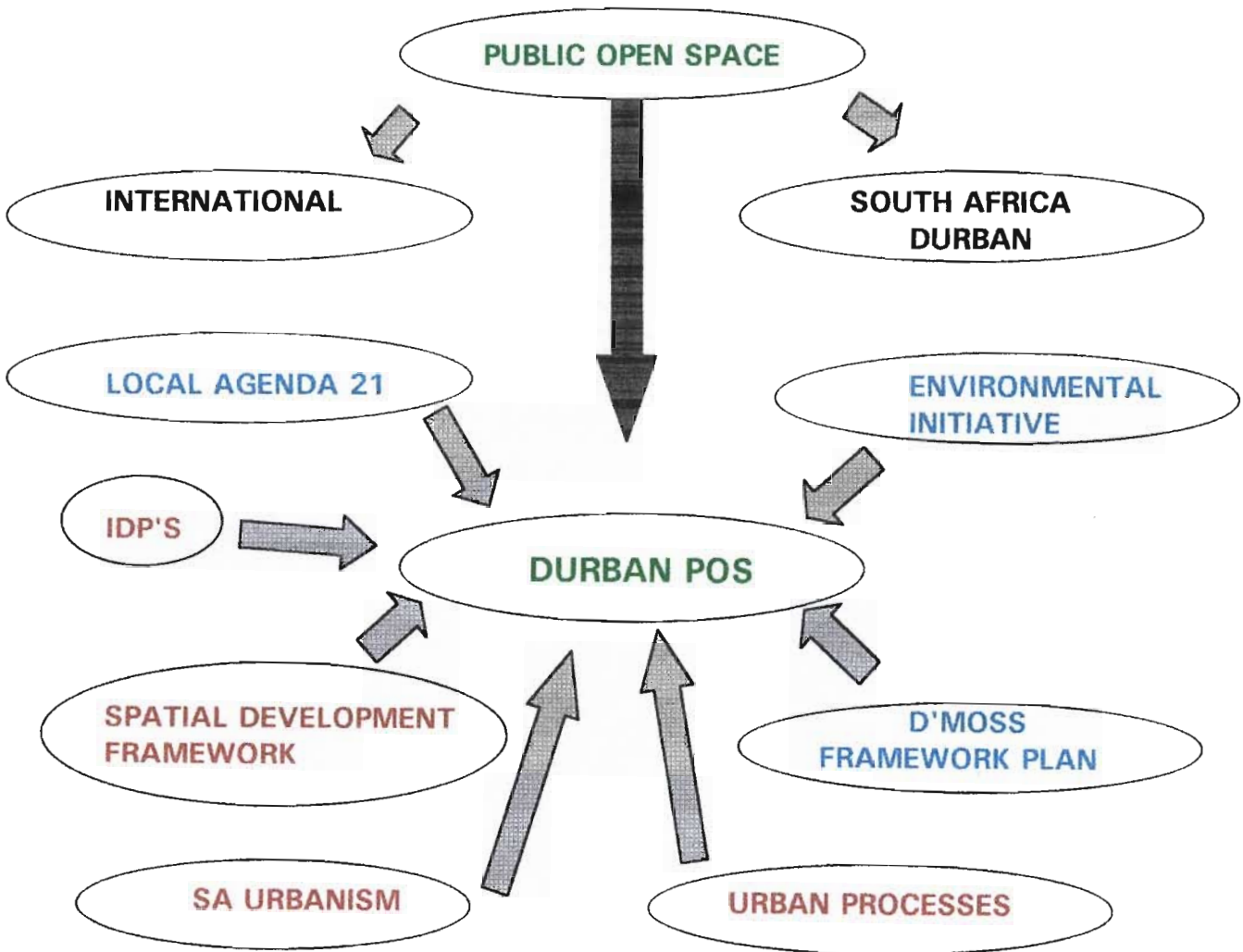


Figure 5: Contextual Framework

be highlighted and usually a follow up contact person would be recommended. The names of people interviewed in this manner are listed in Appendix 1.

Public meetings held for the 'Durban Metropolitan Environmental Policy Initiative' and the 'Metropolitan Open Space System Framework Plan' were attended and recorded. Meetings attended are listed in Appendix 2. In addition, 'Keep Durban Beautiful' meetings were attended to ascertain the role this organisation plays in POS management. In an effort to determine the extent and status of POS in the selected study areas field trips were undertaken and an Arbour Day ceremony was attended in Clermont.

1.5.2 Secondary Research

An extensive literature review was conducted in order to contextualise the research question theoretically. In addition, current documents pertaining to local policy and development strategies were consulted. The internet was also used in efforts to obtain the latest information as well as international examples with regards POS and management thereof.

With regards the local POS for the DMA and the selected case studies it was necessary to examine maps, aerial photographs and local development plans. Perceptions of various communities in the DMA on the state of the environment and specifically POS, was obtained from a comprehensive study conducted during 1995 and presented in the document 'Durban's Tomorrow Today' (Hindson *et al*, 1996). This survey consisted of community based participation exercises to ascertain perceptions regarding development initiatives and environmental issues.

For purposes of the case studies, secondary information was obtained from a detailed survey on 'Perceptions on the State of the Environment in Clermont', conducted by S. Manickam in January 1998 (MA Thesis,

University of Natal, in progress). For this survey 300 residents of Clermont were interviewed, including the Township Manager, Mr. A. Mhize and Ward 7 Councillor, Councillor D. Mhize. Information relevant to POS, community facilities, social needs and environmental issues were extracted for the purposes of this dissertation.

1.6 OUTLINE OF STUDY

It was evident from research conducted that the issue of POS is highly contentious and widely debated. In order to ascertain a theoretical and practical background in which this research is located, the issues surrounding POS policies were deconstructed. This was done through personal communications with relevant key personnel both in the local government departments and academic institutions as well as an extensive literature review. The origins of POS, the D'MOSS and current literature on POS policies, standards and management, both locally and internationally was determined and presented in Chapter Two.

In order to theoretically contextualise pertinent POS issues a literature research was conducted to ascertain the current trends in the theory of planning, urbanism and environmentalism. The relevance of the current planning trends of Collaborative Planning and South African Urbanism were considered and applied to policy. Against this background, the question of 'what' is sustainability and how it links up with urban form and public open space was explored. The debates pertaining to sustainability and sustainable city development both internationally and locally with specific reference to POS was also investigated through the literature. This theoretical framework is presented in Chapter Three.

With the acceptance that planning and development should be more collaborative and integrated, the Durban Metro has adopted policies and strategies that have a direct influence on POS policy in the DMA. Relevant

documents pertaining to these planning initiatives such as the Local Agenda 21 project, the Durban Metropolitan Spatial Development Framework and the local Council Integrated Development Plans (IDP) were scrutinised. Where necessary, meetings and discussions were held with key council officials and their consultants. Principles and recommendations that influence the provision of POS have been summarised in Chapter Four.

The resultant picture in Durban is indeed complex and it is evident that there are many tensions, trade-offs and imbalances in an effort to allocate scarce environmental resources. It is a dynamic situation that is changing in an effort to keep abreast of political and social change in South Africa today. The consequences of rapid urbanisation and shifting priorities place enormous pressure on POS and the managing thereof. Increased and critical demands are exerted on the city to provide for adequate housing, service infrastructure and safe living environments. Increasing informal settlements result in overcrowding and reduced economic opportunities for their inhabitants. In addition these communities are faced with immediate environmental problems such as the lack of safe water supply, sanitation, drainage, refuse removal and urban air pollution. It is clear that these 'brown' issues need to be incorporated into a sustainable environmental policy framework that consequently affects the D'MOSS program.

In the light of the above the Durban Metro is currently undertaking the formulation of a 'Durban Metropolitan Environmental Policy'. It is intended that this is a participatory process with key stakeholders involved in visioning and policy brainstorming. For the purposes of this research work the public meetings were attended and monitored. This process will have very relevant consequences with regards the Durban environmental policy and the D'MOSS. The interpretation and inclusion of these proceedings

that are relevant to my research will be dealt with, together with other relevant policies and legislation that might influence POS, in Chapter Four.

Closely linked to this Environmental Policy Initiative is the preparation of an updated 'Metropolitan Open Space System Framework Plan' by the Environmental Branch of the Durban Municipal Council (DMC). This work has recently been started and is an extension of the original D'MOSS plan that was produced in 1989. The objective of this framework plan is to create a network of open spaces throughout the metropolitan area. It will highlight the range of services which open spaces provide for people whilst at the same time conserving, protecting and developing the natural resources of the DMC. It will attempt to create a sustainable management structure for the D'MOSS. The Environmental Branch thus hopes that this framework plan will be discussed and accepted by the Metropolitan and Local Councils so that it can be implemented and legislatively enforced. For the purpose of this research all the public D'MOSS framework stakeholder meetings were attended and documentation scrutinised. Extensive discussions were held with council officials, consultants and members of the public that attended the public meetings. Chapter Four will conclude with the Durban Metropolitan Open Space System Framework Plan.

In order to specifically consider the actual provision, maintenance and appropriate management of POS, case studies were undertaken in two different areas within the DMA. For purposes of researching these case studies, meetings and numerous interviews were conducted with the municipal officials, consultants, development forum and conservancy chairpersons, members of the various conservancies and the general public. Information relevant to perceptions of environmental issues and POS in Clermont was extracted from the recent survey undertaken by Manickam (thesis in progress).

Through this work the disparity between the two areas as a result of the inequalities of the past were apparent. With the previous local government structures varying from highly efficient to non-existent, similarly the provision of services, health care, education and environmental management and protection ranged from effective to totally inadequate. These conditions determined the provision of POS, the management thereof and the perceptions and attitudes of the local communities to POS and environmental issues. Chapter Five documents the case studies and highlights the emerging differences and the subsequent findings pertaining to POS issues and management of POS in these areas.

In the light of the differences with regards POS requirements and maintenance, appropriate management was investigated. Theory pertaining to POS implementation, sustainable environmental management and appropriate guidelines for an integrated POS for Durban and surroundings were determined through a literature review and consultation with council officials and presented in Chapter Six.

1.7 CHAPTER OUTLINE

Chapter One is an overall introduction as it locates this research both spatially and theoretically. It sets the background and deals with the research problem and defines the scope of work.

Chapter Two deals with the origins and needs of Public Open Space (POS) focusing more specifically on the Durban Metropolitan Open Space System (D'MOSS), as well as current literature on POS policies, standards and management both internationally and locally.

Chapter Three contextualises the pertinent POS issues by investigating the current trends in the theory of planning, urbanisation and environmentalism. It also deals with sustainability and sustainable city

development both internationally and locally with specific reference to POS.

Chapter Four provides a contextual analysis by looking at the current development plans, strategies, policies, projects and legislation that have relevant bearing on POS in Durban and surroundings. It also deals with the current Durban Metropolitan Open Space System Framework Plan.

Chapter Five presents the case studies undertaken of the different communities of Westville and Clermont in an attempt to ascertain sustainability of POS implementation and management.

Chapter Six investigates sustainable management theory and practice with particular reference to POS in the DMA.

Chapter Seven draws the conclusions.

2. PUBLIC OPEN SPACE

2.1 INTRODUCTION

Historically the relationship between people and nature was influenced by social Darwinism ideals that placed 'man' superior to other species and supported environmental exploitation resulting in the expansionary 'laissez-faire' approach of industrial cultures. More recently however the 'conservation' approach recognises 'man' as being part of and dependant on the greater natural environment. These two environmental belief systems are considered to influence the way society perceives and responds to the natural environment and is evident in how different countries and cultures respond to their natural environments and public open space policies (IPS, 1997).

The objective and function of open space planning is two fold, namely the satisfaction of population requirements or social needs and ecological needs or biophysical factors. The need for open space could be merely 'getting back to nature', or the essential 'need' for open space associated with conditions of unemployment, high densities and low income areas, conditions generally prevalent in the developing countries (IPS, 1997).

This chapter discusses the historic origins of POS and considers the resultant POS policies, norms and standards adopted by different countries and cultures. Within this context the current POS policy for the DMA is examined and more specifically the D'MOSS is analysed.

2.2 HISTORICAL BACKGROUND

During the early 19th century the overcrowded and unhealthy living conditions of the poor in the United Kingdom, resulted in social reformists recognising the importance of public parks for the health and vitality of the urban dweller. The provision of open spaces and parks in cities was to

improve the physical and moral welfare of the working classes whilst at the same time providing for recreational facilities to enhance labour productivity. Examples of such manufacturing villages are Lenark, Port Sunlight, Bournville and Earswick (Cherry, 1974).

During the industrial revolution the plight of the high density working population resulted in the provision of parks within cities and parks such as Central Park and Prospect Park in New York city were designed as 'green lungs' (IPS, 1997). The design of Central Park by Fredrick Law Olmstead and Calvin Vaux introduced ecological orientated open space planning and half of the park was maintained in its natural condition (Sepping, 1995). At the time Olmstead recognised that integrating all of the open space within cities as isolated parks was ecologically inappropriate. He highlighted the need for a scientific data base from which planning decisions could develop in addition to the need to balance human requirements with nature (Sepping, 1995).

In the United Kingdom, Ebenezer Howard initiated the concept of decentralising new settlements away from the densely populated metropolis by providing for adequate well built housing surrounded by a minimum of open space for light and air. These Garden Cities gave rise to the 'city beautiful' movement and New Towns, consisting of urban nodes interconnecting across open landscapes providing for green belts around the major cities (Healy, 1997).

In the 1950's the Modernist CIAM Model (Congres Internationaux D'Architecture Moderne) based city design on technology, the motor car and strictly segregated landuse in an effort to achieve a 'green city'. By separating vehicular traffic, large areas of open space on the ground are reserved for pedestrian movement and the free flow of air and light around high rise apartment blocks (Bacon, 1974).

Although the need for green areas was acknowledged nature was generally not incorporated into city design. Essentially nature was controlled as it was incorporated into amenity and recreational open space. Open space which was associated with places open to the sky and vegetated by grass, flowers, shrubs and trees was identified as essential as neighbourhood amenities (Healy, 1997).

With the advance in environmental science the importance of including ecological principles in open space design was recognised. Such open spaces within cities were highly fragmented, like natural 'islands' in a 'sea' of urban development. The theory of reticular biogeography incorporated the study and design of viable conservation networks within fragmented landscapes (Roberts, 1990) and Diamond's geometric design principles for nature reserves was developed. Diamond's geometric design principles have been widely used in the optimum design of natural systems (D'MOSS, 1994; Sepping, 1995).

Current designs for urban open space areas are tending towards ecological and conservation networks based on Diamond's geometric design principles. When open spaces are linked by providing dispersal corridors for plants and animals, the effective conservation area is increased, especially if such connections are maintained with the surrounding natural area (Sepping, 1995; IPS, 1997; Healy, 1997). A Metropolitan Open Space System links nature conservation areas, natural open spaces and parks within the city. The main objectives of such a system are biological conservation, watercourse protection, natural area connectivity, recreation, visual amenity and education.

In the past the relationship of people and nature have been influenced by the notion that the human species can and should command the natural world. This philosophy is being increasingly challenged by the developments in new environmentalism, which itself is not conceptually

homogenous and subject to continuing debates as will be discussed in the next chapter (Healy, 1997).

2.3 PUBLIC OPEN SPACE INTERNATIONALLY

Open space planning and conservation is different for countries in the North and South. In the Developed North vacant land within the inner cities is increasing and vacant lots are perceived as contributing to local crime and sanitation problems. In an effort to deal with this deteriorating neighbourhood quality the communities take over the maintenance and greening of these areas. In the South on the other hand, vacant land is considered prime for the urbanising population. These areas are thus targeted for informal settlements. Open spaces are misused or not used at all and alternative approaches are needed to create open spaces that are successful, less costly to develop and easier to maintain and manage (IPS, 1997).

2.4 OPEN SPACE PLANNING FOR CITIES IN THE NORTH

The developed countries in the North have legislation (although sometimes weak) ensuring for the provision of ecological requirements and population needs. Both England and America have open space standards on which the provision of public open space is based (IPS, 1997).

In the UK open space planning is based on nature conservation and ecologist movements. Local authorities have set out their open space planning policies and programmes in the form of non-statutory policy strategies, which serve as guidelines for the provision of open space and urban development. Most strategies consider the ecological biophysical processes as well as social needs with regards the number of recreational facilities (IPS, 1997). The guidelines for space standards for open space facilities is presented in Table 2.1.

FACILITY	AREA (HA) PER 1000 PEOPLE
CHILDREN'S PLAYGROUND	68
GENERAL PARK	90
SPORTS FIELD	110
TOTAL INTRA-URBAN SPACE	270
EXTRA-URBAN SPACE	1,40 - 1,80
OVERALL TOTAL	4,10 - 4,50

* SOURCE: THE NATIONAL PLAYING FIELDS ASSOCIATION OF GREAT BRITAIN

Table 2.1: Guidelines for space standards for the United Kingdom

LEVEL IN HIERARCHY	MIN AREA (HA) ABSOLUTE	MIN AREA (HA) DESIRABLE	AREA (HA) PER 1000 PEOPLE	TOTAL POPULATION SERVED
PLAYLOT	0,020	0,060	0,060	1000
PLAYGROUND	1,500	2,500	0,600	3000 - 5000
LOCAL PARK	1,000	15,000	0,500	3000 - 10 000
COMMUNITY PARK	15,000	45,000	0,600	10 000 - 50 000
URBAN PARK	45,000	140,000	1,200	40 000
REGIONAL PARK	450,000	2250,000	4,500	CITY

SOURCE: DEPARTMENT OF THE INTERIOR, BUREAU OF OUTDOOR RECREATION

Table 2.2 Standards for the provision of public open space both for active and passive facilities as recommended by the American bureau of Outdoor Recreation

The UK has had a long tradition of public participation in the form of volunteer involvement in practical projects. It has been estimated however that only approximately 10% of the urban population are involved in this work, as generally the poorer communities perceive that environmental concerns are a privilege of the rich. As a result, the need for appropriate environmental planning is recognised in an effort to integrate the interests and needs of the different lifestyles of the various communities.

In the United States of America open space was originally considered in terms of amenity value and planned on a space standards basis. Many of the city parks are horticulturally maintained, as they are mono-use and highly manicured with little consideration given to ecological or end user management decisions. Table 2.2 presents the standards for the provision of public open space both for active and passive facilities as recommended by the American Bureau of Outdoor Recreation.

As a result of ecological principles initiated by Frederick Law Olmstead (1858) and Ian McHarg (1969), open space planning was designed with nature integrating natural biophysical systems. As many cities in the USA do not have land use or zoning plans, little guidance has been available to decision makers regarding the demarcation, planning and design of urban 'natural' open space. Ecological and conservation movements however, were influential in the establishing 'green-ways across America' a statewide open space system. Innovative methods of funding the purchase of open space lands have been established, through raising money from the insurance of bonds and from deductions from property transfer costs and taxing state lottery funds and gambling programmes (IPS, 1997).

The importance of public involvement in POS planning and maintenance has been recognised and Open Space Committees of local citizens have been established to assist with re-vegetating open space. In addition

Resource Enhancement Committees are involved with plans and projects at a county wide level (IPS, 1997).

In America, the concept of 'Community Open Spaces' was developed as a result of a lack of urban recreational amenities, municipal cutbacks and increasing vacant inner city lots. Local communities spontaneously took over the development and upkeep of these open spaces into green spaces, community gardens, sitting areas, playgrounds and viewing areas. It was found however that such schemes were subject to a high rate of discontinuance due to lack of permanent ownership and on going public support. Community based open space groups have established themselves in an effort to keep up the momentum (IPS, 1997).

2.5 OPEN SPACE PLANNING FOR CITIES IN THE SOUTH

The developing countries of the South are faced with development problems of meeting the basic needs of rapid urbanisation. The provision of public open space consequently is not provided for at all, or forms part of other social and economic reform initiatives.

2.5.1 Asian Cities

In Asia, cities are characterised by rapid economic, population and urban growth with the population growth concentrated in unplanned, poorly serviced settlements usually on unsuitable land. Generally the level of services such as water provision, sewerage disposal and garbage disposal are inadequate and air and water pollution are reaching critical levels. Public facilities such as parks, sports fields and community recreational areas are poorly provided for or non-existent. The reasons for these problems can be attributed to the general authoritative top-down manner of governance and planning which marginalises the needs of majority of the population and the lack of local authority involvement and public participation in the decision making process.

In the case of Singapore, the city was transformed within 20 years from one of South East Asia's largest urban slums and squatter populations characterised by overcrowding into a garden city. Priority was given to housing and jobs and little provision was made for public parks. Open spaces were merely the space left over after development and were drab and standardised and socially inadequate. After housing and industrial development had been achieved, the city embarked on a beautification programme in an effort to green the city. Urban public areas were created as open space areas was increased by 143%. This garden city image was not based on ecological or social principles but rather on economic ones and planting trees and developing parks was more of a cosmetic exercise (Creating the Garden City - The Singapore Experience, 1995; IPS 1997). Implementation and maintenance in Singapore is typically 'top-down' of a highly controlled autocratic state with very little community participation and dependent on high economic investment, the sustainability of which is questionable, especially in the light of the recent crash of the Eastern financial markets.

2.5.2 Public Open Space in Africa

Most African cities are characterised by rapid population growth and a decline in the level of public services. Environmental matters and the provision of public open space are given very low priority and are unprotected as a result of the low levels of statutory land use planning. In addition, huge national debts, the shortage of local resources and funding and the changing values and perceptions regarding open space, threaten its very existence. Economic survival has become overridingly important and the open space has in most instances been exploited for financial reasons such as trading, urban agriculture and the invasion of informal housing. It is been suggested that environmental programmes need to incorporate and support household survival strategies in an effort to address the issues threatening urban open spaces and environmental degradation (IPS, 1997).

2.5.3 Public Open Space in South Africa

The situation in South Africa today is combination of rapid urbanisation and inequalities due to apartheid. The townships and informal settlements are sterile and severely lacking in public open space and recreational facilities. There is an imbalance in the provision of open spaces, especially for active recreation. The core urban area and formal residential zones are well provided for and well managed. The provision of open spaces has been in terms of amenity standards based on 'horticulture tradition' rather than an achieved balance between user-need and environmental sustainability. The provision of public open space in the townships and informal areas was usually left over space not suitable for development or 'recreational and sportsfield' amenity standards with little concern for the biophysical context or the needs of the user community. Most open spaces have either been squatted on or have deteriorated into littered useless wastelands (Hindson *et al*, 1995; IPS, 1997).

The problems pertaining to POS in South Africa have been identified as being aggravated by the housing crisis resulting in development that degrades the environment. Furthermore, the majority of the poor people living outside of the city centre need to travel long distances at great cost in order to visit higher order parks. Clearly the sustainability of development has not been considered (IPS, 1997). Based on the above a number of issues were identified in the Draft Policy for POS in Urban Areas of KwaZulu Natal (IPS, 1997) as being challenges for POS which need to given consideration. These include the following: -

- Problematic access to open space and development pressure,
- costs and funding,
- the acceptability and perceptions regarding need for open space differs between communities,
- Balance of a harmonious environment and ownership problems.

2.6 DEFINITION OF OPEN SPACE

Urban Open Space is defined by the Department of Environmental Affairs and Tourism, November 1995, as follows: -

'Any vegetated area (green areas) within an urban environment, such as: nature reserves, private and public gardens, park areas, golf courses and other sport and recreational grounds, cultivated, derelict and undeveloped land and even roadsides, rail verges and transmission line servitude's as well as an open hard-surface area (brown areas) such as: shopping malls, plazas and other paved and concrete areas.'

Natural open spaces in urban areas are referred to as 'green' or 'soft' space and are considered to be in a 'natural state' and includes ridges, water courses and sports fields. 'Hard' spaces refer to urban zones such as cities, roads and market squares etc.

2.7 PASSIVE AND ACTIVE OPEN SPACE

Public open space may be further grouped into 'passive' and 'active' open space. 'Passive open space' includes conservation areas, river reserves, parkways, parks, natural areas, amenity reserves and Metropolitan Open Space Systems. As a result of rapid urbanisation passive open spaces in the urban areas are diminishing. 'Active open space' refers to market squares and sports venues such as playing fields, sports centres and stadia.

2.8 PLANNING STANDARDS FOR PUBLIC OPEN SPACE

Open space planning standards are guidelines for recreational amenities rather than open space systems and refer primarily to sportsfields, parks and playlots. The National recommended standard for the provinces for public open space has been 4,5ha of public open space per 1000 population (of which 10% was for future expansion) (IPS, 1997). The

standard for KwaZulu Natal is much reduced at 2,4ha per 1000 population as per the National Playing Fields Association of Britain, with the subsequent addition of 0,4ha making the ratio 2,8ha per 1000 population (Roberts, 1990). This standard comprises of 0,4ha for playlots, 1,6ha for active recreation and 0,8ha for passive recreation (IPS, 1997). These norms are not laid down by ordinances but are recommended to the municipalities through the means of circulars from the Provincial Administration. Local authorities enforce these standards through Development and Planning controls and bylaws.

The Council for the Environment (1989) in their 'Guidelines for the Planning and Management of Natural Open Space in Urban Areas' recognise the problems associated with imposing such arbitrary standards and suggest the following: -

- That the guidelines be variable allowing for individual circumstances such as sizes, locations, physical attributes and functions of urban areas, and recommend that they be decided upon in consultation with local authorities.
- The standards should be evaluated, monitored and reviewed by the relevant authorities from time to time (Khoza, 1992).

Historically, the provision of public open space was the responsibility of the various administrative departments according to racial segregation, resulting in a disparity in the provision of recreational amenities. White areas had a better open space dispensation than the other population groups (Roberts, 1990) as the Provincial Administration had higher norms than the departments responsible for the Coloured and Asiatic population which fell under the Department of Community Development and the Blacks under the administration of the Department of Bantu Administration and Development (Steyn and Swart, 1983 in Khoza, 1992).

The basis of open space standards applied in Black Townships under KwaZulu legislation was according to the 'RSA KwaZulu Development Project (RKDP)'. The RKDP standards were a guideline for the provision of active sports facilities and recommends 0,04ha per 1000 people of children's' play grounds (1 per 150 sites) and 4,0ha per 1000 people of sportsfield (1 per community, 2700 sites) (van Wyk and Louw, 1990 in Khoza, 1992). The application of these guidelines according to van Wyk and Louw (1990) depended on the community, income levels and levels of mobility. The over provision of land for recreational facilities was considered undesirable as it might result in incohesive and inefficient communities and may encourage squatting (van Wyk and Louw, 1990 in Khoza, 1992).

It is clear that the provision and maintenance of developed urban recreational open space in the former townships and low income areas was, and still is, inadequate and inappropriate. Currently Local Authorities are attempting to upgrade these areas but as a result of the historical under provision of open space and increasing densification through urbanisation there is very little undeveloped land suitable for allocation to public open space.

In response to this situation, important principles regarding the planning of open space facilities in lower income areas have emerged. Dewar and Ellis (1979) in Khoza (1992) noted that open spaces should be multifunctional and integrated. If open spaces are integrated with other facilities and the residential component, the social fabric of the area will be strengthened (CMDA, 1995).

' ...it is the public open spaces that act as the "glue" that holds, the city together, providing opportunities for social interaction and visual relief from the built environment.' (CMDA, 1995:10).

2.9 OPEN SPACE PLANNING AND POVERTY

It is evident from the literature that the consequences of environmental deterioration tend to affect the poor the most. Latest studies suggest that these communities should be given the opportunity to organise themselves in a manner so as to promote self-management of their environmental resources, including the provision, management and protection of public open spaces. Poverty is not a hindrance to either the desire or will to improve environmental conditions. Local communities should be supported with regard access to environmental resources and efforts to cope with environmental conditions of their households should be facilitated. Case studies have indicated that communities at local levels can, under supportive conditions, manage waterways, waste disposal and collection (IPS, 1997). It has been established that environmental programmes will be adopted by poor communities if they add to economic or household survival. Programmes that have been found appropriate include urban agriculture, market gardens and woodlots together with support in training and (IPS, 1997).

An interesting example is the city of Curitiba in Brazil. This city although one of the fastest growing in Brazil appears to have successfully integrated land use planning and transportation and has the highest average green space per inhabitant in urban areas world-wide. The ratio of open space to inhabitant was increased from 0,5sqm to 52sqm. A municipal body, the Green Guard, protects and maintains the open space as well as keeping the general public informed about environmental issues. Education and empowerment of local communities have resulted in the successful maintenance of open spaces (Meadows, 1995).

2.10 METROPOLITAN OPEN SPACE SYSTEM

Urban conservation and biogeography have shown that isolated pockets of fauna and flora do not survive well without contact with larger communities of the same species. In order to optimise bio-diversity it is

necessary to link large natural reserves by wide corridors. A Metropolitan Open Space System based on these theories and principles, links nature conservation areas, natural open spaces and parks within the city. The main objectives of such a system are biological conservation, watercourse protection, natural area connectivity, recreation, visual amenity and education. The main structuring elements of such a system are cores, corridors and buffer areas. The core includes areas of ecological importance, corridors link the core areas ensuring connectivity and buffer areas act as interfaces between core areas and developed areas and include sportfields and road verges (D'MOSS, 1994; Seppings, 1995; IPS, 1997).

2.11 DURBAN METROPOLITAN OPEN SPACE SYSTEM

2.11.1 Historical Background

Durban and surroundings have an enormous amount of open space. Originally this open space was fragmented and consisted of isolated pockets of natural open space, parks and sport and recreation areas, all of which were administered by different Municipal Departments, Conservation Societies and private individuals. Natural areas comprised of a large amount of land that was unsuitable for development (too steep, river valleys and flood plains), undeveloped private property and nature reserves. A hierarchy of parks from large regional parks to small playlots were provided and well maintained by the Parks and Gardens Department. Sporting facilities and the beachfront areas were provided for and maintained by the Recreation Department.

The development of a Metropolitan Open Space System (MOSS) in the Durban region was initiated in 1982 by the Wildlife Society. As part of this system, the Parks Recreation and Beaches Department then built the Umbilo and Umgeni Riverine trails. Figure 6 is a map of the MOSS trail

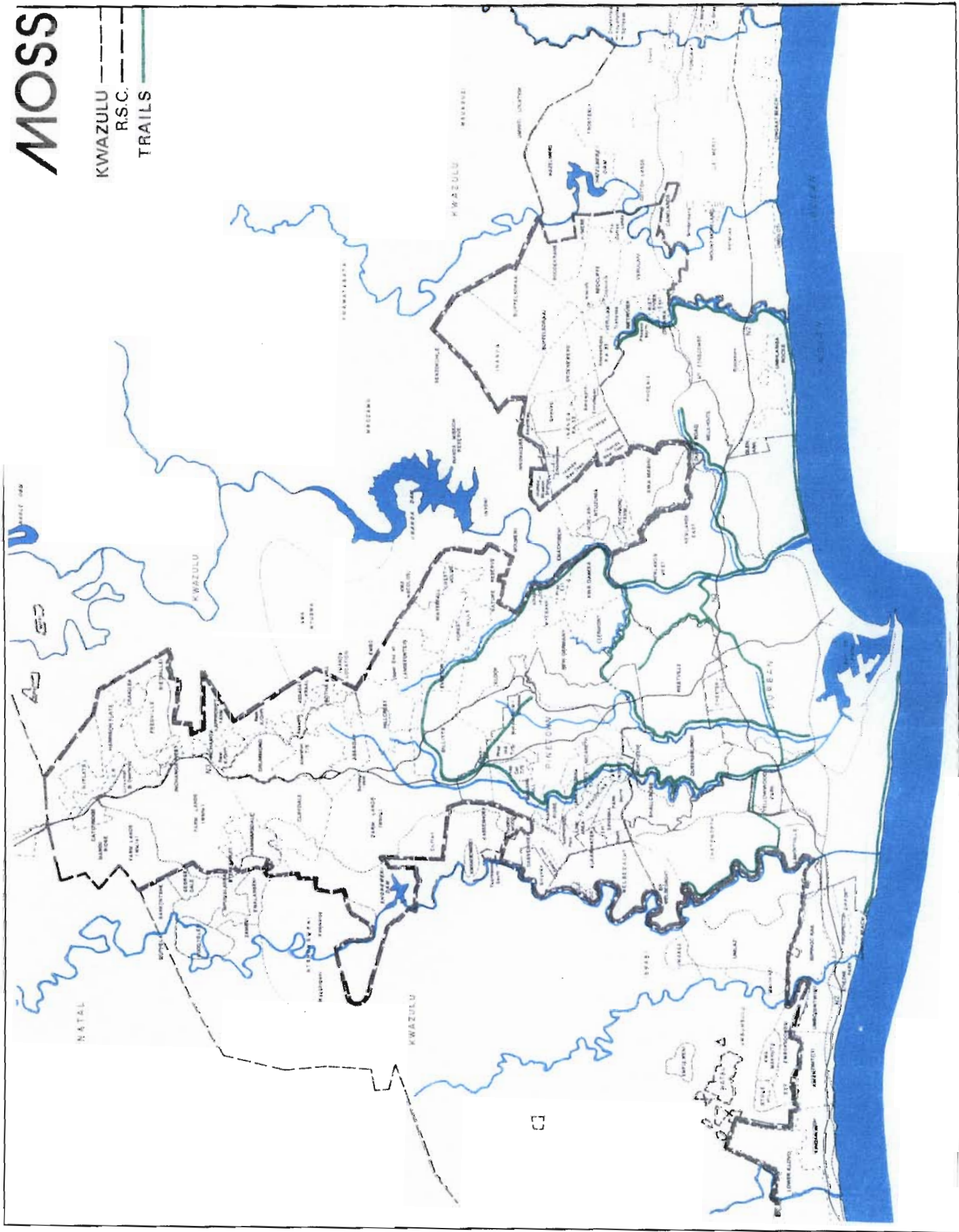


Figure 6: Map showing MOSS (After D'MOSS, 1994)

system. This trail system of conservation areas was linked by walking trails and extends over the whole Durban Metropolitan area. This system being a purely conservation system does not include other forms of open space facilities.

In 1989, after a full investigation, the Parks, Recreation and Beaches Department in association with the Town Planning Branch initiated D'MOSS. The D'MOSS forms part of the MOSS that falls within the Durban Municipal area. In order to make it viable in the light of high land costs in Durban, it was necessary to integrate recreation and other components into the system.

'Recreational facilities were to be positioned within the conservation land in the D'MOSS in a way that would complement both space uses.' D'MOSS (1994:14).

Figure 7 is a map of the D'MOSS structure plan and shows conceptually the areas that are part of the D'MOSS design.

As the DMA falls in the area where the tropical and temperate subtraction zones overlap, it is in a bio-geographic replacement transition zone and has a wide representation of fauna and flora from both zones resulting in a very rich bio-diversity (Hindson *et al*, 1996). The design of the open space system was based on urban biogeography and conservation principles. The provision of the open space system attempted to integrate the need for conservation, amenity, engineering services and recreation in a network of open space nodes linked by corridors (D'MOSS, 1994). It was intended that the D'MOSS provided for the framework of relatively cheap open space in which sports and formal parks were to be developed as required.



Figure 7 : Map of the D'MOSS Structure Plan (After D'MOSS, 1994)

2.11.2 Structure of D'MOSS

The D'MOSS is a system of nine parks arranged into a grid of ecologically based links. The parks link the larger conservation areas of Silverglen, Stainbank and Umgeni Valley Nature Reserves. The links are as wide as possible to enhance plant and animal habitats and where costs are prohibitive have been reduced to pedestrian links. Trails run along these links as an important recreational and educational feature. The system mainly follows river valleys and the coastline with important links cutting across the watershed lines between the river valleys (D'MOSS, 1994).

The overall goal of the D'MOSS, as per the D'MOSS Report (1994), was to establish and maintain a comprehensive public open space system that addressed the following objectives:-

- Amenity; by adding to the quality of life and visual attractiveness of the city by providing scenic variety and visual relief.
- Economy; by promoting the city as a desirable work and tourist place, to optimise resource utilisation by rationalisation of open space development and maintenance, and to reduce capital costs by integrating natural solutions for stormwater management.
- Conservation; through the protection of species and their habitats and through maintaining an ecological balance.
- Recreation; by meeting human health and social needs.
- Communication; by increasing public awareness of the need for conservation and to promote the use of public open space.

According to the D'MOSS Report (1994), the design of the system was to incorporate a number of important factors as follows:-

- Ecology; with the basis of the conservation approach being that of urban biogeography.
- Recreation; in that the D'MOSS system will provide for a framework within which sports and formal parks can be developed. It was

intended that local demand patterns and population levels were to be used as indicators of where sports facilities should be built.

- Education; the system would enhance environmental education at a formal level, through the schools and tertiary institutions and informally through the recreational use of trails and picnic spots within the system.
- Community involvement; would ensure public commitment to the maintenance of open spaces in their area and at the same time furthering the goal of environmental education. Community involvement had been successful in Virginia Bush and Silverglen Nature Reserves and it was hoped that this would extend to the other reserves in the system. It was hoped that community participation would be promoted through the Municipal publication but this has not been successful. It was suggested that in order to achieve this goal it would be necessary for promotional communicators to keep in touch with communities to assess demand and to guide recreational and educational developments in the most cost effective way.
- Stormwater management; followed the principle that flow rates along water courses are reduced by following natural design principles. In so doing it would not be necessary to channelise watercourses. In addition, natural systems purifies the water through natural filtration and percolation. Stormwater control in such a natural system can be increased by the use of storage ponds to attenuate the runoff rate. These ponds can be dual purpose dry ponds such as sportsfields, parking lots and natural flood plains or wet ponds such as recreational ponds and dams that just increase in level during flooding. This system does require complicated engineering input in order to predict and calculate flows. It appears that this is not being implemented as widely as had been envisaged.
- Security; it was felt that a controlled open space system would have better security from squatters, vagrants and illegal dumping than other

unused land by virtue of the fact that it would be fenced off and patrolled.

- Amenity; in that green areas and the incorporation of nature would make suburbs more attractive.
- Microclimate and pollution control; as vegetation moderates the urban environment.

2.11.3 Implementation and Monitoring

The implementation of this system was to be a phased process in accordance with manpower and funding. It would be necessary to identify the park boundaries, detail land acquisition and proceed with rezoning and at the same time design parks. The priority was to conserve the area and to provide access by means of trails. The development of sportsfields and public parks would be implemented according to priority, based on research and monitoring. Monitoring was to be an important factor in an effort to determine whether the goals were being met, to identify and to ascertain the effectiveness of recreational and conservation aspects of the system. With regards recreational monitoring it was intended that the Town Planning Branch maintain a register of all zoned open spaces both developed and undeveloped as well of all the available facilities. Through on going monitoring the use of all open spaces and their facilities could be recorded. Based on the results of the monitoring and community involvement the requirement of new facilities and problem areas could be timeously recognised. The base line for conservation monitoring was the initial survey and analysis undertaken by Roberts (1990). It was intended to produce an ecological map of the area (D'MOSS, 1994).

2.11.4 Financial Aspect

In order to implement the D'MOSS it was necessary to acquire land and dispose of land that was considered surplus to the system. The indications were that the cost of purchasing the required land would be more than offset by savings made in the rationalisation and selling off of existing open space.

2.11.5 Analysis of D'MOSS

2.11.5.1 Integrated System

From the meetings and interviews it can be concluded that the system has been successful in fulfilling the ecological and conservation objectives, it has been more difficult however, to integrate the recreational facilities. As the D'MOSS was originally designed as an isolated ecological system it was never intended to be part of a holistic framework of integrated environmental management. It is only now that environmental concerns have been set within a holistic framework that the priorities for development become apparent, for example, the priority for housing and its associated infrastructure, is greater than that for resource conservation. Despite this however, protecting open spaces and development need not be in conflict if both processes promote an overriding concern for the promotion of human life-support systems in overall relation to ecosystem degradation.

Although the rationale for protecting ecologically valuable land within the urban area is admirable, until those activities that negatively influence life support systems are identified and dealt with in a committed fashion, the fundamental principles of an urban MOSS system will not be realised. While the D'MOSS attempts to 'integrate the needs' (D'MOSS, 1994) it is not set in a holistic framework that can put into operation the integration and identification of the necessary trade-off for the attainment of conservation goals. The provision of basic needs, job creation and urban agriculture are imperative within the holistic framework of environmental policy (Dominik, 1993).

2.11.5.2 Community Participation

Although the D'MOSS strategy professes to encourage community involvement and cater for the broader society, other than limited publicity no active promotion mechanisms have been undertaken. Consequently D'MOSS is not widely known and is supported by a few enthusiastic

people whose support is vital to its continued existence. A more integrated approach is to create a public awareness of the need for conservation and for providing opportunities for action at a local scale. Such a local strategy depends on the empowerment, experience and enthusiasm of the community and requires that the community is part of the decision making in planning and implementation. Such a process uplifts the community and improves quality of life as the appropriate integration of conservation projects provide employment, income generation opportunities as well as promoting community based participatory environmental programmes.

The allocation of scarce resources, such as land, is bound to create a situation of conflict. The importance of sound community involvement, in such cases, is highlighted by Khan (1990:38) in Dominik (1993), as it is only within a '*social-responsive conservation paradigm*' that trade-offs can be identified and put into perspective. Whilst not all conflicting parties may agree with the outcome, if the process dealing with issues is fair and explanations for the trade-offs are clear, then such a participatory process might assist in conflict resolution. In the case of D'MOSS, wider public participation might have indicated that the needs, perceptions and expectations of majority of the population might have identified, for example, a need for pastoral landscapes, woodlots and market gardening as integral components for an open space system. It is argued that acknowledging these problems and addressing them appropriately at the onset is the key principal of sustainable environmental management.

2.12 CONCLUSION

This chapter highlights the range of different policies regarding urban open spaces between countries in accordance with their development priorities. The provision of open space ranges from advanced integrated systems with strict adherence of standards to add hoc spaces left over after

development with no protection at all. There appears to be a strong relationship between the degree of environmental awareness and the integration and protection of POS and natural systems. The D'MOSS was investigated and although found to be ecologically advanced and indicative of a concern for environmental protection, it was not integrated in accordance with sustainability principles.

The overemphasis on the importance of open space leads to the conclusion that merely by providing open space, environmental issues will be sufficiently addressed.

'As vital as open space is, incorporating environmental concerns into planning involves much more than incorporating green areas into the city. What is necessary is an ethic that promotes an understanding of the complexity and wide-ranging nature of the solutions, and requires that environmental principles and planning actions incorporate sustainable development objectives.' (Dominik, 1993: Section 6.3.3).

The shortfall of the original D'MOSS was due to the fact that it was developed on a scientific basis as an isolated system. With the general acceptance of sustainable development, D'MOSS now finds itself within a framework of a holistic integrated system incorporating social, economic and ecological aspects. The next chapter considers the changing theoretical framework that has reshaped the concepts on which the D'MOSS was based. It also deals with sustainability and the implications this paradigm and associated debates have on POS and D'MOSS.

3. THEORETICAL AND CONCEPTUAL FRAMEWORK

3.1 INTRODUCTION

Due to the nature of this study and the theoretical context within which it is situated it is felt that it would be most appropriate to adopt a 'Critical Realist' approach to this research work. Critical realism is 'realism' in the sense that it acknowledges that scientific instrumentation and data tell us of the external realities. It is 'critical' because it recognises the personal role of the scientist in weighing the theories in terms of some criteria set by the research community. It believes that there is no pure data, all data are theory laden as they depend on perceptions and attitudes (Kwok, 1998).

The theoretical and contextual framework is shaped by evolving theories and concepts that are subject to postmodern deconstruction. In order for meaningful analysis to be conducted for the purpose of this research, it is necessary to consider them in further detail.

3.2 PLANNING THEORY

3.2.1 Modernism to Postmodernism

This research can be clearly placed within a historical framework of theoretical thought. From the time when the Durban POS was based on standardised norms and green environmentalism in the late 1970's with modernism as the predominant philosophy based on rationality and scientific reasoning, to the current recognition of the complexity, fragmentation and dynamic nature of urban processes as embraced by postmodernism. This section will consider the implications that 'postmodernism' has for planning in South Africa. The principles that emerge are significant for appropriate integrated planning, including POS provision, in South Africa today.

The situation in South Africa at the moment is one of confusion and uncertainty. This confusion is the consequence of the natural evolutionary processes characteristic of urban development and the urban fabric is rich, highly fragmented, multi-textured, complex and diverse. The notion of postmodernism can be applied to SA. If true postmodernism were to be applied it would advocate that the real world is too complicated to be captured and understood in theory. Theories can never grasp the entirety and complexity of the real world. They are always fragmented and irrational as rationality cannot cover all truths.

Postmodernists believe according to Harper and Stein (1995), that objective and universal critique is itself a facade, a mask for oppression which marginalises oppressed groups such as women, the poor and blacks.

'The world is a fragmented intermediate place where people live in different worlds, with different rationality's and different (incommensurable) language games, a world that celebrates difference and otherness, a world without the notions of truth and progress.' Harper and Stein, 1995:235.

3.2.2 Postmodernism and Planning Practice

Although these postmodern observations may model what is happening in the real world it does not offer any solutions to the problems facing planners. Despite the fact that theory is rejected, planners would still require some sort of modus operandi of how best to approach the situation in practice. In response to this a number of academics, although acknowledging that postmodern critique challenges the foundations of planning theory and practice, have proposed meaningful ways to incorporate the notion of postmodernism into practice. It has been suggested that this could be a practice built on a politics of hope, a concern for economic and social justice and equality, a new moral vision

or consciousness and an '*epistemology of multiplicity*' (Gomez-Perna 1993 in Sandercock, 1995:78).

In the past, models of rational decision making which were adopted in the early 1970's and still remain influential, took the technical adaptive approach and attempted to bring reason and democracy to bear on capitalist urbanism and to guide state decision making with technical rather than political rationality. A co-ordinated and functional urban form organised around collective goals is produced and economic growth is utilised to create a middle class society. This comprehensive, rational model of problem solving and decision making was, at the time believed to be the intellectual core of planning, a set of procedures that would serve as a joint object for theory and practice. In this modernist planning project it is assumed that reality can be controlled and perfected. The modernist planners believe in a future in which social control is wielded in order to drive society forward along a path of progress. Technically, rationality is viewed as a valid and superior means of making public decisions, and information gathered scientifically is regarded as credible.

In reality however, the master narrative of modernist planning is incompatible with a spatially problematic and flexible urban form and the modern movement has lost credibility as a grand narrative mainly due to the physical degradation, functional chaos and miseries suffered by the working class (Beauregard, 1989). With the disintegration of the modernist planning project, practice has lost its neutral meditative position yet practitioners still cling to modernist traditions in an attempt to implement their master plans. Beauregard (1989) suggested that the modernist project needs to be reconstructed in a way that takes into account its strengths; the focus on the city, the commitment to reform, the meditative role within the state and address problems such as; the lack of democracy, fragmentation and insensitivity to the diversity of

communities. In these ways the modernist project of planning can be partially reconstructed while its links to postmodernism are enhanced.

Habermas (1989) and Harvey (1989) attempted to reconstitute the 'incomplete' project of modernity. They both argue that some aspects of postmodernism should be resisted as regressive and undemocratic and propose that communicative forms of planning offer a progressive alternative. Habermas argues that that without some concept of reasoning, we have no way out of nihilism. Where collective action is required it is necessary to engage in argumentation and debate. Communicative rationality thus provides a new form of planning through interdiscursive communication.

3.2.3 Communicative Rationality and Beyond

Modernism points towards an oppressive technocratic bureaucracy yet postmodernism leads towards fragmentation, relativism and meaninglessness. The solution according to Harper and Stein (1995) lies in pragmatic, flexible and holistic, reasonable approach to understanding each other, in public debates conducted within the traditions of a liberal framework.

Friedmann (1989) focuses on moral public action and argues that planners should be concerned with social change. The modernist notion of the common good cannot be determined by research. He argues that there is a public domain that presupposes a territorially organised society (neighbourhood) and democratic freedoms and rights. For such a public to exist there has to be a measure of cultural predisposition, a common past. An effective planning is a negotiated planning process among affected parties, who have different values, concerns and interests at stake. Planners are required to facilitate negotiated planning so people can resolve their differences, planners should be able to define problems in the public domain. A good part of planning in SA is related to peoples'

struggle for collective self-empowerment and participation. It is a struggle for a change in the political configuration. Planners cannot change the rules, that is only the result of massive public pressure. Planners can however can make common cause with the excluded and work with them in ways that lead to their greater access of social power. To this end the planning profession in SA has to rely on its common planning discourse, the technical, moral and utopian. This planning discourse ultimately ties the profession back to old traditions of philosophy and practice.

Forester (1987) develops the theory of Communicative Action within planning. He recognises that planning is not an instrumental technical activity but a communicative activity that influences society through communication. Forester's Critical Theory provides a new way of understanding the planning process. The structure of the planning process reflects a systematic patterning of communication that thus influences levels of community organisation, citizen participation and autonomous, responsible citizen action. If planners do not recognise how their ordinary actions may have subtle communicative effects, then planners may be well meaning but counterproductive. Where they intend to help, planners may create dependency, where they intend to express good faith, they may raise expectations unrealistically (Forester, 1987).

Forester (1987) applies his theory to land use conflicts of zoning appeals, subdivision approvals, and design reviews. Local SA planners often have complex and contradictory duties and may try and negotiate effectively and mediate practically in an attempt to resolve conflicts in a participatory planning process. In order to achieve this, planners require judgement both practically and ethically. Local planners can use a range of mediated-negotiation strategies to address practically existing power imbalances of access, information, class and expertise that perpetually threaten the quality of local planning. He also argues that the source of planners' power is information and their use thereof. Forester relates his theory

directly to practice, he works from the bottom up and bases theory on what planners are doing in practice.

Based on the complex nature of the real world situation it would appear practical to link Communicative Rationality to Comprehensive Planning. This was considered by Sager (1994) in a theory of Dialogical Incrementalism. It embraces Lindbloms Incrementalist Approach of fragmented technical stages and combines it with a process of incremental debate through which process a solution is achieved through ever increasing consensus, a process of free communication and dialogue.

3.2.4 Collaborative Planning

Healey's (1993) response to the postmodernism dilemma is based on learning and listening, developing skills in translation and constructive critique and in collective intervention and respectful action. Techniques and practice need to be reworked within the planning field to identify the potential within a new communicative, dialogue-based form of planning. Healey (1997) addresses the need to plan for multiple publics and for diversity, rather than for the myth of public interest, through Collaborative Planning. This work develops a communicative approach with regards the design of governance systems and practices, focusing on ways of establishing collaboration and consensus building. It considers ways of mobilising change through collective efforts through '*participation democracy in pluralist societies*' (Healey, 1997:5). As this concept deals more specifically with sustainable management through institutional transformation, it will be dealt with further in Chapter Five.

3.2.5 Beyond Postmodernism - Pragmatic Deconstructive Approach

Going beyond postmodernism is the Pragmatic Deconstructive Approach. Abstract reason and logic in theory is rejected and the knowledge gained through the experience of diversity and marginalisation is to be embraced in theory. This form of progressive planning theory can be applied to the South African situation as it considers the voices from the borderland.

The views of people who dwell in cultures of displacement and transplantation, and cultures with long histories of oppression. Such planning discourse addresses the postmodern phenomena in a constructive and progressive manner. New ways of knowing the relevant present dilemmas of planning theory and practice, which are dilemmas of meaning and action are developed. There must be an acknowledgement that there are different ways of doing theory, that the voice of western abstract logic and reason is not the only possible theoretical voice. It is dialogic in which communicative skills, openness, empathy and sensitivity are crucial, in which class, gender, and ethnic differences in ways of knowing are considered together in a truly inclusive and democratic planning. The need to plan for multiple publics and for diversity rather than for the myth of public interest and homogeneity (Sandercock, 1995). We should not be questioning what is wrong with our cities, but what is wrong with our way of looking at the world and ultimately what is wrong with our technical tools.

Milroy (1989) acknowledges that the social theory planners have been depending on are in flux. Planning rhetoric is deconstructed to recover the significance of affirming certain values for the practice of planning. Deconstruction treats the arguments of a text as an essential resource for recovering what was unsaid and perhaps could not be said. Milroy further notes that deconstruction makes radical reflections on theory and practice possible. It breaks conventions apart so that their 'context of genesis' and 'context of application' can be scrutinised.

3.2.6 Planning in South Africa

Planning in SA has been predominantly concerned with the notion that organised and physically coherent cities grounded in good functional and aesthetic principles are better than those that are not. Planners undertake various 'master planning schemes' that arrange land-using activities in ways that achieve functional and aesthetic objectives. In the modernist

planning process the world is viewed as malleable because its internal logic can be uncovered and subsequently manipulated. According to Beauregard (1989) these planners are somewhat anti-intellectual, impatient with abstract theorising and thus with social theory. In South Africa the pure fundamentals of modernism, in that it was based entirely on scientific and objective logic that transcended the interests of capital, labour and the state, was obviously distorted by apartheid policies. Modernism was theoretically possible because of the progressive democratic tendencies of the state to be reformist and 'serve the long-run needs of all groups'. In South Africa the politics of segregation were justified through the manipulated interpretation of the modernist theory.

Currently in South Africa the situation in the real world is in a state of flux with high expectations for the delivery of public housing and facilities. Although the notion of postmodernism does appear to form the basis for describing the situation on the ground, suitable implementation for the realisation of basic needs and aspirations for urbanisation need to be addressed. The alternatives suggested by the progressive planners and those theorists attempting to make sense out of postmodern fragmentation and diversity, can and must be applied to the SA situation in the appropriate context. South Africa is a perfect example of diversity as it embraces a multiplicity of cultures that have different ways of looking at things, different ways of communicating, conflicting power struggles and traditionally marginalised groups 'with their voices from the borderlands'.

As far as implementation and practice are concerned, there appears to be disjuncture between theory and practice, depending of course on what theory one is focusing. The notion of postmodernism by its very nature can be applied to the current situation, but as mentioned previously does not offer a practical solution to the problems facing planners. From the literature and general observation, South Africa does seem to be in an

abyss, there is a gap between planning and implementation. In an effort to rectify this or at least work towards bridging this gap, planners should recognise and incorporate those theories proposed by the progressive planners. It is necessary to embrace the postmodernist notion and resultant urban characteristics if one is to try and understand the situation. As far as implementation is concerned, perhaps if it was recognised that although utopia is unattainable in the real world, the basic modernistic incremental principles could be applied with the appropriate modifications in an effort to achieve some compromised solution.

Planners in South Africa must also recognise that discrepancies within the technocratic framework exist. In an effort to apply theory to the real world situation it appears that the authorities and the powers that be apply double standards in terms of regulations and enforcement. On the one hand restrictive regulations are applied to the formal sector and a total free hand is allowed for the informal sector. With regards to POS, the same applies, in formal areas public open space is adequately provided for and maintained as opposed to the townships and squatter areas where there is very little open space and municipal support is virtually non-existent.

After having reviewed the literature and applied it to the situation in South Africa it is apparent that the theory of planning and its application to practice is complex and dynamic and constantly evolving with urban growth. There does not seem to be an easy answer to the questions at this point but the very identification and recognition of these dynamics and those notions relating to progressive planners and their incorporation into planning theory and practice will surely help the planning process in South Africa. Planning practitioners need to accept the challenge of diversity and regard them as potential opportunities. Multiplicity and diversity if incorporated through progressive planning practice such as

collaborative communication can lead to innovative solutions and ultimately a sustainable management.

In conclusion to quote from Forester

' Action can be unequivocal, knowledge can be helpful, and people can struggle successfully to improve their lives. As planners, we do have something to contribute. Our understanding and actions, however must respect democratic practices that articulate the diversity of peoples' experiences and be communicated clearly and honestly'. (Forester in Beauregard, 1991:193).

3.2.7 Contemporary Planning and Public Open Space for the DMA

The principles of contemporary planning theory should be applied to the planning process for the provision of POS in the DMA as it is an area characterised by diversity and multicultural communities. Planners and policy makers should adopt a collaborative process and incorporate communication and at the same time acknowledge a lack of communication by those marginalised in society. Although officials and consultants that plan for POS are concerned with overall sustainability and environmental protection, the needs and perceptions of the different communities and cultures should also be included in the process. In the past the planning of POS was more autocratic and 'top down', based on a scientific rationale for the combined good of a homogenous public. With the emergence of contemporary planning practice this philosophy is overturned and planning from the 'bottom up' that considers the collective good for a diversity of cultures is advocated. The planning of POS in the DMA should thus adopt the principles of collaborative planning in order to work towards a more appropriate and sustainable system.

3.3 ENVIRONMENTALISM

The environmental movement that evolved during the later years of the twentieth century, on which much of the POS policy of our city was

based, is also subject to the theoretical discourse pertaining to modernism and postmodernism. Within environmentalism there is a tension between reformism and radicalism, and between technocentrism and ecocentrism. These opposing opinions can be regarded as the two opposing poles on a continuum (O'Riordan, 1981). Within this environmental continuum and falling between these two opposing approaches are other viewpoints such as Biocentrism, Ecofascism and Green Feminism (Eckersley, 1992).

3.3.1 Technocentrism

Technocentrist environmentalism, 'technogreens', involves technocratic management, regulation and 'rational utilisation' of the environment. This process is reformist and is based on scientific and rational planning methods. It is basically modernism and focuses on better planning techniques, more efficient state capital, careful economic appraisal and ecological awareness. It would attempt to maximise human benefit without significant environmental costs and without threatening economic growth (Pepper, 1984).

3.3.2 Conservation and Preservation

Conservation and preservation is closely linked to this scientific, reformist technocratic approach. The aim is to maintain essential life-support systems, to preserve genetic diversity and to promote sustainable development of species and ecosystems through scientific management. Historical connotations of these processes should always be remembered, as in the past conservation was exploitative as its main aim was to preserve the environment for the rich elite of the developed north from the uneducated indigenous locals, as noted by Pepper for example, the *'educated hunted whereas the locals poached'* (Pepper, 1984:67).

The original D'MOSS that has been implemented in the Municipal area of Durban, is predominantly based on scientific biogeographic conservation and preservation principles.

3.3.3 Ecocentrism and Radical Environmentalism

The environmental development ideals as listed above, are challenged by 'radical environmentalism' that is based on social utopia (Eckersley, 1992). The Ecocentric movement or 'Deep Green' environmentalists argue that human behaviour should be radically altered to replace its current exploitative and damaging practices, the relationship between the human species and the natural environment should be harmonious (Healey, 1997).

Ecosocialism redefines needs, redistribution of resources and reassesses the industrial mode of production and replaces private ownership in favour of social justice (Ryle, 1991). It is thus believed that there can be no solution to environmental problems without political change, it is anti-industrial, anti-bureaucratic and anti-state. This is known as 'green development' and involves the gradual withdrawal from modernist capital world economy towards a non-modern, non-capitalist development project. Green principles of development are that the social unit of development would be a culturally defined community, whose development should be rooted in its values and institutions, self-reliance, social justice and ecological balance (Macey, 1990; Pepper, 1993).

Groups that are closely aligned within this school of thought are 'marginalised people', 'post-materialists' (Yuppies supporting non-hierarchical and decentralised structures of decision making) and the 'Traditionalists'. The 'Traditionalists' wish to resist capitalism in the form of state-building, commercialisation and industrialisation and includes mainly non-western civilisations and religions, old nations and tribes, local communities, kinship groups, informal economies and feminist culture. For example the Chipko, villagers fighting deforestation and the Greenpeace movement (Macey, 1990).

3.3.4 Environmentalism in South Africa

The metaphorical notion that the modern West is a model of achievement and the rest of the world is a childish derivative (Manzo in Crush, 1996) underpinned environmentalism in South Africa. A vast development machine was constructed in which a depoliticised technocratic language of development was adopted to best serve the apartheid strategy of separate development. In South Africa environmental mismanagement was central to the idea of separate development and betterment was pursued on the notion that African cultivation and pastoral practices despoiled the environment. Only scientific management could redeem the environment and educate the 'despoilers'.

The dualistic and reductionistic principles associated with scientific environmentalism adopted in the past has resulted in the distinction between urban and rural areas, the 'built environment', 'natural' and 'agricultural'. Where nature has been incorporated into the city, it is in the form of aesthetic or ecologically isolated open spaces. As a result South African cities are labelled as being inefficient and wasteful mainly due to the lack of integration of development and concerns for the environment (Patel, 1995). Clearly an alternative more inclusionary approach is needed which challenges these issues and O'Riordan's polarity (Healey, 1997). Such an approach is provided by Sustainable Development. The next section will consider the background to Sustainability and the debates surrounding it.

3.4 SUSTAINABLE DEVELOPMENT

In the light of development and rapid urbanisation the concerns for the environment have resulted in an awareness of ecological principles fundamental to the relationship between man and the world we live in. This relationship is a cyclic dependence of all life forms on each other and the physical environment. In the last decade the Ecological and Conservation approach to mans' impact on urban areas has been

expanded upon, resulting in a complex development model of Environmental Sustainability. According to the International Union for Conservation of Nature,

'sustainable development improves people's quality of life within the context of the earth's carrying capacity.' (Girardet, 1992:15).

The concept of sustainability was widely accepted as the development paradigm in the 1980s. The massive use of non-renewable resources, such as fossil fuels and iron ores, exceeds the carrying capacity and renewable resources are not being replaced, with little concern for long-term consequences. In the future, cities must function in a symbiotic way with the earth's environment to ensure their own survival. The obligation to change mans' relationship with the planet to one that is sustainable was formalised by the Brundtland Commission in 1987 (Lock, 1992). Their definition for sustainability is as follows:-

'Development which meets present needs without compromising the ability of future generations to achieve their needs and aspiration'

Alternative development strategies based on the notions of sustainable human-centered development such as self-sufficiency and regional integration, based on participation, empowerment on the democratising of institutions are being considered. Although it appears logical and convenient to adopt this concept of development is also prone to postmodern deconstruction.

Adams in Crush (1996) notes that this definition is superficially attractive as it links diverse and divergent ideas and blends them into an apparent synthesis. Despite the underlying confusion, or because of it, mainstream thinking about sustainable development is considered to be consistent,

'the flexibility of the phrase 'sustainable development' and the rampant enthusiasm with which it has been adopted, makes it

resistant to analysis. That conservative development agencies and environmental groups and organisations can all embrace the concept suggests that the term is so ambiguous as to have little meaning.' (Cole,1990:4).

Similarly, sustainable development can be considered from different environmental viewpoints, the 'green' and 'brown'. The 'Green' environmentalists, more often the elite, focus on conservation issues and are considered to be reformist and technocratic as they rely on academic concepts such as environmental impact studies and carrying capacities. The 'Brown' environmentalists, usually the poor, focus on the relationship between poverty and environmental degradation as they confront the harsh environmental burdens that economic development has imposed on impoverished communities.

Sustainable development should consider a balance between the two extremes and Redclift (1987) revised the sustainable development approach to take into account the underlying inequalities that limit the livelihood opportunities of poor people and their environments. This Eco-development approach points out that development will not be sustainable unless poor people are involved in meeting their aspirations. Chambers in (Redclift 1987) notes that the poor are largely concerned with their immediate livelihoods and that it is the enlightened rich who give priority to sustainability. The perception of the poor is not that of most economists and biologists, as they are more concerned with day to day survival before sustainability or higher productivity. The time scale of the poor is much shorter as they are concerned with day to day survival. For sustainability to become a reality it is thus necessary for the livelihoods of the poor to be given priority and this can only be achieved through education and government support.

3.5 SUSTAINABILITY IN URBAN AREAS

Breheny (1990) was of the opinion that the role cities play in affecting the natural environment produces an appreciation that maybe our cities are themselves a resource that needs to be protected as development activities are sustained. This is 'sustainable urban development'. Although cities destroy resources through their production they are a productive base for economic growth, rising living standards, of innovation, education and culture. The city is a resource that sustains much of our economic, social and cultural life.

Further to this, in 1990, the European Commission produced a Green Paper on the Urban Environment that considered the policies underlying the causes of urban environmental problems and the wider impact of urban areas. Based on this, four main principles of urban sustainable development were identified :-

- Futurity; to ensure that the needs of future generations are not compromised and to maintain a 'minimum capital stock' of resources.
- Environment; by taking environmental costs of activities into account. (i.e. Critical loads and precautionary principal to be applied to decisions when the outcome of an activity is indeterminate. Decisions should be based on precaution.)
- Equity; with inter-generational equitable access to resources between generations and intra-generational referring to equity within a generation. For example, the unsustainable rate of consumption of developed urban areas could not be attained by the entire global population without ecological catastrophe, yet it is the aspiration of most developing nations. In order to overcome this, access to resources should be more equitable.
- Participation; individuals should share in decision making in the actual process of development in an attempt to enhance democracy and reduce discrimination.

In 1992 the UN Conference on Environment and Development initiated Agenda 21 which was a global plan for socially, economically and environmental sustainable urban development, known as the 'Earth Summit'. Agenda 21 recognises that unless sustainable development is placed at the top of the international development agenda, global environmental degradation will continue to marginalise the poor, damage human health, slow growth in world food production and hinder economic progress globally (Hindson *et al*, 1996). The policies of the Agenda 21 highlight the need for sustainable and environmentally friendly growth and development path and a people driven process. In order to achieve this governments must work towards equitable access to natural resources, safe and healthy living and working environments and participatory decision-making processes around environmental issues empowering communities to manage their natural resources.

The City of Durban has embraced this concept and is one of the global forerunners with their Local Agenda 21 and D'MOSS programs. 'Durban's Tomorrow Today: Sustainable Development in the Durban Metropolitan Area' by Hindson, King and Peart (1996) applies sustainable development concepts at a practical level to the DMA. This document provided a basis for sustainable development at a local level for the purposes of this research work.

The importance of a 'bottom up' participatory process for planning, development and sustainable management has emerged as a fundamental prerequisite for successful sustainable development. Public participation, collaborative planning, community involvement and empowerment is to be facilitated through partnerships between the local communities and local government.

A major factor affecting sustainability of urban areas is the shape of settlement patterns or urban form. In order for a sustainable urban form to

be achieved it is inevitable that trade-offs will have to be made between socio-economic and environmental gains. For example, environmentally desirable urban forms may be less desirable in economic and social terms (Breheny and Rookwood, 1993 in Patel, 1995). Since land use is fundamentally related to environmental change, planning policies shaping urban form thus can become important strategies for a more sustainable development (Owens, 1995). As the provision of POS within a city is closely related to urban form the importance of this aspect is emphasised and will be considered more closely in the next section.

3.6 SOUTH AFRICAN URBANISM

South African cities rank as the most wasteful urban environments in the world as their spatial form is characterised by sprawl and fragmentation (Patel, 1995). The major environmental problems in urban areas arise from the high rates of urbanisation, lack of holistic urban development policy and an increasing poverty of city dwellers. South African cities are characterised by a unique physical structure, which has been brought about as a result of changing social and economic forces, apartheid planning and the adoption of particular approaches (often from first world countries) to physical planning and urban growth. South African cities inherit from apartheid an urban form that is fragmented, racially structured and in which the vast majority of the poor are located on the urban periphery and the affluent in the core. This inverts the usual form of cities by creating high density impoverished areas on the urban fringe and relatively low densities in the urban core. The resulting urban structure is characterised by low density urban sprawl and fragmentation resulting in high costs in terms of transportation, provision of services, public facilities as well as environmental costs in that valuable agricultural land on the city edge has been overtaken by urbanisation.

During the last decade a 'deconcentrated' urban regional structure has resulted in a massive movement out of overcrowded townships onto vacant land close to or within the city mainly in the form of informal settlements. This process has placed pressure on rapidly depleting well located open land near the city core. This urbanisation has also been associated with increased pressure on natural resources and municipal services, leading to intensified competition and conflict especially on the urban peripheries. Ecologically sensitive and valuable areas have been destroyed as impoverished people survive by exploiting nearby natural resources. Lack of basic services in informal settlements result in severe solid and liquid waste removal problems, dumps in and near residential areas and stream and river pollution. These problems associated with the built environment, are most prominent in black residential peripheries and are growing in the core metropolitan areas.

In the current climate of national reconciliation, the RDP and Constitution provide policy frameworks for a comprehensive redesign and reconstruction of existing activities in SA. The need for a 'sustainable and environmentally friendly growth and development path' and a 'people driven process' is highlighted. In order to achieve this the government must work towards equitable access to natural resources, safe and healthy living and working environments and participatory decision-making processes around environmental issues empowering communities to manage their natural resources.

In order to overcome these urban problems it is necessary to reconsider the principles guiding growth and development. On restructuring urban growth in South Africa, Dewar and Uytendogaart (1991) state that the environments which are efficient, and which work best, especially for the historically marginalised lower income groups, are compact, public transport based and richly mixed and integrated in terms of uses. According to Behrens and Watson (1996) urban environments should be

enriching, sustainable and convenient, providing opportunities and choices to its inhabitants, in a way that makes efficient use of limited resources.

3.7 SUSTAINABILITY AND SOUTH AFRICAN URBANISM

Based on the current literature dealing with the restructuring of the urban form of South African cities, common processes can be identified as many of these processes run in parallel with those proposed for a sustainable city form. In an urban context sustainability basically means resource budgeting, energy conservation and efficiency, renewal of energy technology, long lasting built structures, reduced proximity between home and work, efficient transportation systems, waste reduction and recycling, organic waste composting, a circular metabolism and a supply of staple foods from local sources. These principles if incorporated by planners have a distinct impact on urban form.

Those policies forming the guide for restructuring the built environment in South Africa that integrate urban planning, the environment and have a bearing on public open space and are listed as follows:-

Urban sprawl to be contained by compacting of cities; through the infill of open spaces, buffer zones and the rehabilitation of existing housing stock. Densification of low density areas could be further achieved by relaxing zoning controls and applying performance standards and by integrating the core and periphery. Compacting of the city is regarded as essential for improving energy efficiency of existing urban form (Alexander, 1990) and Lock (1992) identifies the compacting of the city to be inherently sustainable. The sustainability of compacting cities has been challenged and Owens (1991) notes that congestion problems and potential loss of urban green space and 'town cramming' can be associated with compact urban centres. She suggests the integrated development of centres within existing cities that are large enough to provide access to a good range of

jobs and services, without the need for long journeys and by good public transportation links.

It should be noted at this point that city compaction could negatively affect the provision of POS through the additional pressure it would exert on available undeveloped urban open spaces.

Establish and maintain the relationship between non-urban and urban land.

It is necessary to fix an edge between urban, agricultural and rural land as contact with natural areas provides opportunities for contact with nature and recreational needs (Dewar and Uytendogaart, 1991). It can be argued, however that that by restricting natural areas to the periphery of the city the dualism between the natural and built environment would be perpetuated (Patel, 1995). Dewar also stresses the need for green areas within the city in the form of formal 'horticultural' parks and avenues in an effort to regain the imageability of the city. This is in contrast to Roberts (1990) who proposes 'naturalisation of the city landscapes' through the D'MOSS, so that the city itself becomes an ecological resource as it sustains the habitats for natural communities (Patel, 1995).

Hough (1995) points out that there are two landscapes in the city, the formalistic and the natural. Many urban parks and green spaces are civic in nature in that they are artificial systems based on horticultural science requiring high energy inputs for maintenance. In contrast, the regeneration of plants and animals on vacant lots and urban wastelands create ecosystems that support a natural bio-diversity and are self-sustaining. This touches on the question of attitudes and perceptions to urban space, the pedigreed and the vernacular.

'The turfed front yard of the well to do neighbourhood gives way to sunflowers, daisies, vegetable gardens, intricate fences, ornaments and religious icons of every conceivable variety, expressing rich

cultural traditions, and the imperatives of necessity.' (Hough, 1995:21).

This vernacular landscape has evolved with minimum interference from authorities and although it is to a degree self-sustaining it is often regarded as derelict and in need of urban renewal. Perhaps the richness and diversity of these poorer areas in cities should be recognised and accepted for what they are.

Integrate the city through multi-functional use of urban elements and by providing for mixed land use zones; by designing spatial systems that can accommodate a range of activities through mixed use activity corridors as well as a decentralised pattern of commercial and small scale industry. In addition, the provision of an economic infrastructure creating income earning opportunities in residential areas by working from home and establishing small commercial enterprises and informal street trading should be encouraged. Also promoting the use of roads as open spaces with social functions such as market places should be incorporated into POS planning and design. Jacobs (1960) points out the merits of dense cities with vigorous street lives as streets are places that give access to a range of exchange opportunities and public transport not only helps create a more economic and environmentally sustainable city, it also promotes diversity and spontaneous exchange.

It is suggested that the natural environment can be used in a more multi-functional way. According to Dewar (1992), natural areas are regarded as 'non essential infrastructure' in low-income communities, where open space is in the form of sportsfields and playlots. It is suggested that the natural environment should be used in a more multi-functional manner in an effort to meet the basic needs of poor communities, and the importance of small-scale agriculture is noted by Dewar and Watson (1996). Since there is a lack of alternative form of income generation, many people will seek sustenance in intensive small scale agriculture

around the larger urban cities. Hough (1994) notes that city farming provides a basis for community revival in depressed urban areas, it returns derelict land to productive use and through community effort it is self supporting. Urban farming is an alternative way of renewing contact with the land and nature through therapeutic and healthy work and at the same time obtaining food at a reasonable cost. This would be particularly relevant in the SA context because of the high poverty and unemployment levels. On a larger scale, woodlots could provide opportunities for low income communities by providing for supplementary energy sources, building materials, wind breaks as well as providing for recreation (Dewar, 1992).

Provision of adequate basic services. Since there is inadequate funding to provide services for all it is suggested that basic services be installed. Although the nature of these basic services would be efficient and cost effective, the population aspire to services of the same calibre as in developed areas and this might be problematic (Hindson *et al*, 1995). The possibility of integrating services such as stormwater runoff with the POS should be considered.

Investigate the viability of alternative energy sources and development of an integrated energy plan. Investigate options for recycling water and development of affordable waterborne sewerage systems as well as recycling of waste. By encouraging more efficient energy consumption and recycling, would move towards the ecological concepts supported by Hough (1995) and McHarg (1969). This is not a widely accepted practice in SA cities and would require education and public participation programmes. The incorporation of such services with POS management should be considered.

3.8 CONCLUSION

In adopting a Critical Realism Approach to the theory underpinning this research work, theory can be regarded as a dynamic process that is continually evolving. The theories of Planning, Environmentalism and Sustainability are processes that evolve continually as knowledge advances and conditions in the real world change. It should thus be acknowledged that at the time the D'MOSS was developed it was in line with dominant planning and environmental theory. In the light of Modernist thinking, the rational 'top down' scientific approach was regarded as efficient and effective.

With the emergence of Sustainable Development principles, theories have evolved and acknowledge that there is a need for greater integration and a more collaborative approach. Obviously the original principles underpinning the D'MOSS are now outdated and although scientifically sound, it is necessary to incorporate a more participatory 'bottom up' approach so that all the different community groups and cultures are included. It is also imperative that the debates pertaining to sustainable development are considered when planning for POS, particularly the incorporation of 'brown' issues and social needs. The majority of the population in the DMA falls in this category and by acknowledging these needs at the outset and incorporating the issues collaboratively in the planning stages, the D'MOSS will become an appropriate strategic environmental management tool.

Urban form, as proposed by South African Urbanists, has incorporated POS as a strategic tool for achieving sustainability. For example by integrating the city through multi-functional use of urban elements such as incorporating POS with other community facilities and encouraging social open spaces such as meeting areas and market places. Integrating services such as stormwater runoff and waste removal and recycling with POS is also suggested.

The last ten years have seen enormous change with regard the theoretical philosophies that underpin the principles of planning policies. With the evolution of theoretical concepts and the acceptance of the sustainable development paradigm it has been necessary to re-evaluate policies that guide development from those at a National level right down to the Local Authority level. These changes are being considered and incorporated into the new policies and legislation that are being promulgated in accordance with the political restructuring of South Africa. Many of the current restructuring initiatives affect planning and environmental protection, and thus through association, the provision and management of public open space. The next Chapter will look at the relevant legislation, policies and projects, in particular the Durban Metropolitan Environmental Policy and the Durban Metropolitan Open Space System Framework.

MAKGABO MAPULA HELEN SEBIDI

When traditional cultural patterns are callously destroyed, an entire society can lose all sense of direction. 'People don't know where they want to go. They're unhappy. It's quite heavy for a black woman. When she has to talk she is not allowed to. There is something blocking her. "It's on my shoulder, how can I move this load from my shoulder? She is not free. When you are in the backyard you can't get out-it's a very big mess in Soweto'.

Mmakgabo Mapula Helen Sebidi's drawings are mass portraits of the disrupted society created by exploitative legislation which treats Africans as labour units. Well-paid jobs are scarce. Men who are unable to bring home enough money to support their families lose authority. 'He has been kept as a woman under the white man's shoulder instead of trying to create his own work. If he says to his family. "I'm not having a job,' they'll say, "Go into the street and look for a job."

Sebidi's work is quite confrontational. 'When you go to the location you're getting squeezed houses,' she says, and every inch of her picture surface is covered with bodies. They're jammed up against the edges. They push and shove in the struggle to survive. There's no room to breathe here. No time to stop and relax a moment. One is reminded of the commuter trains which carry workers between Soweto and central Johannesburg, crammed so tight that people hang out of the open doors and a man can be stabbed in the back and his body won't fall down.



Source: Resistance Art in South Africa, Sue Williamson, 1990.

4. STRATEGIC PUBLIC OPEN SPACE POLICY

4.1 INTRODUCTION

The provision of public open space is a function of local government. With regards developing and implementing policies and programmes the Local Council is obligated in terms of co-operative governance to adhere to procedures set in accordance with National and Provincial governments. In addition, the provision of POS should be in accordance with the recommendations of the various environmental and spatial initiatives that have been prepared for the Local Council. These overall relationships are graphically illustrated in Figure 8 as a Metropolitan Policy Framework.

This chapter will briefly consider the legislation, policies and projects that have relevant bearing on the POS policy in Durban. Conversely POS can be identified as a common element in many of the current strategies and initiatives adopted by the city. The role of POS can be identified as being one of the strategic tools required for achieving the objectives identified in these processes. Within this strategic framework, the D'MOSS Framework Plan will be analysed.

4.2 NATIONAL POLICY

Local government is required to comply with and enforce a formidable range of legislation relevant to the environment.

On a National Level, the new Constitution creates an 'Environmental Bill of Rights' (section 24) and requires local government to 'promote a safe and healthy environment' and citizens have the right to take legal action against local government to secure these rights. In addition, the local councils must operate within the goals and guidelines provided by the Reconstruction and Development Programme (RDP) and the Growth,

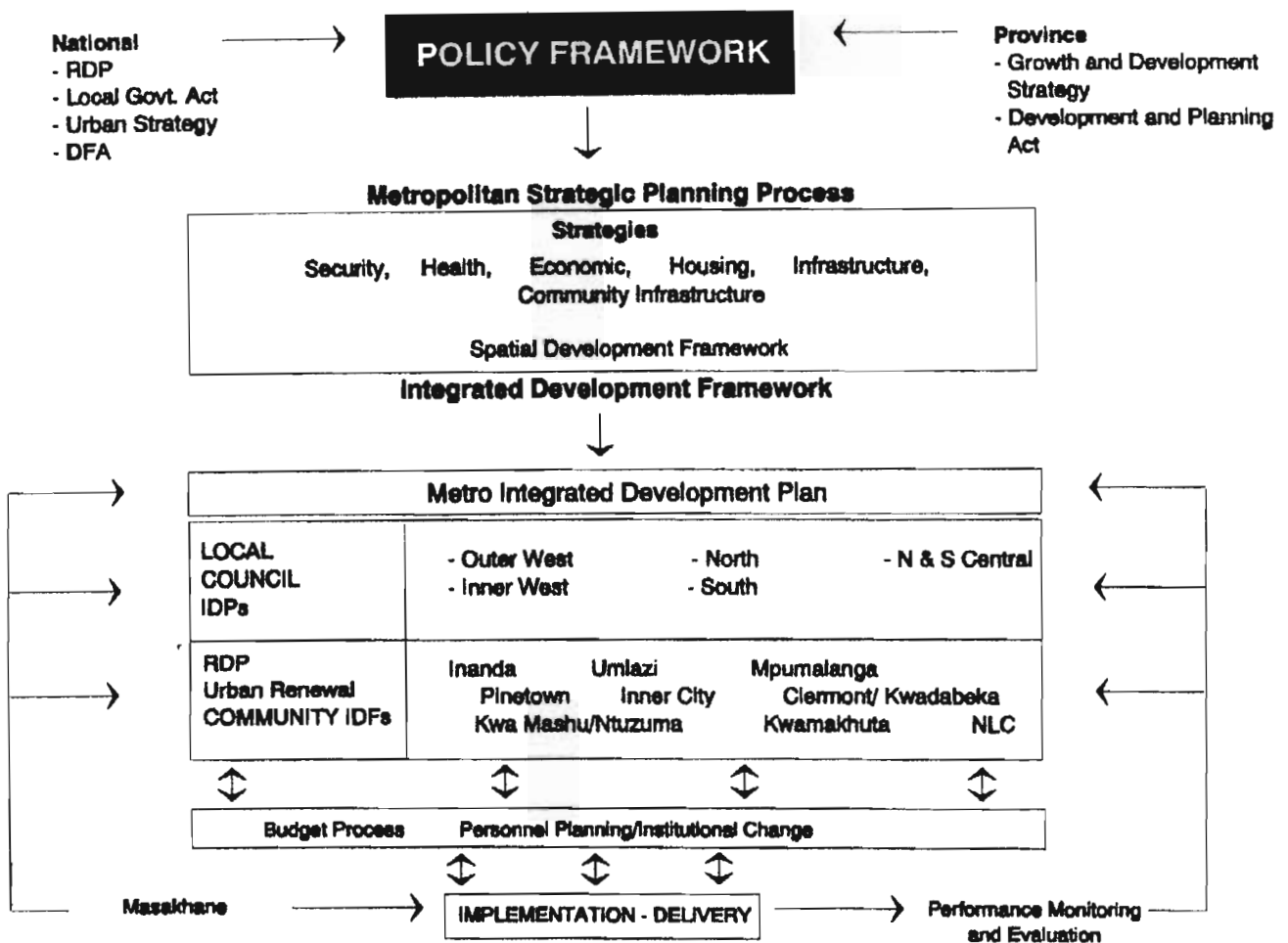


Figure 8 : Metropolitan Policy Framework

After: IDP 1998

Employment and Redistribution Strategy (GEAR), both of which support a sustainable development.

Environmental considerations and the protection of open space is also incorporated in the new national Environmental Impact Assessment (EIA) regulations (1997), through the KwaZulu-Natal Planning and Development Act (1998) and the proposed Environment Management Bill (1998). The Development and Facilitation Act (DFA) (1995) sets out principles for land development, imposes requirements regarding environmental management and requires environmental sustainability.

In addition it is necessary to take into consideration White Papers such as the following: -

- White Paper on the Conservation and Sustainable Use of South Africa's Biodiversity (1997).
- Draft White Paper on Environmental Management Policy (1997).
- Water Policy White Paper (1997)
- White Paper on Social Welfare (1997)
- Arts, Culture and Heritage Draft White Paper (1996)
- Sports and Recreation Draft White Paper (1995)
- The Urban Development Strategy of the Government of National Unity (1995).

4.3 INTEGRATED DEVELOPMENT PLANS

The Development Facilitation Act, 1995, and the Local Government Transition Second Amendment Act, 1996, stipulates that local governments must prepare Integrated Development Plans (IDP) which should ensure the integration of environmental considerations into overall local governance and development. The Local Government White Paper, 1998, states that

'planning for environmental sustainability is not a separate planning process, but an integral part of the process of developing municipal IDPs'.

It must be noted that the IDP for the Metropolitan Council which covers the whole DMA, does not consider the provision of public open space, this the responsibility of the individual Local Councils, although the strategic D'MOSS framework incorporates the whole DMA.

The IDP for the Durban North and South local Councils (1998) has been used as a basis to ascertain general trends regarding environmental considerations, recreation facilities and POS, and the salient points have been summarised as follows:-

- Promote a sustainable city programme.
- Integrated development and strategic planning.
- Protect and enhance the natural environment by ensuring integrated approach to the environment.
- Extend recreational opportunities into areas of previous neglect.
- Expand recreational activities.
- Promote community participation.

More specifically:-

- Opportunities for D'MOSS have been identified as:-
 - Nature tourism, particularly the identification and marketing of local bird fauna to bird watching enthusiasts world-wide.
 - Supplying the 'muthi' industry, if medicinal plants were reintroduced into grasslands and urban 'Natural' open spaces.
 - Passive and active recreation through the provision of walking trails, interpretative displays and picnic spots.
- The Recreation department has as its vision to improve the quality of life for all within the DMA, through the provision and care of sports and recreational amenities and services as a positive encouragement

towards active participation in sporting and recreational activities, and the further promotion of tourism. This department is responsible for the provision and maintenance of recreation facilities such as beaches, swimming pools and sports fields. It has been noted that there is a discrepancy in the provision of facilities between areas, with the central areas being well provided for and the historically disadvantaged areas facing a serious shortage of recreational facilities. Since the majority of the population lives in the disadvantaged areas these inadequacies in recreational facilities are a serious concern.

The problems impeding delivery in these areas are due to a lack of available land, the provisions of the Ingonyama Trust Act, the illegal occupation of land by informal settlers, high levels of crime and the resistance to change by the historically disadvantaged groups (IDP, 1998). The main development challenges were identified in the IDP (1998) as:-

- the need to provide new facilities in areas that are still lacking
 - the need to upgrade facilities in historically disadvantaged areas to bring them up to acceptable standards
 - the need to maintain existing facilities in all areas
 - the shortage of land on which to build facilities
 - the long distances that some communities travel to recreational opportunities.
-
- The Parks Department of the Culture and Recreation Service unit is responsible for administering the parks and recreational open spaces covering over 4 500 hectares that fall in the North and South Central Local Council. Including nine major natural system parks, several small nature reserves, the 14,5ha Durban Botanical Gardens, 60 other parks of horticultural and floral attraction, 140 recreational playing fields and numerous children's' playgrounds. Many of these open spaces fall within the D'MOSS linking 2 100ha of open space. In addition the

Department also cares for over 650 000 street trees, maintains 3.2 million sqm of verge and enforces clearance of overgrowth on undeveloped land in private ownership.

Not all residents of the city have equal access to recreational open space and the Department is involved in providing for services such as parks, playlots and street trees in the previously disadvantaged areas.

Development challenges have been identified as follows:-

- a high incidence of vandalism
- safety and security of staff
- land invasions
- illegal dumping.

4.4 METROPOLITAN POLICY

4.4.1 Development Frameworks

At the Metropolitan level, Local Authorities must take into account policies developed by the Metropolitan Authority. The Metropolitan Integrated Development Framework (IDF,1997) and associated Spatial Development Framework (SDF, 1997) lay the framework for spatial development in the DMA.

The IDF (1997) advocates a *'Clean and safe environment providing employment, housing, and a high and sustainable quality of life'*. (IDP, 1998:13).

The SDF (1997) provides guidelines for directing the physical development of the DMA towards a more socially equitable, functionally efficient and environmentally sustainable form. According to the SDF (1997) the challenge to the DMA is to use planning approaches which reshape population and economic location dynamics to form a more integrated and efficient system by linking residential and employment

areas, providing access to urban services and work opportunities and integrating social and ecological systems. The evolving spatial structure of the DMA displays existing, incipient and potential activity spines, which together with its open space systems represent an evolving grid. Figure 9 is the Spatial Development Concept Plan indicating the main structuring elements, in which open space is prominent. The grid comprises strong movement routes, which run north and south along the coastal plain, and natural Riverine systems that run west to east inland from the coast. It has been suggested that planning processes which builds on the basic grid of inter-connected natural systems and movement routes will promote a sustainable city form (SDF, 1997).

The SDF recognises the integral part that open space planning plays in the restructuring process and stresses that the built environment needs to positively incorporate natural systems. The importance of the D'MOSS is highlighted with reference to the inclusion of tourism, urban agriculture and recreation. The following policy guidelines for a MOSS were listed:-

- MOSS is an integral and essential component of the spatial restructuring process.
- The DMA natural environment provides the basis for a desirable and sustainable urban system.
- Open green spaces and public spaces should be creatively used to provide important building blocks for the DMA.
- MOSS should be seen as a resource that will add to the quality of life and visual amenity.
- Existing natural environment resources should be protected and enhanced.
- The natural resource should be a functioning ecosystem that does not need costly maintenance.
- Development should be directed away from hazardous areas such as flood plains.

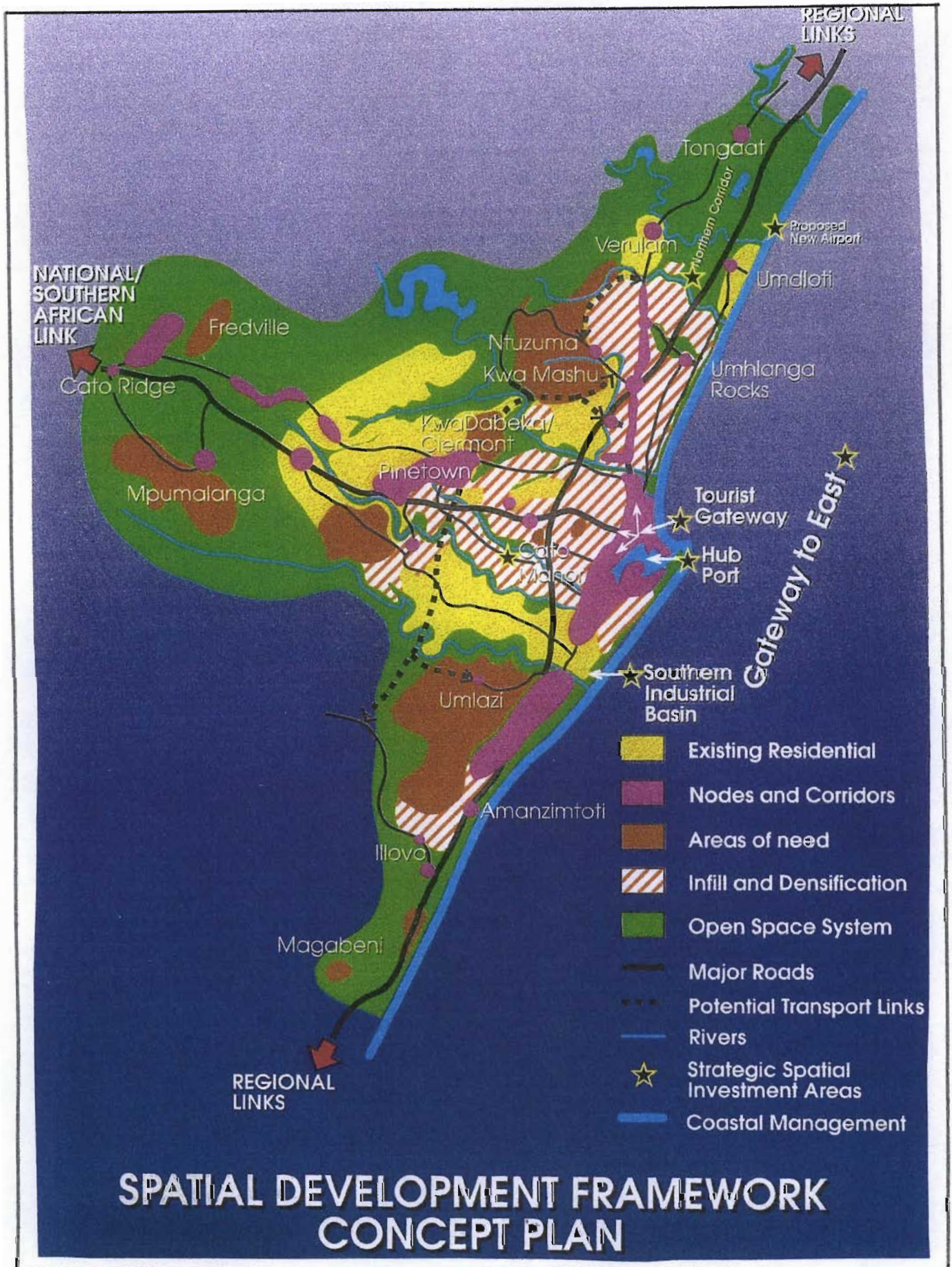


Figure 9: Spatial Development Concept Plan

After: Spatial Development Framework DMA 1997

- MOSS should integrate tourism, urban agriculture and recreational opportunities that promote ecological, economic and social objectives.
- Previously disadvantaged areas should be targeted for the identification of open space projects.

4.4.2 Local Agenda 21

On a global scale, Agenda 21, a plan incorporating socially, economically and environmentally sustainable development, was adopted at the United Nations Conference on Environment and Development in Rio de Janeiro in June 1992, also known as the Earth Summit. The Local Agenda 21 programme implements these principles at a more practical local authority level. Local Agenda 21 was adopted by the Durban City Council in 1994.

In response to the global Agenda 21 initiative, a Local Agenda 21 project conducted a 'State of the Environment Survey' for the DMA which is documented in 'Durban's Tomorrow Today' (1996). This document considers the interconnected systems of the human systems (built, economic, social and governance) with the natural systems, to form the whole environment and development sphere which is illustrated graphically in Figure 10.

The document notes that D'MOSS was designed to provide a web of open spaces linking remaining important natural areas in the region previously encompassed by the Durban municipality. Increasingly however, the role of open space is being seen in terms of its wider contribution to the city sustainability through the preservation of natural systems. This refers not only to maintaining ecological systems, but also to human life support requirements such as clean air, fresh water, protected soil cover, protection from exposure to light, heat and noise, and flood attenuation (SDF, 1997).

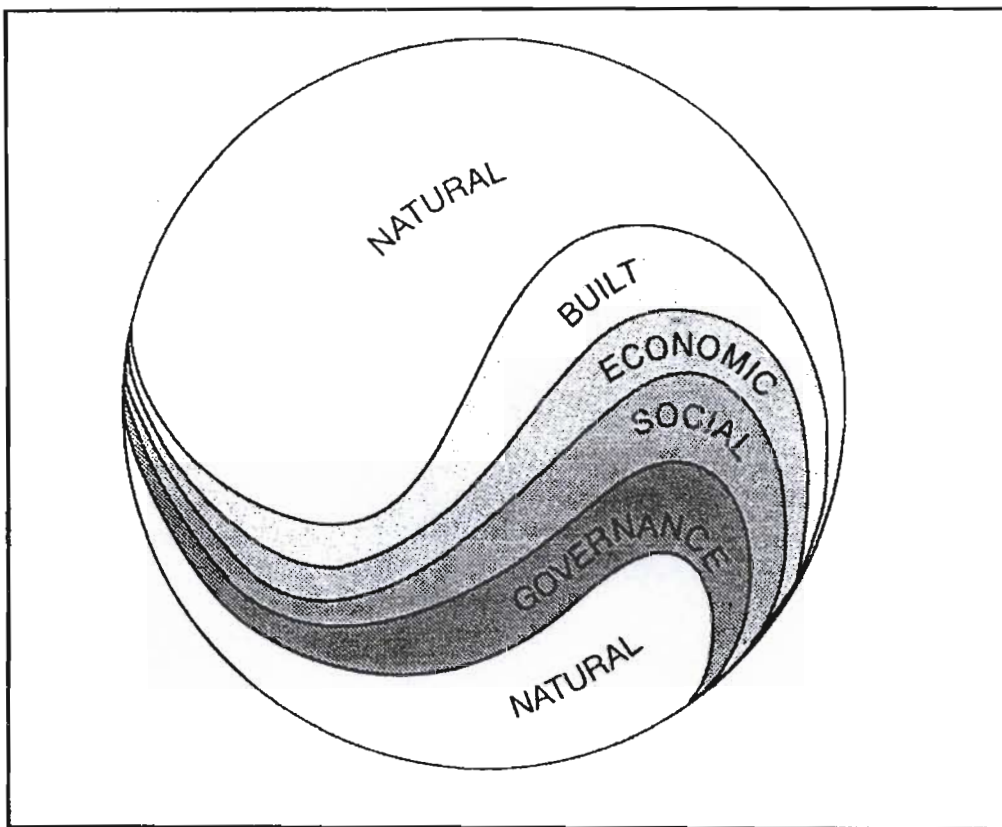


Figure 10: Environment and Development Sphere
After: Durban' Tomorrow Today 1996

The document deals with the status of open space and Figure 11 is a map showing the extent of undeveloped land in the DMA. The negative features of natural systems have been summarised as follows:-

- natural systems are heavily transformed
- under severe pressure
- commercial agriculture has an enormous physical impact
- alien species invasion
- effects of industry, commerce and transport
- economy impacts directly through resource use and creating wastes.

The positive features have been listed as follows:-

- good climate, topography and vegetation
- potential for rehabilitation of natural system and expansion to meet new economic, social, health, educational, recreational and cultural needs.
- nursery function of estuaries for marine life, flood control, water cleansing of wetlands and estuaries, air cleansing, noise shielding, heat reduction, open spaces for urban agriculture and recreation.
- potential of expansion for 'muthi', foodstuffs and building materials.
- potential for D'MOSS offered by topographically undevelopable land such as gorges and river valleys.
- maintain biodiversity and conserving rare and threatened species and habitats as well as protecting original landscapes.
- growing understanding of different communities in DMA of interconnectedness between environment and development.

In addition to the contextual analysis of the state of open space, surveys were conducted for the Agenda 21 project to ascertain social perceptions of natural environment and the following has been noted:-

- Appreciation of the environment was expressed by many respondents in all the case studies, rich and poor, White and Black. Regret at the extent of environmental degradation was noted by many. Knowledge

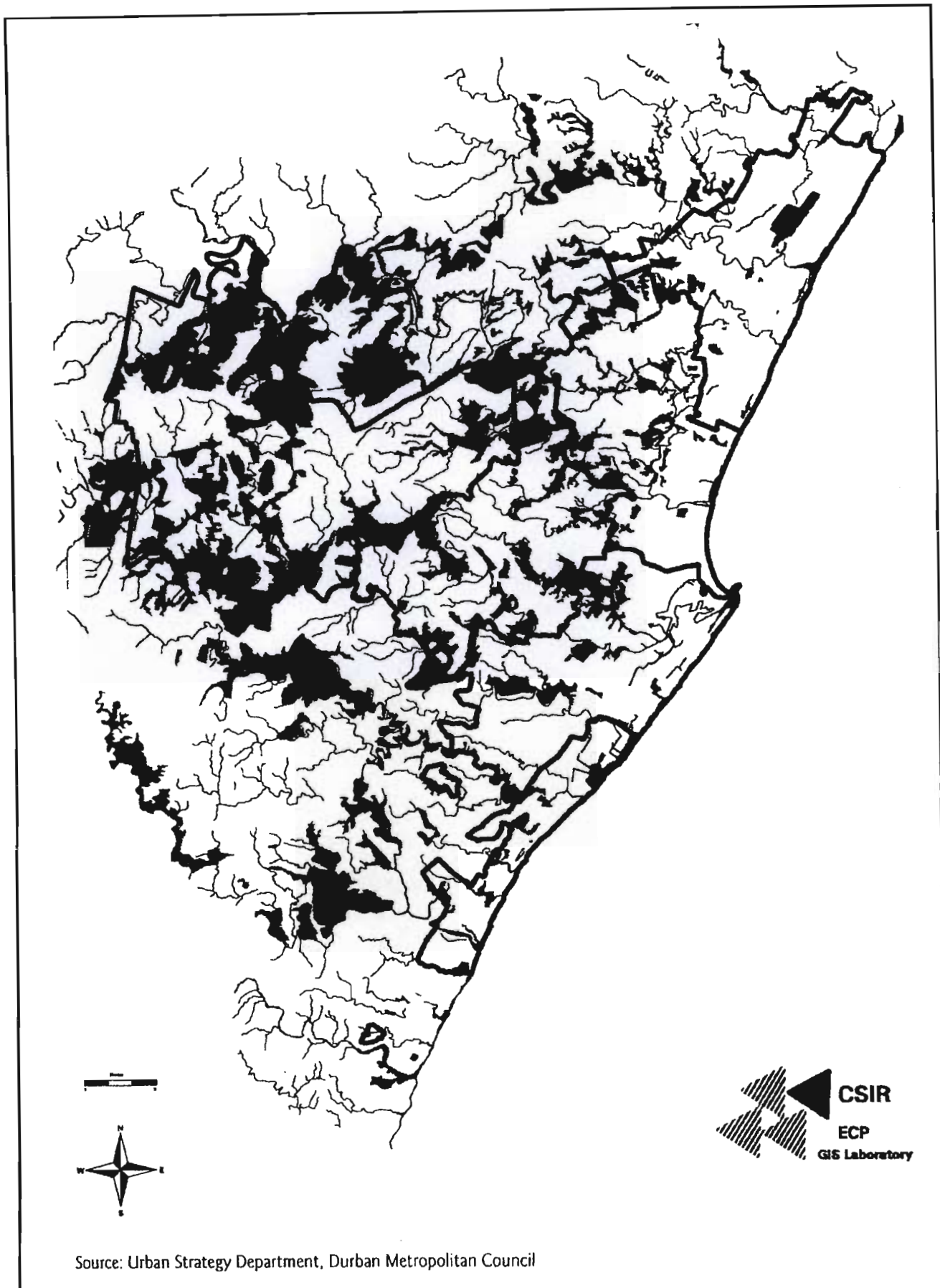


Figure 11: Map showing the extent of undeveloped land in the DMA
After: Durban's Tomorrow Today 1996

of distinctiveness and richness of the regional natural system was largely confined to three groups, people involved in scientific work on natural systems, environmental activists and people in communities with a knowledge of indigenous plants and their traditional uses.

- There was some association of environmental concerns with the interests of affluent whites e.g. Treasure beach corridor and Cato Manor Park as buffer strips.
- Community leaders highly rated open, green and recreational space issues in terms of service priorities, although these followed development concerns such as jobs, education, housing and services for the poor.

In summary the following points were noted:-

- In informal settlements everything is needed so it is very difficult to prioritise issues.
- In the formal Black townships, where housing and basic services are in place, jobs and education were top priority, with recreation and green space issues following close behind.
- In Indian and Coloured formal residential areas with better facilities than the townships but not as good as the White areas, issues such as waste and pollution, recreation and green space begin to vie with jobs, education, health, and safety and security as top concerns.
- In the well served affluent white residential communities, recreation and green space issues are top ranking concerns, along with safety and security.
- A love of nature and the importance of preserving indigenous areas was expressed, particularly in interviews in more affluent areas and at the opposite end of the scale, in shack areas. The question of preserving natural areas also emerged strongly in Isipingo, but not in Merebank, Wentworth, Bonella and Wiggins or in the townships.

- In shack areas, regret was expressed at the necessity to remove natural vegetation for housing. Residents referred to the importance of preserving indigenous plants and fauna and flora.

Based on the results of the findings in this report, key principles and action has been recommended. Specifically, that development should be sustainable, service provision should be appropriate and upgradable, and key sectors have been identified as being the natural environment, health, education and business. The importance of defining the environment as an integration of all sectors in a holistic way, was stressed. Despite this, the natural environment was recognised as a key resource base upon which sustainable socio economic health and vitality depend. At the same time, it was noted that there was a lack of general understanding of the 'environment' in a broad sense, and a perception of environmental management as concerned with exclusively green issues rather than sustainable development (Hindson *et al*, 1996).

A useful definition of the **Environment** is:-

- 'the biosphere in which people and other organisms live. It consists of:*
- *Renewable and non-renewable natural resources such as air, water (fresh and marine), land and all forms of life*
 - *Natural ecosystems and habitats and*
 - *Ecosystems, habitats and spatial surroundings modified or constructed by people, including urbanised areas, agricultural and rural landscapes, places of cultural significance and the qualities that contribute to their value.'* *White Paper on Environmental Management Policy for South Africa, Government Gazette Vol. 385 No. 18164, April 1998).*

As a result of this study, and the recommendation of other local council initiatives SDF, IDFs and IDPs (as discussed previously), the need for integrated strategic planning processes in Durban was reinforced in order

to improve the quality of life of all citizens, to extend the provision of basic needs to all parts of the metropolitan area and to create economic opportunities. As all of these developmental goals depend on the resources offered by the natural and built environment, of which open space is an important component, the two relevant initiatives that have been undertaken at metropolitan level will be considered. More specifically, the Durban Metropolitan Environmental Policy Initiative (DMEPI) and the Durban Metropolitan Open Space Framework Plan (DMOSFP).

4.4.3 Durban Metropolitan Environmental Policy Initiative (DMEPI)

This initiative, undertaken on behalf of the Durban Metropolitan Council (DMC) and the six Local Councils, aims to establish an environmental management policy for the Durban Metropolitan Area and to set out an implementation procedure. On the Internet it was summarised as:-

'This project is intended to address the environmental imperatives of the city through a full understanding of the City's environment and the way in which this is influenced or affected by present legal and institutional regimes. It is hoped that present inadequacies can be addressed through the articulation of innovative policy in an authoritative document backed by appropriate bylaws. Creating a balance between demand for development and the need for 'green space' in city environment is a challenge. Durban's MOSS effort deserves elevation to the status of law. The creation of 'biological corridors' in the 'mega city' will make a significant contribution to human 'well-being'.'

Figure 12 graphically illustrates the context of the DMEPI. This policy will set out a number of goals for managing the environment efficiently as well as a course of action to achieve these goals.

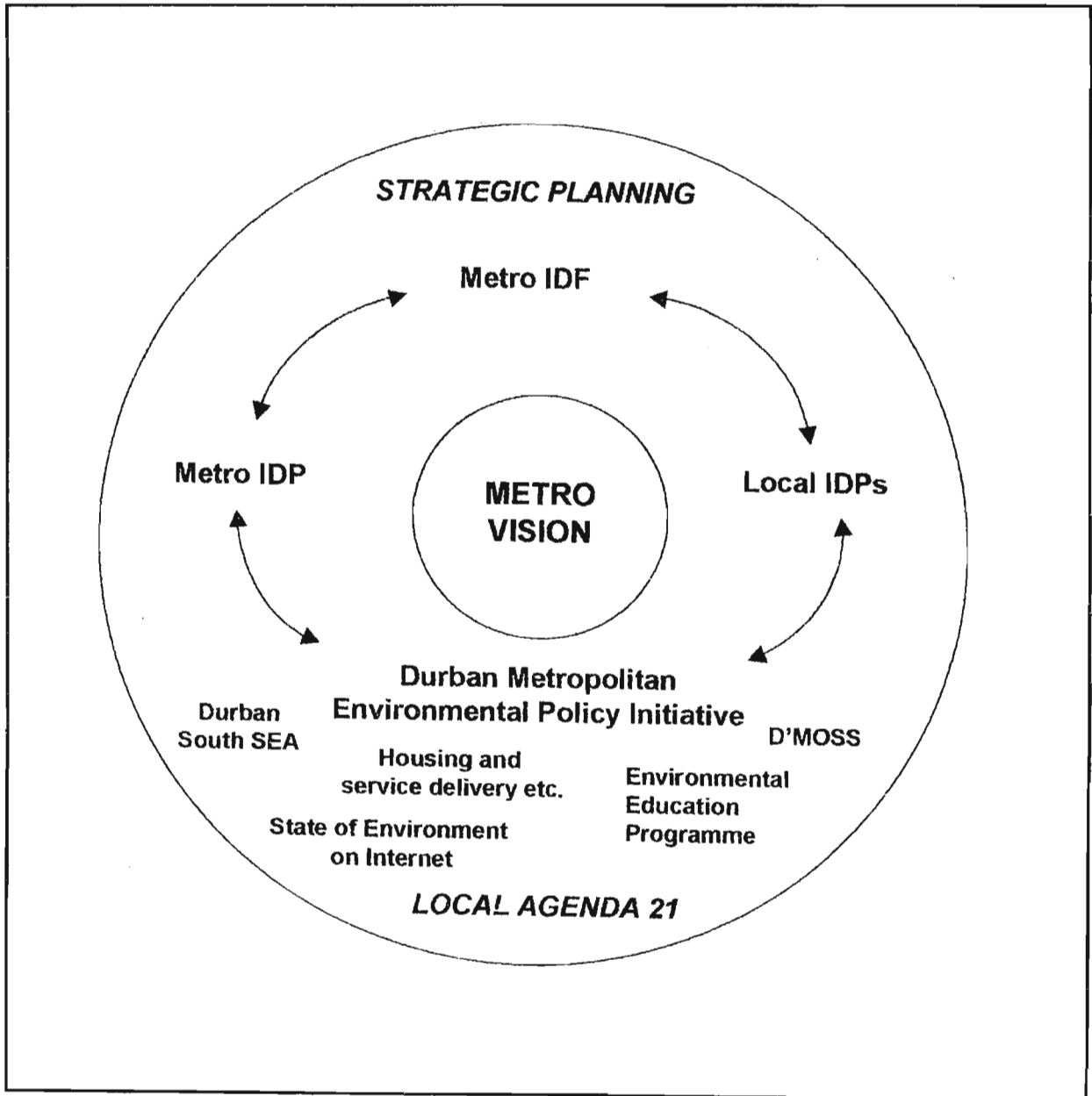


Figure 12: Context of the DMEPI

After: Environmental Management Policy for DMA 1998

Environmental management is defined as follows:-

'Environmental management is concerned with protecting the resources on which our quality of life depends, and using resources wisely to maximise opportunities for sustainable growth and development', Common Ground Consultants, 1998.a:7).

Trends in urban environmental management point towards environmental management systems as an effective approach to policy formulation, implementation, review and improvement. Effective management is co-ordinated, strategic and integrated with the identification of priority programmes. Effective policy implementation is based on appropriate institutional structures and management procedures, the building of partnerships with the communities and the initiative to enhance skills and capacity (Common Ground, 1998a).

In order to develop this policy extensive public consultation was undertaken, a vision was formulated and a Draft Policy Framework and Institutional and Procedural Framework developed. The vision statement is included in Appendix 3. Based on this vision a number of overarching goals were set and objectives to achieve them listed. The document was studied and those significant to POS are listed as follows:-

- Partnerships between sectors of civil society and local government shall be encouraged to optimise environmental management resources within the DMA.
- Local government shall strive to ensure that the provision of housing services and infrastructure does not encroach on open space areas that are agreed upon through the D'MOSS system as having significant value.
- Illegal dumping shall be discouraged through education and enforcement.

- Integrated catchment management approach to be considered as it links central city, its environs and its hinterland.
- The DMA shall initiate the establishment of catchment management authorities for catchments, with regards water supply as well as D'MOSS management (as will be discussed in Chapter Six).
- Ecological services provided by rivers and wetlands shall be protected.
- To provide for and manage a MOSS in order to ensure the long-term survival of habitats and to sustain the range of ecological and recreational services that open spaces provide to humans.
 - The economic and intrinsic value of ecological, educational, agricultural and recreational services provided by the D'MOSS shall be acknowledged, protected and enhanced.
 - The DMC shall establish mechanisms to deal with conflicts arising from competing potential uses of open space in a fair and balanced manner.
 - Local government shall provide adequate resources for the establishment and management of D'MOSS.
 - The DMC shall optimise the public benefit derived from the use of and access to open space in the DMA.
 - The DMA shall work towards the goal of ensuring access to public open space by all, including physical access by disabled people.

Possible implementation strategies include:-

- incorporating sensitive or unique natural areas into D'MOSS
- establish community gardens with access to river irrigation and integrating these sites into D'MOSS
- land-use control instruments
- conflict resolution mechanisms
- rehabilitation of degraded open space
- tree planting programmes
- eradication of invasive alien vegetation

- anti-litter campaigns and involving the local communities in enforcement
- guidelines for developing the coastal zone
- investigation of phased relocation of inappropriately sited activities, for example moving settlements from floodplains
- developing gardens and wetlands for craftwork materials
- integrating housing development and stormwater management planning with the safeguarding of high potential agricultural land
- investigation of market gardening opportunities
- planting of indigenous plants to be used for food, medicine and materials for craftwork

(After Durban Metropolitan Environmental Policy Initiative, Draft 1, Environmental Management Policy for the DMA, 1998)

It is proposed that this policy is to be implemented through establishing an Environmental Management Unit at a metropolitan level and is to be facilitated through education, training, good governance and awareness through effective participation.

4.4.4 Durban Metropolitan Open Space Framework Plan (DMOSFP)

In the light of the numerous initiatives pertaining to integrated and sustainable planning and the emerging principles pertaining to the incorporation of natural systems and POS, the original D'MOSS is under reconsideration. The framework plan builds on the original D'MOSS that was only implemented in the old municipal area of Durban as referred to in Chapter Two. As the development of the framework plan was based on a participatory process, all the public meetings were attended in the interests of this dissertation. The aim of this updated plan is to establish a strategic flexible planning framework for the design and management of the open space system in the newly established DMA (Durban Metro, DMOSFP, 1998a). The framework plan set out to provide the:-

- key data needed to inform planning, implementation and management

- principles and guidelines for the design of the open space system as a whole as well as for its various components
- management options for ensuring that the open space system is effectively planned, implemented and administered in a collaborative manner with all stakeholders

The key objective of this framework are to:-

- develop a range of services which open spaces provide for people
- conserve, protect and develop natural resources in the DMC area
- create a viable network of open space throughout the DMA
- create a sustainable management structure for the D'MOSS
- provide an input to all scales of land use planning in the DMA
- provide opportunities for all metro residents to access natural resources that improve the quality of urban life

(After the Durban Metropolitan Open Space System, Discussion Document, 1998a).

4.4.4.1 Categories of Open Space

For the purpose of this D'MOSS plan, open space was considered in terms of the different 'types of urban open space' and the 'types of natural land cover' which are identifiable. In addition, open space was further categorised and 'prioritised' on the basis of the 'potential to be developed', to 'provide services', or both. Table 4,1 lists the different categories and developability of open space. Using the Geographic Information System (GIS) mapping and the input of specialist and local knowledge a map of Open Space Assets was prepared. Figure 13 shows an example of this for the Umbilo River Catchment.

4.4.4.2 Open Space Landuse Plan

A spatial framework has been developed taking into consideration the ecological viability of the system. The design of this system builds off the original D'MOSS structure plan based on slightly modified ecological principles. The key concept is the identification of **core** conservation

URBAN OPEN SPACE TYPOLOGIES		NATURAL LAND COVER TYPOLOGIES	
Recreational Open Space	<ul style="list-style-type: none"> • sports fields • parks • nature reserves 	Terrestrial Land Cover	<ul style="list-style-type: none"> • forests • grasslands • geological
Surfaced Open Space	<ul style="list-style-type: none"> • public squares • pavements • markets 	Riverine Land Cover	<ul style="list-style-type: none"> • rivers/streams • floodplains • vleis
Utility Open Space	<ul style="list-style-type: none"> • road reserves • rail reserves • utility servitudes 	Coastal Land Cover	<ul style="list-style-type: none"> • sand dunes • rocky shores • sandy beaches
Productive Open Space	<ul style="list-style-type: none"> • agriculture • dams • grazing 	Marine Land Cover	<ul style="list-style-type: none"> • estuaries • bay • near-shore ocean
Private Open Space	<ul style="list-style-type: none"> • private gardens • privately-owned land 	Potential Land Cover	<ul style="list-style-type: none"> • degraded land with potential to be rehabilitated

ABILITY TO BE DEVELOPED	TYPE	RESPONSE
Undevelopable Land	<ul style="list-style-type: none"> • steep slopes • flood lines/open water • servitudes/reserves • unstable land 	<ul style="list-style-type: none"> • land which cannot be developed due to physical, legal or hazardous constraints
Developable Land 1	<ul style="list-style-type: none"> • key natural habitats • key urban open spaces 	<ul style="list-style-type: none"> • land needed for ecological survival of habitats & to provide key services for people
Developable Land 2	<ul style="list-style-type: none"> • buffer natural habitats • buffer urban open spaces 	<ul style="list-style-type: none"> • land may be developed under certain conditions to minimise impact on core habitats and services
Developable Land 3	<ul style="list-style-type: none"> • marginal natural habitats • marginal urban open spaces 	<ul style="list-style-type: none"> • land which may be developed for urban land uses with little potential for impact on assets

From: D'MOSS Discussion Document
May 1998, pg7

Table 4.1: Categories and Developability of Open Space.

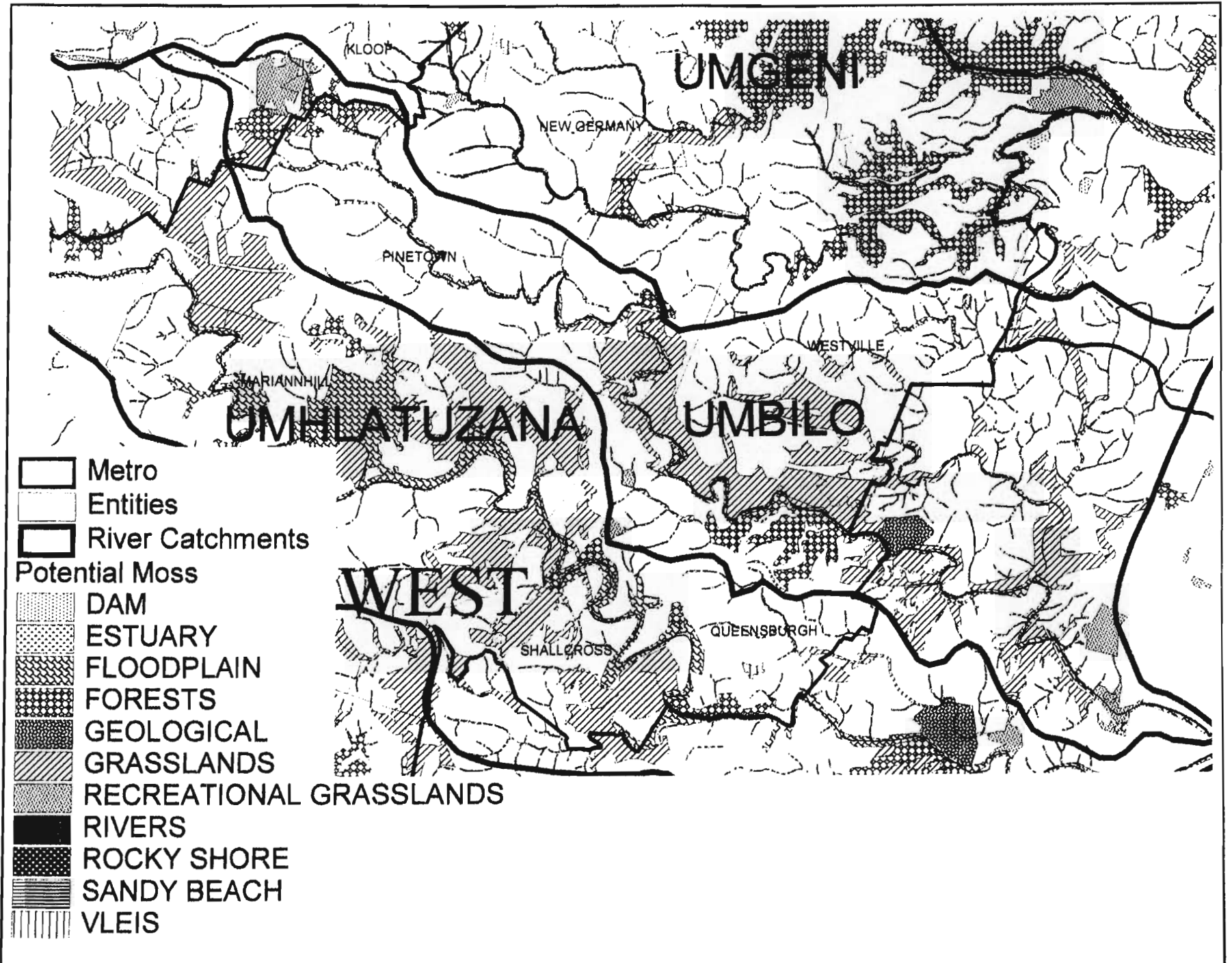


Figure 13: Open Space Assets in the Umbilo River Catchment.
 After: D'MOSS Discussion Document May 1998

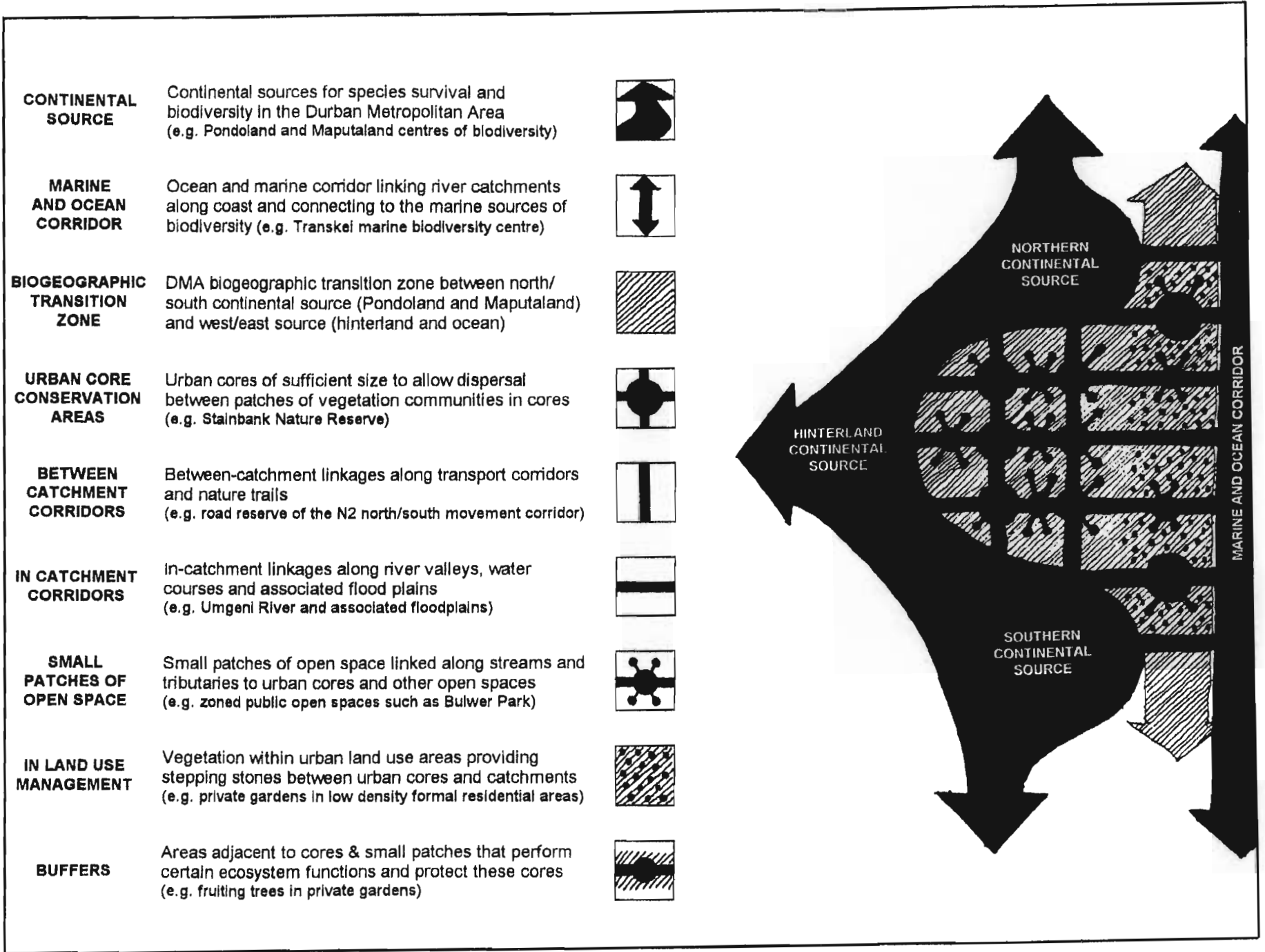
areas, a **corridor** system of linkages and supplementary **buffer** areas. It has been recognised that the steep valleys provide for natural corridors linking the DMA with the hinterland. The flat topography of the land adjacent to the coast has resulted in intensive development leaving little space for linking corridors. Consequently the open space design adjacent to the coast needs to focus on core areas and the creation of broad diffuse movement zones (not proclaimed but these are community based agreements) within residential, commercial and industrial land uses which provide suitable support for animals between core areas and river ecosystems. The open space in the interior (Inner West) has sufficient space to support well defined natural corridors (proclaimed) between core areas. Figure 14 is a conceptual diagram of the D'MOSS illustrating the relationship of all the components.

The existing open space asset of the DMA has been further classified according to the condition of the ecosystem that in turn dictates what type of management is required. Figure 15 illustrates the classification in terms of the relationship between the built and natural environments. **Functional ecosystems** (core areas) have a relatively full complement of ecosystem functions as they are larger natural areas with a rich biodiversity. These functional areas, core areas, would thus include existing nature reserves and potential core conservation areas.

Partially functional ecosystems, buffer areas, are intermediate landscapes between the functional areas and smaller more isolated pieces of ecosystems and are characterised by moderate disturbance and biodiversity. The key buffer areas have been identified as low density formal residential areas, comprising of private gardens, and major recreational areas such as golf courses and race courses.

Isolated Pieces of ecosystem, are small parcels of open space which are not physically connected to the broader open space system and include

Figure 14: Conceptual diagram of the D'MOSS
 After: D'MOSS Discussion Document May 1998



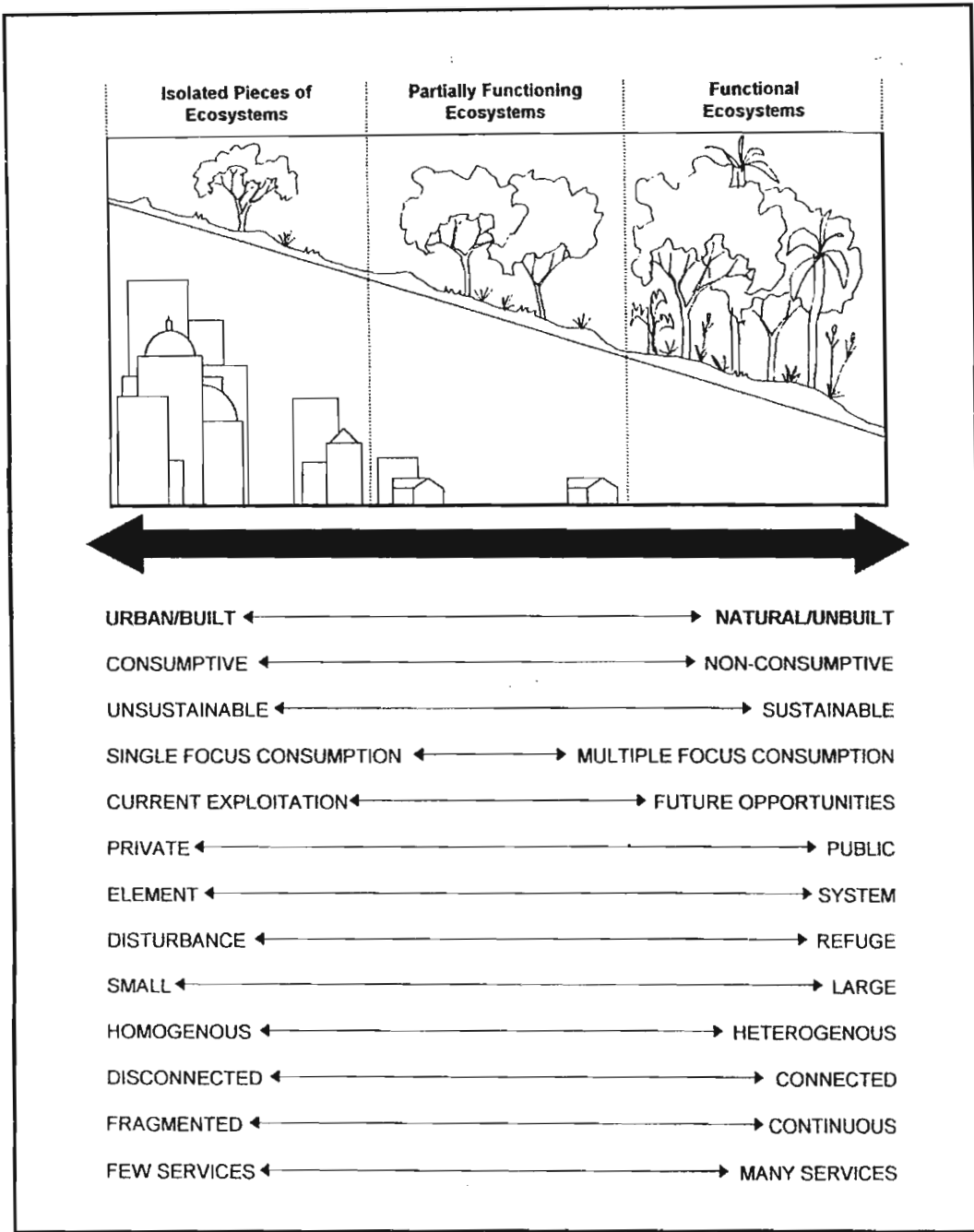


Figure 15: Classification of relationship between the built and natural environments

After: D'MOSS Discussion Document September 1998

parks and sportsfields. These are small islands of unbuilt land in built up areas and subject to intensive human disturbance. They support a limited biodiversity and act as stepping stones in the system. The buffers are areas that protect the edges of the sensitive areas and provide for transitional environments between the different parcels of open spaces.

Corridors are one of the services provided by all three of the open space categories. Linkages and corridors to be formed by rivers, coast, marine belt and transportation routes in the form of road and rail reserves.

4.4.4.3 Open Space services

The importance of open spaces in delivering ecosystem services to the DMA was highlighted and the relative ability of the different open space types to supply these services was considered. Open Space Services illustrate the use and benefit of open space and provides a useful tool decision makers. Ecosystems have functions which provide goods or services to society which are referred to as 'ecosystem services' (Costanza et al, 1997, in DMOSFP, 1998a). In an urban area, ecosystems are usually supported by open spaces which are usually perceived as natural or undeveloped areas, hence it can also be referred to as 'open space services' (DMOSFP, 1998a).

The DMA open space system provides a wide range of services in the form of direct benefits, indirect benefits, option benefits and existence benefits. These services were categorised into different service types, ecosystem functions identified and examples of application listed in Table 4.2. The 'direct benefits' are those resources that can be directly consumed or used, for example, the use of water. 'Indirect benefits' are the indirect use of services providing a cost saving to residents, for example, the ability to reduce flood damage. 'Option benefits' are the reserving of resources for future use, for example, protecting the coastline with the view for potential tourism. 'Existence benefits' can be defined as

SERVICES	ECOSYSTEM FUNCTIONS	EXAMPLES
Gas Regulation	Regulation of chemical composition of atmosphere	Carbon sequestration, oxygen and ozone production
Climate Regulation	Regulation of temperatures	Urban heat amelioration, wind generation, noise abatement
Disturbance Regulation	Regulation of episodic and large environmental fluctuations on ecosystem functioning	Flood control, drought recovery, refuges from severe environmental events
Water Regulation	Regulation of water flow	Capture and gradual release of water by vegetation for urban use
Water Supply	Storage and retention of water	Supply of water by rivers, watersheds and reservoirs for agricultural, industrial and household use
Erosion Control	Retention of soil within an ecosystem	Prevention of soil loss by vegetation cover and by capturing soil in wetlands
Soil Formation	Soil formation processes	Weathering of rock by water, accumulation of organic material in woodlands and wetlands
Nutrient Cycling	Storage, recycling, capture and processing of nutrients	Nitrogen fixation, nitrogen cycling through food chains
Waste Treatment	Recovery of nutrients, removal and breakdown of excess nutrients	Breaking down of waste, detoxifying pollution
Pollination	Movement of floral gametes	Supply of pollinators for plant reproduction, including insects, birds and rodents
Biological Control	Regulation of animal and plant populations	Predator control of prey species - rodent control, insect control, bats control etc.
Refugia	Habitat for resident and migratory population	Nurseries, habitat for migratory birds, regional habitats for species
Food Production	Primary production for food	Production of fish, crops, fruit etc. by non-commercial farming
Raw Materials	Primary production for raw materials	Production of fuel, craftwork materials, housebuilding materials, fodder etc.
Genetic Resources	Unique biological materials and products	Genes for resistance to plant diseases, ornamental species, plant medicines
Recreation	Providing opportunities for recreation activities	Ecotourism, sport fishing, swimming and other outdoor recreation activities
Cultural	Providing opportunities for aesthetic, educational, spiritual, intrinsic and scientific use of ecosystems	Scenic views, environmental education, research opportunities, sense of place, an attractive living environment for DMA residents

Adapted from Costanza et al 1997.

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Table 4.2: DMA open space system services

the ability to provide a sense of well being, just because it is there. These values are difficult to quantify which is further complicated by the different perceptions people have regarding the 'value' of open space.

4.4.4.4 Open Space values

Decision making regarding the use of open space or the allocation of management resources is usually related to economics and politics. As it is difficult to quantify the value of open spaces in monetary terms, the value of open space is often underestimated when decision makers are faced with important land use trade offs. In an effort to quantify open space assets the concept of environmental economics has been applied to the system. It was noted however, that it is a complex exercise with values being adapted from international examples. Although the figures should be treated with caution, it does provide a preliminary estimate of the value of open space services in the DMA. The total value of services delivered by the open space system in the DMA is estimated at R1,83 billion per annum (based on international findings and excluding tourism) (DMOSFP, 1998).

4.4.4.5 Catchment Analysis

The impacts of settlements and development on river catchment and open space has been analysed in an effort to provide an indication of land use demands for open space services and assets within each catchment. Catchments have been identified as the basic geographical unit for assessing the condition and extent of the natural resources as they are functionally integrated environments where the natural open spaces are related to one another by hydrological processes.

Catchments provide an integral management unit where the impacts of human use on the open spaces affect other people and open spaces within the catchment. A GIS map depicting the different 'land covers' was prepared in an attempt to ascertain the 'generic impacts' of the most threatening land cover types. Figure 16 shows spatially the land cover

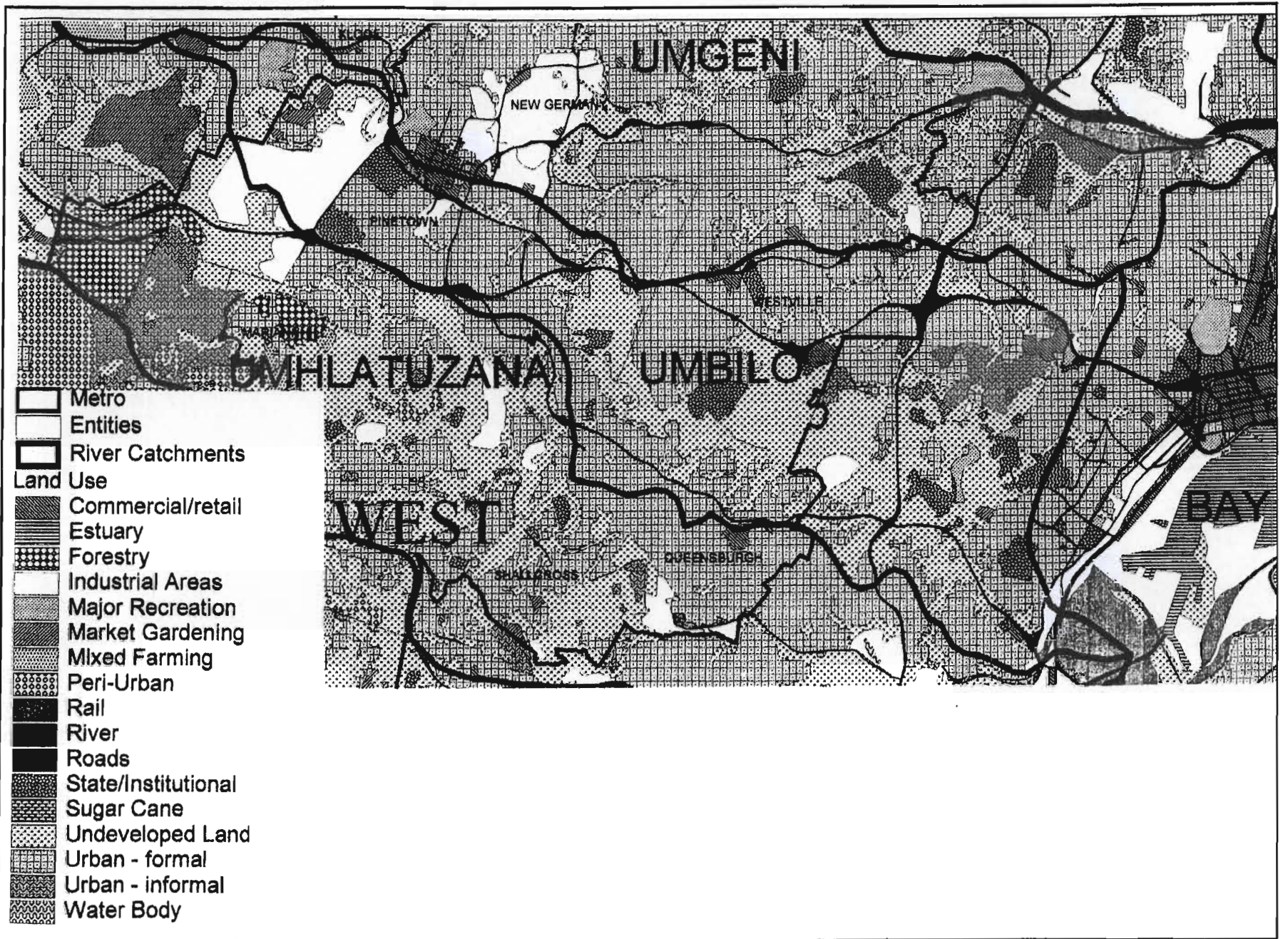


Figure 16: Land Cover Distribution in the Umbilo Catchment

After: D'MOSS Discussion Document May 1998

distribution in the Umbilo Catchment and Table 4,3 summarises the generic impact of the different land covers. For example, high population densities and land use types such as industry and informal settlement, have severe impacts on the environment through increased water consumption, greater need for land for development and consequent loss of open space, greater need for open space for recreational and other uses, increased sewerage generation and stormwater runoff. By mapping these areas it is possible to identify portions of the natural system that are under the greatest stress and in need of intervention and protection. This is thus regarded as a powerful management tool as it spatially represents the interrelationship of land cover and human activities.

4.4.4.6 Management Options

Management of the open space resources in the DMA were considered, and in the light of the shortage of resources the importance of a collaborative and community based approach to management was proposed. This will be dealt with in Chapter Six.

4.5 CONCLUSION

From the preliminary reports it is evident that the proposed D'MOSS would integrate holistically within a strategic environmental management framework. The over riding objectives and key concerns align themselves with the issues that were identified by the various initiatives that have been undertaken nationally and locally, to guide development along a sustainable route.

The design of the system is based on ecological principles and appears to be mainly concerned with the preservation of biodiversity. Although it is acknowledged that this framework plan is a strategic tool, no specific reference has been made to the challenge of providing open spaces in the previously disadvantaged areas. Issues pertaining to POS and environmental management in these areas are critical and it is felt that

COVER TYPE	GENERIC IMPACT	CATCHMENTS
<p style="text-align: center;">Industry</p>	<ul style="list-style-type: none"> • generates industrial waste which pollutes water courses • reduces water and environmental quality • downstream and coastal impacts 	<ul style="list-style-type: none"> • central & southern • Umgeni, Bay, Umlazi • Umbilo, Umhlatuzana
<p style="text-align: center;">Informal</p>	<ul style="list-style-type: none"> • inadequate services leads to effluent entering rivers • reduces water and environmental quality • removal of vegetation for housing, firewood, muthi etc. 	<ul style="list-style-type: none"> • mid-catchment • Umlazi, Umgeni • Ohlange • Umbogintwini • Umhlatuzana
<p style="text-align: center;">Agriculture</p>	<ul style="list-style-type: none"> • use of pesticides and herbicides pollutes rivers • removal of vegetation for planting leads to habitat loss • local, downstream and coastal impacts 	<ul style="list-style-type: none"> • north, central & south • coastal & mid-catch. • Umlazi • Tongati, Umhloti, Ohlange, Umgeni • Umhlatuzana
<p style="text-align: center;">Formal</p>	<ul style="list-style-type: none"> • high degree of surface hardening leads to increased surface runoff which can cause flooding downstream • siltation and sedimentation of rivers and streams 	<ul style="list-style-type: none"> • central & coastal • Umgeni • Umlazi, Umhlatuzana • Umbilo, Ohlange • Bay, Umbogintwini
<p style="text-align: center;">Undeveloped</p>	<ul style="list-style-type: none"> • potential for future use leads to removal of open spaces • results in loss of habitat which reduces the ecological viability of the open space system in the future 	<ul style="list-style-type: none"> • upper catchment • Umgeni, Umlazi • Umhlatuzana • Umbilo, Ohlange • Umhloti

From: D'MOSS Discussion Document
September 1998

Table 4.3: Generic impact of the different land covers.

these aspects should be highlighted in the D'MOSS framework plan at the onset. In addition the incorporation of population needs into the ecological system has not been directly addressed. In order for the system to be multifunctional, population needs should be considered alongside ecological aspects during the design process.

It is thus strongly recommended that:-

- The issue of incorporating the ecological principles with population needs be specifically documented as a key issue in the framework plan.
- Issues pertaining to 'areas of greatest need', as identified in the Local Agenda 21 report and through the 'Generic Impacts' map, be analysed and addressed appropriately with regards the provision of POS during planning stages.

It is assumed however, that the provision of population social needs and recreation facilities will be incorporated into this system through the participatory management processes that have been proposed. If planning and management responsibilities are delegated down to local council level and supported by collaborative community involvement, it is assumed that preferences and priorities will emerge and be incorporated into the open space planning and management.

The next Chapter deals with specific case studies that examine the actual provision and management of POS in two different socio economic areas as well as investigating the different needs and preferences of these communities with regards POS.

5. OPEN SPACE MANAGEMENT - CASE STUDIES

5.1 INTRODUCTION

The two areas that will be investigated are identified as the 'Palmiet River Catchment Conservancy' and the 'Greater Clermont Urban Conservancy'. These conservancies both fall in the Inner West City Council. Figure 17 illustrates the location of the conservancies in the Inner West within the DMA. The Inner West Council is 203 km sq. with a population approximately 321 608 in 1995 (SDF, 1997). Clermont has an HDI index of approximately 0,283 and Westville 0,812. These two areas are representative of the vast disparities characteristic of the DMA. Whilst Westville is well serviced, Clermont has been identified as an 'area of need' characterised by high population density and a lack of urban amenities (SDF, 1997). Clermont is characterised by a high unemployment rate, low household incomes, poor levels of education, and low levels of access to areas of opportunity. The properties in Westville are predominantly owned by the residents and are large with well maintained gardens and tree lined verges. In Clermont on the other, hand there is little security of tenure, the plot sizes are very small and there are large areas of informal settlement and consequently poorly maintained gardens and verges. With regards public open space and recreational amenities Westville is adequately provided for whilst there is very little open space in Clermont. The remaining open space is under threat of invasion, subject to illegal dumping and badly littered.

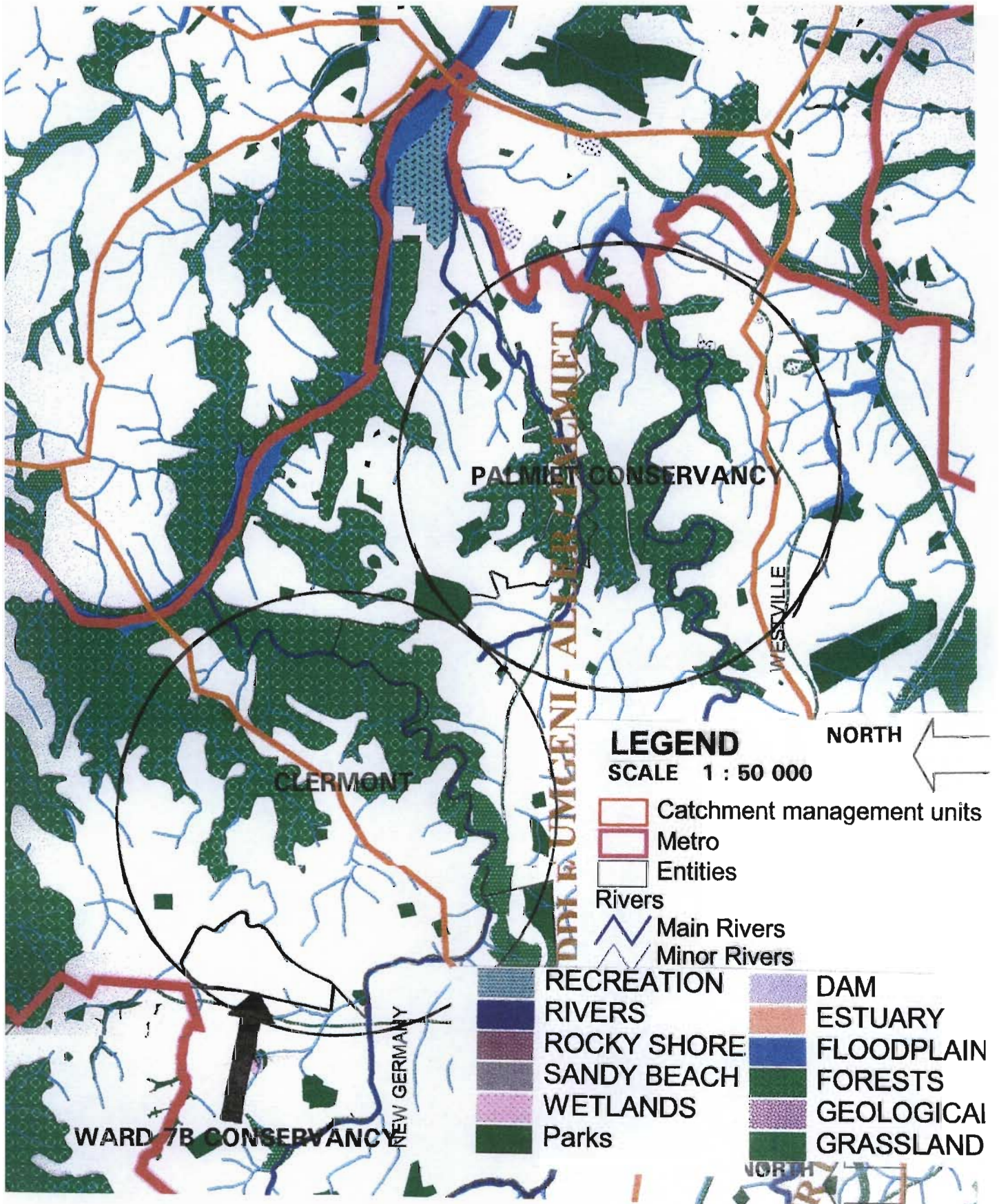


Figure 17: Location of the Conservancies in the Inner West within the DMA. (Source of base map, D'MOSS 1998)

CLIVE VAN DEN BERG

Regarded by the rest of South Africa as culturally backward. Durban is a brash, lush, steamy, semi-tropical, somewhat tawdry holiday city sprawled beside the Indian Ocean. Reminders of its past history and battles contrast with cheap come-ons for vacationers. The city seems perpetually on holiday, but undercurrents run deep, and flashfires of racial discontent flare up frequently. These contrasts, these anomalies, the absurdity of living in a place which tries to hide its racial tensions and present itself to the world as a pleasure city, are what informs the work of Clive van den Berg. His re-interpretations of the city are fraught with anxiety, inducing a deep sense of imbalance and unease.

Constant in his imagery is an island being separated from the main landmass. In *A Field of Lights* from Van den Berg's 1987 series *Invocations*, a strange and loathsome object, a decaying, bruised protuberance, has thrust itself or maybe is falling into a water's edge scene. 'I suppose in a strange way it functions as a kind of conscience,' says Van den Berg.

Yachts are flaming on the horizon, and, dwarfed by the huge intrusive presence, funfair lights twinkle vainly in the lower part of the picture. The colours are lurid, the image is a scene from a horror movie. A boat – surely, in spite of its gay trappings, the boat from *Apocalypse Now* – pushes its way through a field of lights, the sort used to illuminate airfields. 'An attempt to attract attention from above maybe, a cry for help.'

In an earlier work, the flayed, fleshy surface of the obscene protuberance belongs to the landmass itself, a strange bluff (one of Durban's landmarks is its Bluff) apparently about to topple into the sea. *Pool Above the Ocean* this piece is called, and never has that turquoise jewel of the suburban garden seemed so precarious and out of place.

'One of the first things people did when they came to this country was to build gardens.....crazy...in Africa,' says Van Den Berg. 'Nadine Gordimer called ours a swimming pool and caravan culture. I have a sense of our civilisation being a very transient thing.'



Source: *Resistance Art in South Africa*, Sue Williamson, 1990.

5.2 MANAGEMENT OF PUBLIC OPEN SPACE

The Department of Parks and Recreation is responsible for the public open space and recreational facilities in both these areas. It attempts to integrate its services and has as its mission statement the following:-

'To make a positive contribution to the empowerment of its ratepayers and residents through the creation of a climate conducive to the educational and social development of the people, in respect of the provision and upgrading of social and educational facilities and services within a safe environment' (Inner West Integrated Development Framework, 1997).

This department has recognised the need for redressing the inequalities in the provision of POS and are actively involved in projects and programmes in this regard. The Department aims to provide an effective environmental and recreational facility management service as well as to effectively plan, manage, and promote natural areas within the council boundaries. In addition it is involved in consultation with communities in environmental issues and education and awareness projects. It is acknowledged however that progress is slow especially since time consuming public participation is considered important (Swart 1998, personal communication).

5.3 PALMIET RIVER CATCHMENT CONSERVANCY

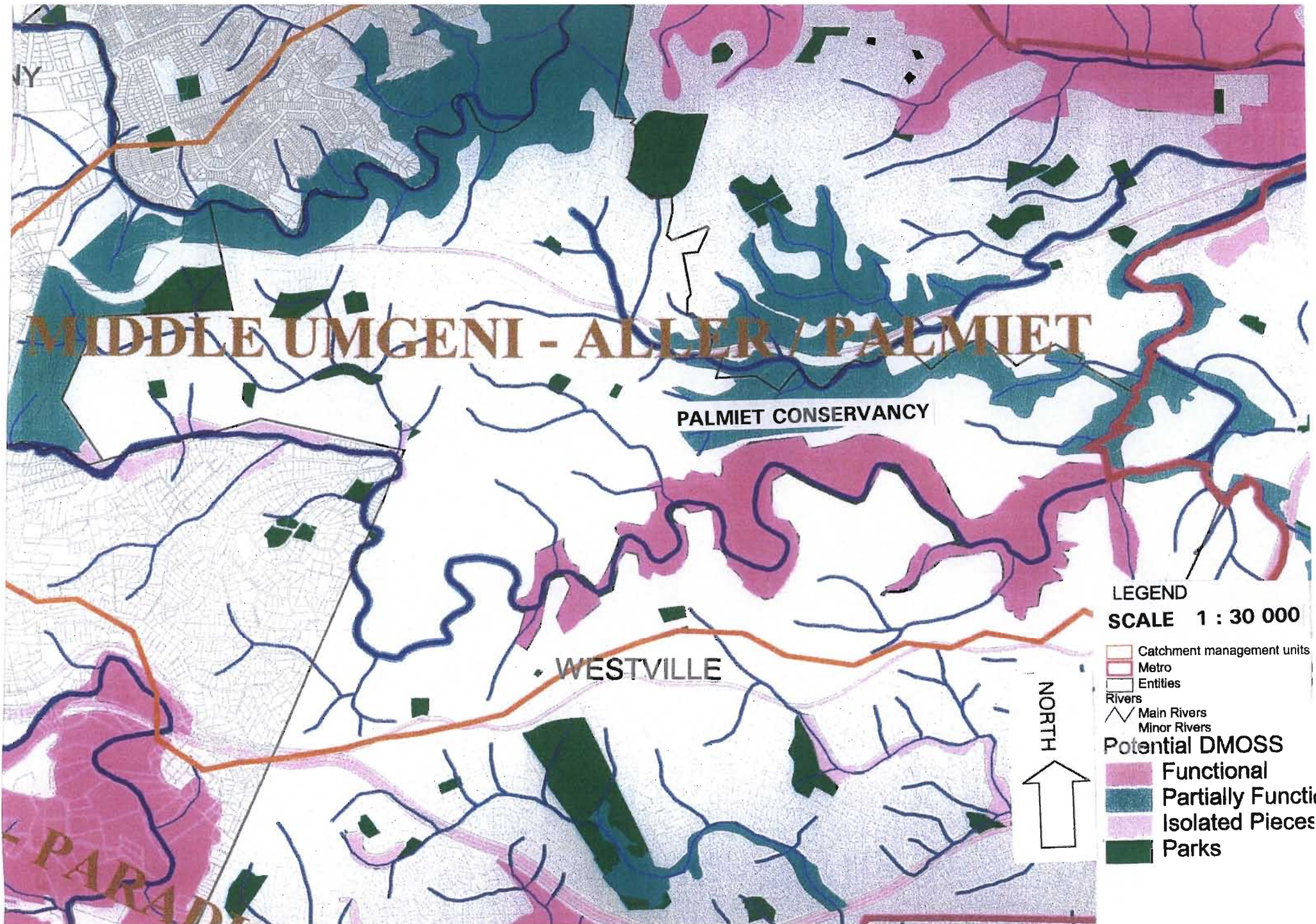
The Palmiet River Catchment Conservancy is an interconnected system of nature reserves and conservancies established primarily for the conservation of the Palmiet River and valley area. Originally this valley supported lush forests which have nearly all been removed to make way for urbanisation and industrialisation responsible for polluting the river. The first protected area in the system was the New Germany Game Reserve, which was originally commonage, set aside in 1893 for grazing the cattle of the German settlers. The first efforts at conserving this area commenced in 1968 with the establishing of the Palmiet Nature Reserve. This reserve was managed by volunteers until the Borough of Westville

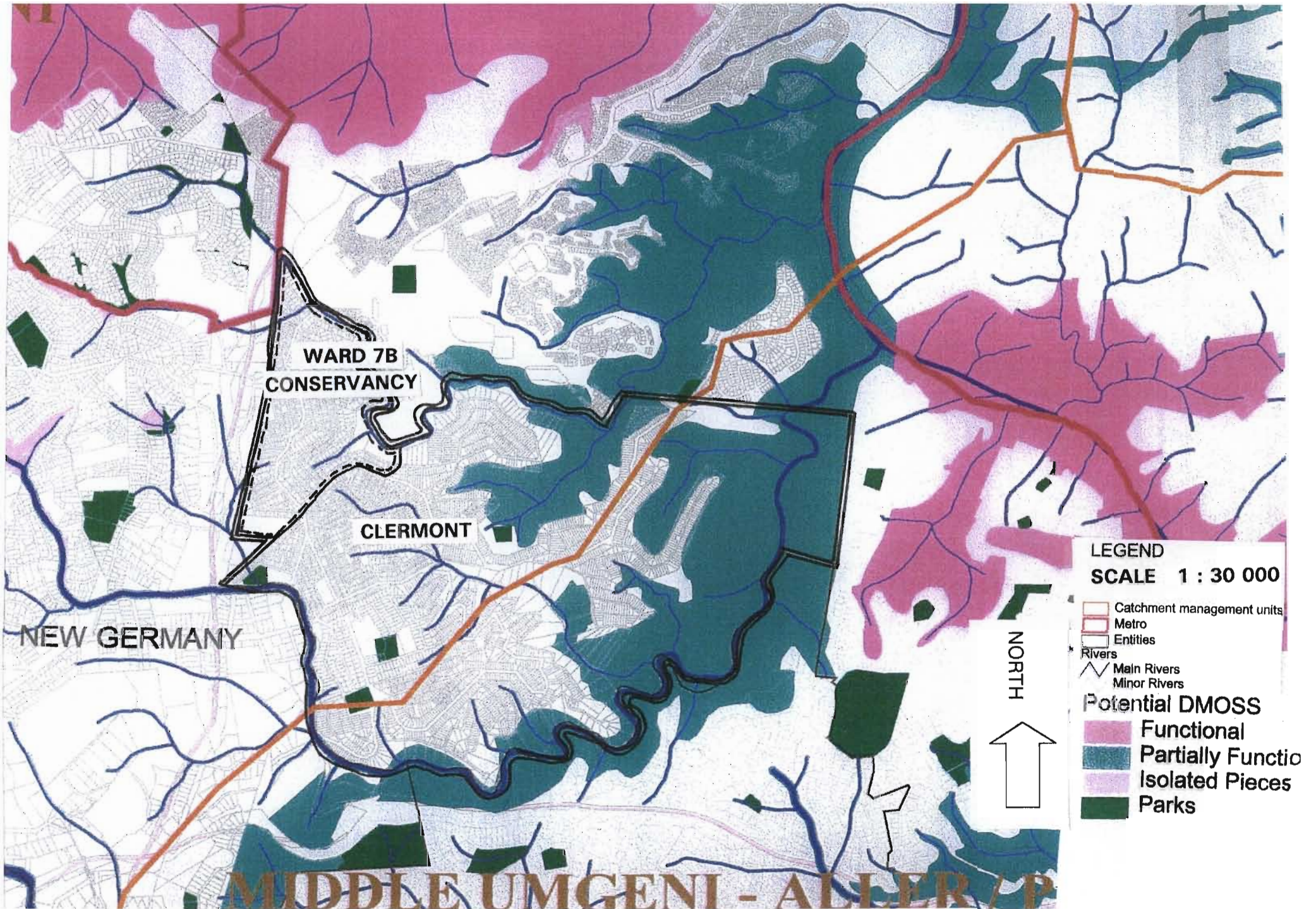
took over this task. Since then it has been increased from 13ha to 70ha. In 1986 the New Germany Reserve of 40ha was also taken over by the Borough of New Germany (Collett 1998, personal communication).

Attempts were made to conserve the entire Palmiet valley in 1983 through the formation of the 'Friends of the Palmiet', with 200 members, which subsequently became the 'Palmiet Environmental Society'. This Palmiet Environmental society has been inactive for some time and the need to restructure it into a river catchment conservancy, working in conjunction with the Natal Parks Board and Wildlife Society, has been proposed. It is proposed that the area from the source of the Palmiet at Kloof to the junction with the Umgeni River be incorporated with special emphasis on establishing Industrial Conservancies. Figure 18 shows the proposed arrangement of conservancies and nature reserves making up this part of the catchment.

There are a number of voluntary conservancies that have already been established and running very successfully. Their main objectives are to promote conservation in the area, monitor the environmental quality of the Palmiet River, rehabilitate degraded areas and litter collection. Alien species are removed and the planting of indigenous vegetation is undertaken in areas beyond the nature reserves. Walking trails have been created where possible and education through talks and newsletters is promoted.

In 1993 the Manor-Padfield Park Conservancy was established as a result of continued destruction of natural components in the area. This area together with the Wyebank and New Germany conservancies are important to the river catchment as they include the vlei and wetland source of the river, most of which is private property. In 1994, the Loerie Park Conservancy was established in a town house complex adjacent to the Palmiet Nature Reserve. Adjoining this area is the Mvusi Conservancy.





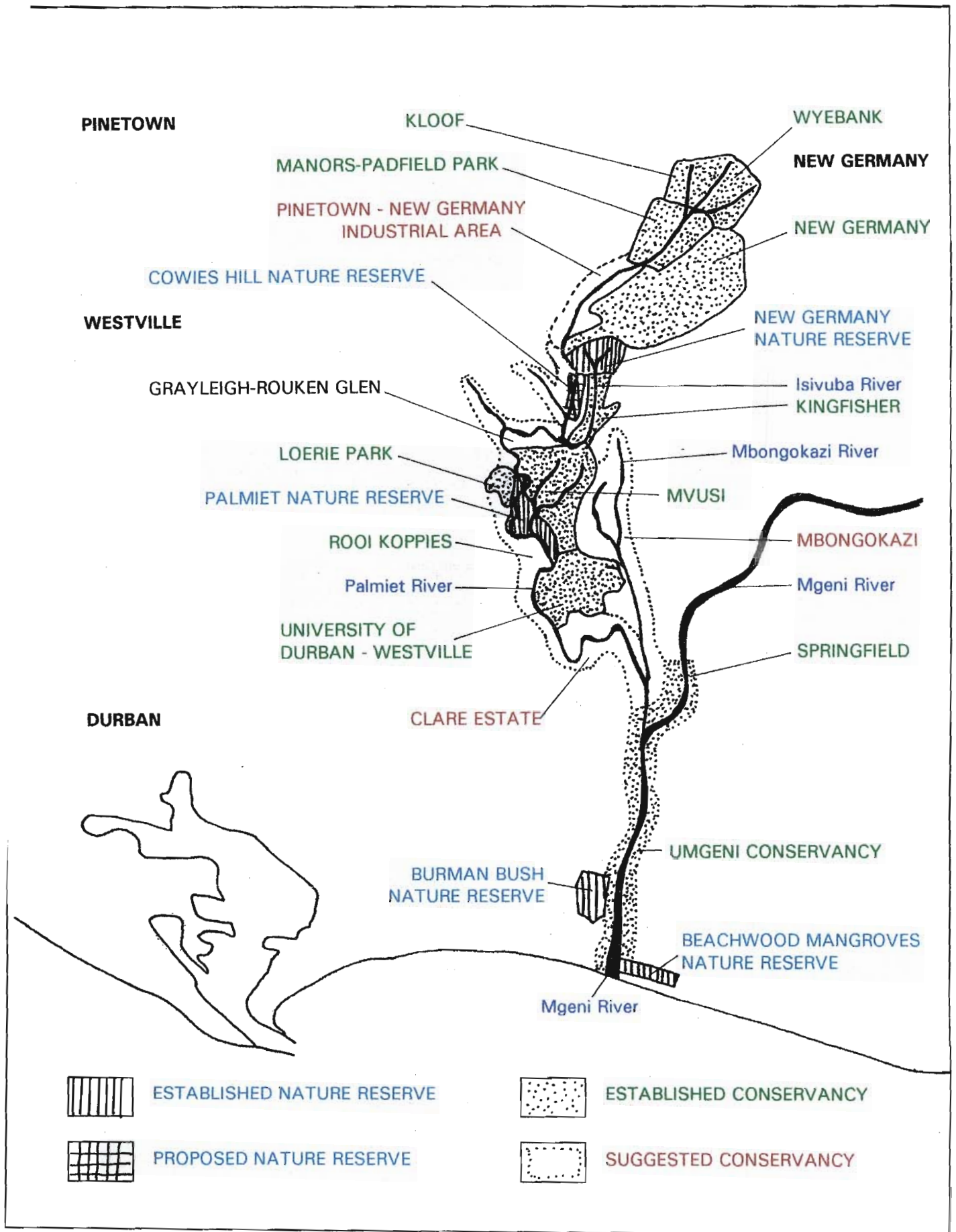


Figure 18: Palmiet River Catchment Conservancy. (Source M. Cottrell)

The largest conservancy in this network is the University of Durban-Westville, the policy of which is to preserve the natural environment and reintroduce indigenous species on the campus adjacent to the Palmiet Nature Reserve.

Each of these conservancies works independently and is run by volunteers. The system is working very successfully, with exception of the industrial component, in conjunction with the Natal Parks Board, Wildlife Society and when necessary, the Municipalities. Conservancies are successful as they are localised and members deal with issues that are of specific concern to the as they are 'in their backyard'. Local issues of concern are immediately identified, appropriately addressed and continually monitored. The main issues of concern for most of the conservancies have been identified as the conservation of the natural areas, objecting against indiscriminate development, lobbying against pollution of the river by industry and illegal dumping and littering.

Problems associated with conservancies were identified as overall apathy of most residents with the responsibility of projects such as these depending on the co-ordination of one or two enthusiastic leaders. In the case of the industrial conservancy, the group leader moved out of the area and with nobody taking over this role, the conservancy is now inactive. Another problem that was encountered by some of the conservancies was associated with recent municipal restructuring. With the amalgamation of the Inner West Council, many established networks and good working relationships were disrupted making it difficult for efficient co-ordination. This illustrates the importance of good governance and efficient well-established networks (Lindsay 1998, personal communication).

This network of conservancies is ideally placed and already has the capacity to be incorporated into a 'Catchment Management Agency' as

proposed by the D'MOSS and Department of Water Affairs (DWAF). It is recommended that this D'MOSS catchment agency be closely linked up with the proposed DWAF policy (to be discussed in Chapter Six) as it is only through the imposing of levies on water consumption and polluting industries that industry will come on board. In conclusion, It is interesting to note that these conservancies are in 'White' areas and clearly reflect concerns with conservation as would be expected from of the particular community that it represents.

5.4 GREATER CLERMONT URBAN CONSERVANCY

The Clermont Conservancy, which is in direct contrast to the Palmiet Conservancy, will now be considered. Observations have been based on site visits and research work and surveys recently undertaken by Manickam (1998) and Oelofse (personal communication) both founder members of the conservancy. This conservancy has only recently been established with the main emphasis focusing on socio-cultural issues rather than biophysical factors. Some of the predominant environmental issues will be considered.

5.4.1 Environmental Issues

5.4.1.1 Natural Vegetation and Open Spaces

Much of the natural vegetation of Clermont has been denuded to make way for development and striped for firewood. Not much indigenous vegetation remains and the area is invaded by alien species. The survey on the perception of the environment indicated that although vegetation is a strong concern for the residents it is not a priority and consequently most gardens are devoid of grass and trees. This has been largely attributed to the fact that many people do not own their houses and thus do not feel inclined to invest in them. As Clermont is very steep, the lack of stabilising vegetation has resulted in soil erosion. There is a fair amount of open space that is undevelopable as it is very steep or part of the floodplain. It must be noted however that there has been large scale

informal settlement invasion on these steeper areas and within the floodplains.

Clermont does not have any playlots or parks and the children play in the streets. A few recreational facilities have been provided in the form of sports fields, soccer fields and a combination court. Informal trading areas and consequently public meeting spaces have spontaneously developed adjacent the community centre and transportation interchange.

5.4.1.2 Housing

Generally the housing in Clermont is of poor standard with few moderately high quality houses. There has been large scale shack invasion predominantly adjacent to the streams and rivers. These areas are characterised by very high densities and coupled with a lack of services and appallingly unhygienic conditions.

5.4.1.3 Litter

Littering has been identified by the residents themselves as being one of the major environmental problems in Clermont. Areas of greatest concern were identified as the taxi rank, the squatter settlement alongside the river and the hostels. The rivers are badly polluted with raw sewerage and household garbage. These areas are also prone to large scale illegal dumping of rubbish, industrial by-products and construction rubble.

5.4.1.4 Perceptions of Environment

The study conducted by Manickam (1998) rated and ranked the relative quality of environmental issues in Clermont. The socio-cultural issues ranked the highest with the greatest areas of concern being the need for clinics, schools, local participation, shopping facilities, employment opportunities and transportation. Although the results of the survey showed that physical issues like neat gardens, parks, soil, vegetation and a litter free environment as being of concern to residents, they were not a priority.

As the concept of sustainability considers the environment holistically, the 'brown' issues that have been prioritised need to be tackled before the 'green' issues and only once standards of living have been raised, can the community deal with biophysical issues.

5.4.2 Management Issues

Historically this area was administered by an inefficient local authority and consequently service provision was neglected. With the creation of a centralised council this area has now been targeted by the Inner West Council for service and infrastructure provision, housing delivery, peace and security, effective community participation and capacity building, job creation and local economic development (Almond, 1997 in Manickam, 1998). Clermont is divided into seven wards represented by community elected councillors who interact with the council on behalf of their constituents. In addition a Community Development Forum has been established to deal with development issues.

5.4.2.1 Perception of Management

The community perceptions of the level of infrastructure highlighted the need for roads, water and electricity and sewerage reticulation. After service infrastructure the community voiced concerns pertaining to inadequate refuse removal. The authorities are not able to cope with the large volumes of garbage and dumping of refuse on verges, roadsides and in the streams has become a serious problem.

The lack of recreational facilities was noted as a problem as there are no parks and green open spaces in the township. Respondents expressed a desire for small parks on street corners, open space and parks, as well as areas with natural vegetation to beautify the township and keep the children off the roads. This issue was taken up by the newly established Conservancy and an area that was identified by the community was cleared of litter and planted with indigenous trees. The members of the

Women's Forum volunteered their services in clearing, planting and tending the trees.

5.4.3 Solution to Problems

In a response to ways of tackling environmental problems, it is interesting to note that the survey respondents do not consider the environment in bio-physical terms but in terms of socio-economic factors. The fact that the reduction of poverty and the provision of jobs were seen to be the most important means of tackling environmental problems in Clermont indicates that respondents perceive that socio-economic solutions are necessary for biophysical problems. Together with the provision of jobs the importance of environmental education was highlighted although half of the respondents had some knowledge open space management, clean up campaigns, planting trees and stabilising slopes.

The environmental problems in Clermont such as litter, lack of natural vegetation, poor housing and lack of services are compounded by public apathy, lack of funds and a lack of environmental awareness. Majority of the respondents (98%) felt that it was the Council's responsibility to provide basic services like waste removal and although this is true, it is also necessary for communities to contribute. Joint ventures are necessary as the local council can only provide limited services and the community needs to prevent littering and assist with cleaning up open spaces. The community needs to be empowered to take on these roles through education and environmental awareness.

5.4.4 Urban Conservancy

In an effort to encourage community participation through empowerment the 'voluntary co-operative environmental management of Clermont by its community' (Milton, 1996) was initiated through the Urban Conservancy Model. In July 1996 the Grater Clermont Urban Conservancy was initiated under the chairmanship of Nonhlanhla Kunene (Social Responsibility Manager Msinsi Holdings) and Mike Milton of the Natal Parks Board. The

initial objectives of the urban conservancy were bio-physical similar to the Natal Parks Board Conservancies. Much emphasis was placed on rehabilitation of river catchments, removal of alien invader vegetation, reforestation of indigenous trees, monitoring of illegal dumping and creating a consciously aware and well informed pro-active community (Milton, personal communication).

As a result of initial meetings the need to address more socio-economic issues was highlighted for example, poor drainage, littering and illegal dumping, overcrowding and the shortage of housing, invasion of land by squatters, lack of services and facilities and the need for environmental awareness programmes. This is in direct contrast to the more traditional conservancies which have up until now been run in middle and upper income white suburbs which are not faced with these immediate problems and thus have the resources and means of addressing the bio-physical environmental problems in their areas.

Originally it was hoped that the whole of Clermont would be involved in this project but it was found to impractical and difficult to manage. The project was taken up by Ward Seven and it was assumed that once this ward had a functioning conservancy other communities would see the results and join in the project. After Ward Seven successfully established a small park, Ward Six approached the council for assistance with a project of their own.

Members of the conservancy committee included representatives of the Council, Natal Parks Board, councillor, professionals like nurses and teachers, women's groups and schools as well as members of the development forum. Besides the importance of socio-economic issues the need to work closely with the local authorities was stressed.

A number of spin off projects empowering residents have been initiated, for instance:-

- A sewing and quilting group to provide employment and empowerment.
- The distribution of household products by decanting bulk supplies into recycled smaller plastic containers.
- An anti-litter campaign was successful, despite encountering a number of problems, with 12 schools participating and collecting over one thousand refuse bags. The problems encountered reflected the importance of well developed partnerships between these voluntary groups and authorities. For example, the refuse bags were delivered late by the 'Keep Pinetown Beautiful Organisation', the local authority experienced transportation problems and many of the bags were not collected and the promised Coke sponsorship for the participating children did not materialise.
- Recycling project with members of the Women's forum attending a recycling project organised by 'TREE' in Shongweni.
- Three women attended a training course in Urban Agriculture at the Valley Trust in Hillcrest and are currently conducting workshops with the rest of the members in their group.
- A small park was set aside, the 'unlikely' locality of which was decided on by the community, to be cleared and planted with indigenous trees. A sponsored Arbour Day function was held to initiate this project. Plates 3 and 4 show the locality of the site and members of the committee.
- An 'Adopt-A-Spot' project has been initiated with members of the community in conjunction with the local authorities, 'adopting' a piece of open land and monitoring littering and dumping and arranging for clean ups.



Plate 3 and 4: Clermont Conservancy Arbor Day

- Committee members are keen to send representatives of the community on the 'urban ranger' training course arranged by the Orange Free State nature Conservation Department Urban Conservancy project.

The conservancy on the whole has been successful and this can be attributed largely to the dedicated committee members, especially the councillor and the Women's Forum. It has been a very slow and long progress requiring much patience on behalf of the committee. Problems that were encountered included a widespread apathy, insecurity of tenure and the high incidence of crime. Crime and a general lack of security limited the work done by the committee. It has been suggested that a greater involvement by the local authority in educating the local community about environmental matters might promote environmental awareness and consequently greater involvement with environmental issues.

Although it appears that the work done by this conservancy is not directly related to POS, the process is essential in working towards an appropriately sustainable open space management. It is only once the issues relating to basic needs and livelihoods are addressed that biophysical matters can be incorporated.

5.5 CONCLUSION

Although the original concept of a 'conservancy' in the more traditional sense was concerned primarily with conservation of natural areas, it is apparent from the above case studies that the composition and nature of conservancies can be quite different. The very nature of this diversity reflects the different priorities of the areas in which they occur. The different areas have different issues of concern and consequently will require different management strategies. These case studies have

illustrated how two completely different areas, in close proximity to each other, approach the planning and management of their POS. The resulting divergent issues of concern and associated solutions as proposed by the communities illustrate the importance of involving them at early stages of planning. The importance of empowering the communities to appropriately address their concerns and manage their own areas is also highlighted.

As illustrated through the conservancy, it is apparent that in those areas characterised as 'areas of greatest need' it is essential that the issues pertaining to the whole environment, particularly the socio economic factors be addressed, when considering sustainability of POS. Although the importance of the natural environment in the sustainability relationship is undisputed, sustainability as a process will fail and the natural environment will suffer if basic living standards are not improved.

In conclusion, it is recommended that the appropriate planning and management of POS could be undertaken by local conservancies. Conservancies could be assisted by the Local Councils, the Natal Parks Board and Wildlife Society to ultimately form the 'Catchment Forum' which in turn would work closely with the D'MOSS planning team to jointly plan and develop an appropriate D'MOSS system incorporating both ecological and social needs within a feasible economic framework.

Once the system meets the needs of the specific community and the overriding D'MOSS principles, then only can appropriate management be implemented. The next chapter deals with sustainable management and considers the collaborative community based approach for the management for POS.

6. SUSTAINABLE MANAGEMENT

6.1 INTRODUCTION

This chapter firstly deals with the theoretical aspect of sustainable management and considers how local development and collaborative community-based approaches to environmental management can provide a basis for sustainable development. In the light of the case studies the appropriate management of POS in the DMA will then be considered with specific reference to the 'Draft Policy for Public Open Space in Urban areas of KwaZulu-Natal' (IPS, 1997) and the management approach proposed by the D'MOSS Framework Plan (1998).

Based on the theoretical and empirical findings of this research work, recommendations for a sustainable POS policy and guidelines for planning such a system, incorporating the principles of the D'MOSS and including population needs is proposed and presented in the Chapter.

6.2 INTEGRATED MANAGEMENT

Managing open spaces in an ecologically and economically sound manner is central to any programme that aims to encourage sustainable development. In order to support sustainability it is necessary to have good governance that is strategically applied to developmental needs and priorities. It is necessary to manage sectors and ensure effective co-ordination and integration between these sectors. Public administration alone cannot achieve this, it requires a more integrated public development management approach. A partnership is required between the government, civil society and the private sector. In addition to this, there should be co-operation between the different tiers of government. Management thus becomes the building tool for building capacity in society so that the process of social and economic improvement will be sustained (Fitzgerald, 1996).

Missionaries from Britain and Europe arrived at the Cape in great numbers during the nineteenth century, and started moving out and settling among indigenous communities. In missionary thinking, converting the heathen was inseparable from 'civilising' them – or encouraging them to adopt a way of life similar to that of nineteenth – century Victorians. Their teaching inevitably involved an attack on existing customs and institutions.

Azaria Mbatha was born in Zululand in 1941, and graduated from the Rorke's Drift Art Center in 1964. Today he lives and works in Sweden.

About his print *The Ladder*, Mbatha writes: The African says, I was naked and wounded and hungry and blind. But I lived under a social order which made me feel secure and you destroyed it. European, you came as a soldier and a missionary. You completely changed my world. Preacher, with your raised finger you showed me the way to salvation, but with your hand you tore my wives from my side.'

About the past: "The past is part of one's identify. Naturally we cannot live in the past, but we must live with it. We need to be reminded by and about our past, which we as Africans were compelled to forget.

'Africans once were proud of their traditions, and some have begun again to study their origins. They understand that they were cheated. It was European civilisation which brought the end of African civilisation and replaced it with its own. I cannot find the words to describe what a terrible crime this is'.



Sustainable management practice is a deep-rooted process and depends on how people interact with their environments. People interact socially with the environment and if they are going to change the way they relate to the environment to realise sustainable lifestyles, then patterns of social behaviour have to change. Ramphela (1991) notes that past experience in South Africa indicates that effective ecological protection and management will only be achieved through democracy and an equitable distribution of power so that the social needs are addressed in relation to environmental issues.

In addition, new emerging environmentalism addresses political and social dimensions of managing the environment, and links these to sustainable development through such issues as land use, urbanisation, workplace safety, employment, food policy, education and democracy. In order to achieve this it is necessary for sustainable management to be seen as a process, it must be locally conceived and initiated, flexible, participatory and based on a clear understanding of local economics and politics.

Furthermore, as the environment's ability to perform all its required functions is under threat, as competition for exploitation of non-renewable resources exceeds the sustainable use of renewable resources, conflicts occur and trade-offs are necessary. In order to make informed choices, the education and capacity building of institutions and individuals are important so that appropriate decisions can be made. Although it would appear that such concerns are a preoccupation of the wealthy, environmental concerns are of greatest importance for those whose livelihoods are most marginal (Munslow *et al* in Fitzgerald, 1996).

A fundamental principle of sustainability is peoples' participation. As increasingly, local livelihood requirements necessitate the rehabilitation and conservation of the resources available to local communities, people's ability and willingness to undertake such efforts is a prerequisite for

successful environmental management. This grassroots approach to development is documented in a useful book edited by Ghai and Vivian (1995) 'Grassroots Environmental Action: Peoples Participation in Sustainable Development'. This work highlights the success of partnerships between local communities and the state, local empowerment and local appropriate technology.

Sustainable management is therefore dependant on empowerment, it is about improving the human resource base through understanding, so that the natural resource base can be managed more wisely, thereby looking after our future welfare as well as today's survival. Educational efforts should not ignore the pools of traditional knowledge of good environmental practices where they still exist but should build on it (Cook in Fitzgerald, 1996).

Marginalised groups, such as rural woman, need their own forum rather than being party to multi-stakeholder groups in which their concerns might be ignored. These factors are important for the implementation of sustainable management as the perception a community has of its own circumstances and needs, are what will drive and shape the process.

6.3 COLLABORATIVE PLANNING AND SUSTAINABLE MANAGEMENT

One of the challenges facing policy makers and municipalities is the capacity to integrate the concerns of all the different cultural communities, which co-exist in a place. These may vary enormously in their existing relationships with each other, in their systems of meaning and ways of spatial organisation. Stakeholder groups and cultural communities represent these diversities. The process of Collaborative Planning seeks to develop a collaborative, multi-cultural communication and learning developed through building up relations of understanding and trust (Healey, 1997).

'Collaborative efforts in defining and developing policy agendas and strategic approaches to collective concerns about shared spaces among the members of political communities serve to build up social, intellectual and political capital.' (Healey, 1997:311).

Collaborative cultural communities are included in the planning process by 'relation-making' and 'culture-building' which takes place through dialogue. By including these stakeholders in local government processes of policy formulation and management, it is necessary to develop new collective ways of thinking and acting, to reframe and restructure ways of proceeding.

'Those involved as experts in such processes should have an ethical duty to attend to all stakeholders as the interactive process develops' (Healey, 1997:312).

Collaborative planning addresses our collective concerns, with co-existence in shared spaces and to redesign institutional frameworks to allow for a rich, inventive, locally-contingent and inclusionary form of local environmental planning and management.

6.4 THE ROLE OF INSTITUTIONS

The state has a complex and diverse role to play in sustainable management; it should be proactive and flexible rather than following inappropriate rigid standardised operational procedures. Management should be centred on a people driven process as it recognises that active involvement and growing empowerment will be the key to shaping the future. The people must participate in decision making and democratisation must transform the state and civil society.

Successful organisations are those that best combine the concept of flat hierarchies and flexible job definition resulting in adaptation to the

environment and optimal attainment of goals. This contingency approach when applied to a sustainable development situation can be termed developmental bureaucracy. A result of this, is decentralisation and devolving of power and responsibility, from central government to local authority level, in an attempt for increased accountability and wider participation in planning and implementation processes (Wallis in Fitzgerald, 1996).

Bureaucracies have to learn to manage their relations with the private sector as well as with communities and these can sometimes pull in opposite directions. In both cases the development bureaucracies are required to be well informed about the needs of both sets of interests and to have well established channels of communication. Community participation is a very important aspect and it is required to be effectively and practically integrated into the sustainable development process.

With regards the private sector, bureaucracies are required to protect the public interest and at the same time not unduly impeding the operations and decisions of these private companies. Tensions do occur since these private companies are profit motivated and the institutions are responsible for ensuring that they do not pursue environmentally unsustainable practices in their quest for profits. Closely linked to this, is the need for the careful consideration of environmental concerns during the process of project planning and implementation. The concept of environmental issues as discussed earlier, pertaining to those of 'green' and 'brown' environmentalists are of importance at this point. Successful implementation will only occur if these differences are acknowledged and dealt with appropriately. Education of officials, decision-makers and communities becomes an important factor in this regard.

The process of enhancing sustainable institutional capacity for management is slow and complicated; it requires improvement in

manpower, procedures, structures and organisations to enhance overall effectiveness. It is difficult to consider planning for sustainability when faced with immediate problems. Most of the existing structures are fragmented, unnecessarily duplicative, poorly co-ordinated and often highly politicised. Corruption is not uncommon and the mismanagement of resources is rife. Often management is poor, outdated and unresponsive to the needs of citizens. Institutions are usually regulatory, lacking in accountability and transparency and are often run by poorly trained staff (McLennan in Fitzgerald, 1996).

An attempt to overcome this situation has been addressed in The White Paper on Local Government, which sets out to transform local government, to:-

'improve intergovernmental co-ordination and co-operation to ensure integrated development across the nation' (Towards a White Paper on Local Government in South Africa, 1997).

This policy hopes to achieve the relevant capacity building and restructuring of the local government to facilitate development, economic growth and the 'war against poverty'.

6.5 MANAGING FOR MAXIMUM BIODIVERSITY AND PRODUCTIVITY

A model for the sustainable management of open space has been suggested by Patrick and Auerbach (1998), in an attempt to incorporate conservation and development in Ntshongweni, an area characterised by urban, peri-urban and agricultural land use in the outskirts of the DMA. Appropriate open space planning and management was used to contribute to addressing environmental problems by spanning the rural-urban frontier and using ecology to shape urban, industrial, agricultural and rural developments (Patrick and Auerbach, 1998).

Opportunities for integrating conservation and development were identified so that these can contribute to a broader approach to open space planning which includes the cultural, social and economic values of the human community. It was suggested that the productivity of the open space system could be maximised if zones of different use are identified. These range from recreational use in highly developed areas to agriculture and the use indigenous plants (reeds for craft work, medicinal plants and horticultural plants) where there are larger tracts of open space. People in and around the open space system need to be empowered so that they manage their natural resources in a sound manner. Opportunities that have been suggested include assisting with the sustainable utilisation of indigenous planting and assisting small-scale farmers using the principles of ecological agriculture (permaculture).

For an effective management of a sustainable system it was necessary to develop a multi-disciplinary team to support open space management which is both productive and sustainable. The strategy that was used; was to build platforms for resource negotiation, promote the development of conservancies and promote environmental education.

6.6 PLATFORMS FOR MEDIATION AND PARTICIPATION

As noted by Patrick and Auerbach (1998), many of the problems surrounding natural resources require the solving of social dilemmas and trade-offs. The concept of building 'platforms' for resource negotiation is a useful tool to facilitate participation and building the capacity for people to take action on environmental problems (Roling, 1994a, Maarleveld *et al*, 1997, in Patrick and Auerbach, 1998). A platform can be described as a

'level of aggregation, higher than that of the individual, and commensurate with the level of the ecosystem perceived to be in need of interactive management' (Patrick et al, 1998:9).

These platforms can be regarded as a practical application of the collaborative planning concept proposed by Healy (1997) as discussed previously in this Chapter. Platforms are regarded as a 'soft system' which recognises the importance of collaboration between people in resource use negotiation and the associated capacity building and empowerment necessary for those people to manage their natural environments (Healey, 1997; Roling, 1994a in Patrick and Auerbach, 1998).

Platforms can comprise one off meetings, elected committees, appointed boards, councils, parastatals or government bodies, the prerequisite being that they are representative and accountable to the key stakeholders. The building of such platforms can be initiated by non-government organisations (NGOs), local authorities and other government bodies. Stakeholders with multiple perspectives due to divergent interests are briefed through 'relation-making' and 'culture-building' processes in an effort to create a common perspective on the problem and its solutions and ultimately, agreeing on management and action strategies (Maarleveld *et al*, 1997 in Patrick and Auerbach, 1998; Healey, 1997). Although platforms often only deal with social processes such as conflict resolution, negotiation, institutional development, leadership and power, they are a useful mediating tool (Roling, 1994 in Patrick and Auerbach, 1998).

Platforms have been identified as an appropriate approach for integrated catchment management. This is a new policy of the Department of Water Affairs and Forestry (DWAF) to integrate management across the catchment by developing management capacity within local communities and the formation of catchment advisory committees and agencies (National Water Bill, 1998). The D'MOSS Framework Plan also proposes the catchment management approach as a tool for managing the resource of open space; this will be discussed later in this Chapter.

6.7 CONSERVANCIES

A conservancy is the

'voluntary co-operative environmental management of an area by the community and its user groups' (Milton and Davis, 1996).

A conservancy is divided up into smaller cell units or conservation cells that are of a manageable size and easier to monitor. These cells are then linked up and integrated into a conservation area, for example a river system. Each conservancy has a management committee made up of members of the local authority, environmental awareness groups, ratepayer associations, industrial and commercial management bodies, sporting bodies and the general public. These democratic bodies formulate policy and practical management and consult with the Natal Parks Board for specialist advice. The concept of conservancies have a great potential to facilitate open space management as, like the D'MOSS concept it interlinks biological areas, through the cluster management of neighbouring conservancies. Figure 19 graphically shows the interlinking concept of conservancies.

One of the main aims of conservancies is increasing and maintaining indigenous flora and the removal of exotic invader plants and trees. Issues such as toxic pollution, illegal waste dumping and litter collection are also of concern to conservancies. Conservancies are also recognising the importance of 'Ecolinks' as provided by the freeway centre medians, roadside reserve medians and railway line reserve strips and are undertaking a project to plant these areas with indigenous flora.

The concept of conservancies as applied in Durban is loosely based on the American conservancies that are mainly concerned with nature conservation. There are 32 Urban and Industrial Conservancies operating in the greater Durban area predominantly in historically white areas. Recently the Natal Parks Board expanded the conservancy concept to include issues relating to environmental management and quality of life in

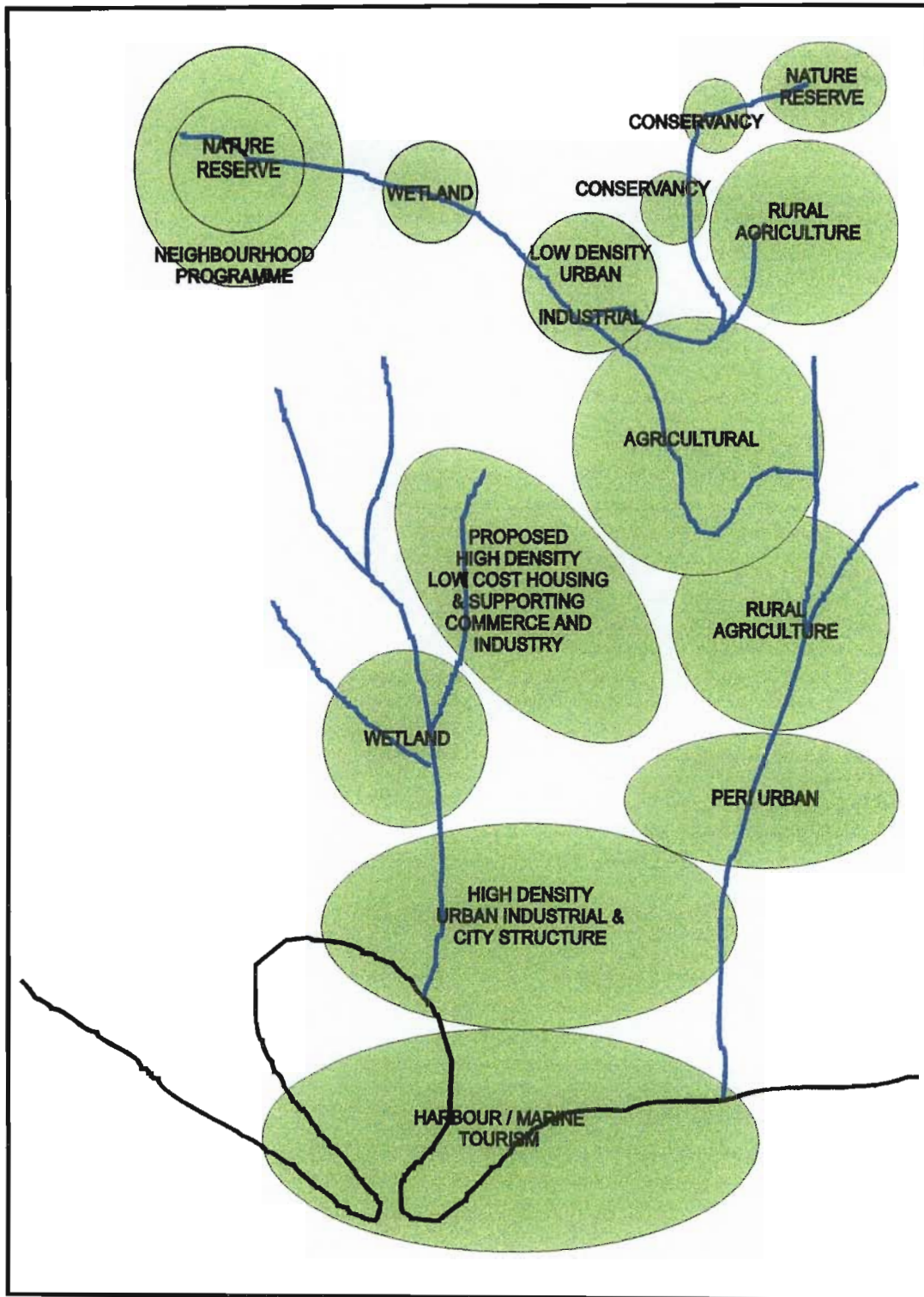


Figure 19: Interlinking concept of conservancies
 After Milton and Davis, 1996

urban and industrial areas, including black townships. It would be pertinent if black rural areas were also included in the conservancy network (Milton and Davis, 1996; Patrick and Auerbach, 1998).

Successful conservancy programmes have been initiated in some townships of the Orange Free State (OFS) by Duarte Hugo from the Nature Conservation Department (personal communication). At the onset of a programme the communities were approached to ascertain if they would be willing to support and participate. Workshops were held to determine the key issues and possible solutions to these problems. The main environmental problems in the OFS were listed as being litter, water contamination, domestic animals and veld fires. In response to these problems it was suggested that incremental action, in small steps be taken. The first steps were to plant trees, start a garden and plant a lawn. Domestic animals that were suited to the property size were to be kept and looked after. Clinics were consulted to ascertain the extent of the health problems that were directly related to contaminated water and waste collection projects were initiated.

Generally a number of volunteers were recruited to attend an 'urban ranger' training course after which they would be responsible for organising clean ups, create green areas and the planting of trees, grassing projects, vegetable gardens and beautification projects. Once these projects were started a community pride was instilled in an area and as a result houses were starting to be maintained and painted. Residents were taught how to collect and store rainwater and recycling of waste into litter bricks and tin can / wire objects for sale. Generally these projects were successful resulting in litter free open spaces, cleaner more secure environments and happier communities with a better understanding of the environment.

Problems that were encountered were attributed to apathy, politics, personal differences and crime. General points of note were that the smaller conservancies worked better as they are more manageable. It was found that incentives like 'Awards of Merit' and prizes such as gardening equipment were preferable to parties and braais. Companies were more willing to donate sponsorship to worthwhile causes and enthusiastic communities rather than handouts. Members of the conservancies worked very well with officials from the local government departments (Hugo 1998, Personal communication).

It is increasingly accepted that sustainable management cannot rely on legislation, regulation or planning by authorities but requires collective action by all stakeholders. Management of areas is localised as the local authorities are assisted by the voluntary conservancy working groups. As an environmental forum, a conservancy can assist in the management of open spaces by contributing to the process of building platforms for resource use negotiation. The ultimate goal of conservancies is to promote a public conscious and awareness and active participation in their local environment

6.8 ENVIRONMENTAL EDUCATION

For environmental education to be effective it should deal with the biophysical and socio-economic environments as well as human development (O'Donoghue & van Rensburg, 1995 in Patrick and Auerbach, 1998). Environmental education thus prepares people for citizens' rights as well as increasing people's awareness of the ecological processes that maintain natural resources. Approaches that were successfully used in Ntshongweni were provided through the educational resources of the Wildlife and Environmental Society and a full time facilitator and included vegetable gardening, tree planting, recycling,

waste management, water conservation and alien plant control (Zwane and Dean, 1998 in Patrick and Auerbach, 1998).

6.9 D'MOSS MANAGEMENT SYSTEM

The management of urban open space is essential in order to sustain the continued delivery of a wide range of services to the urban community. Management principles of the D'MOSS system are based on maintaining functional ecosystems that ensure the supply of open space goods and services both in the long and short term. Open space management thus focuses on maintaining species diversity as well as the functional relationships between species and the surrounding environment (D'MOSS, 1998b). It has been recognised that there are insufficient resources for the public sector to acquire and / or manage all the open spaces within the D'MOSS effectively. It has been proposed that management is collaborative and co-ordinated so that agencies and communities can work together.

In order to manage for a functional ecosystem the following principles have been considered:-

- Supply of goods and services; for current as well as future needs.
- Measurable goals; should be set for example, water quality.
- Monitoring and research; so that management is able to keep up with changes.
- Diversity and complexity; of ecosystems must be maintained to ensure resilience and adaptability of the open space.
- Adaptability; to keep up with natural evolutionary change.
- Range of scales; should take into consideration the requirements of a small park through to international biogeographic functions.
- Human element; should be acknowledged as an accepted part of ecosystem functions.

- Incremental Improvement of management; as ecosystem management is partially developed and consequently open space management should be adaptable to change when appropriate.

6.9.1 Management Resources

Due to the complexity of the proposed D'MOSS and the enormous cost involved, the local council will be unable to manage the system single-handed. It has been suggested that the public authority take responsibility for most of the activities associated with acquisition, management and maintenance of parks, sportsfields and nature reserves. Privatisation will be encouraged for the private control of land and natural habitats according to public guidelines. Communities will be included in the process and partnerships for joint management will be facilitated. Specific agencies that have been identified for inclusion in this process include the public sector, parastatals (Eskom, Intersite etc), institutions (universities, schools), private sector (businesses, consultants, industry, property owners), NGOs (Wildlife Society, Earthlife, ORI, CROW) and CBOs (Conservancies, development forums, residents associations).

6.9.2 Open Space and Catchment management

As all systems are interlinked it is necessary to manage the system in an integrated way. Local authority boundaries are inconsistent with the natural boundaries making integrated management difficult. One of the few practical methods available to manage dispersed but interconnected resources in communities is the 'catchment management approach'. Catchments are practical units for managing clusters of ecosystems and conservancies as they cut across artificial boundaries. Catchments are related to hydrological processes as are ecosystems that are linked via the flow of water, all people living in catchments are linked together through their use and reliance on water and it is a key economic resource for many activities. The way in which water is managed upstream will affect its users downstream. Catchments incorporate a range of different

landuses and community groups, which in turn fall within different local authorities. Managing such a system in itself will be difficult.

Successful management will depend on an effective partnership between the different groups. The metropolitan council would be responsible for overall co-ordination, they would identify priority areas in need of management and would provide technical and financial support. The local authorities in conjunction with their communities would identify their own open space requirements, prepare plans for local open space in line with metropolitan objectives, promote local involvement of open space plans, be responsible for monitoring and review and develop community education. Figure 20 illustrates spatially the integration of the management systems.

In order to perform this function, it has been proposed that an 'Open Space Service Unit' be established at metropolitan level. This unit would be responsible for the overall co-ordinating, planning, development and management of all the open spaces to ensure that it is ecologically viable and that it provides the optimum level of services to the DMA. It will be responsible for prioritising the provision of open spaces and open space services and allocating budgets and resources accordingly across catchments and Local Council areas. It will also be responsible for balancing the need for development and the conservation of open spaces within the DMA and liaising with other government departments around pressures on open spaces and the most appropriate form of development for particular open space land parcels. Co-ordinating the agencies and activities involved in managing and implementing the D'MOSS at local authority levels. It has been suggested that a 'Catchment Forum' be established at local level that would be non-statutory and responsible for co-ordinating agencies and monitoring the implementation of D'MOSS so that it adheres to the original principles.

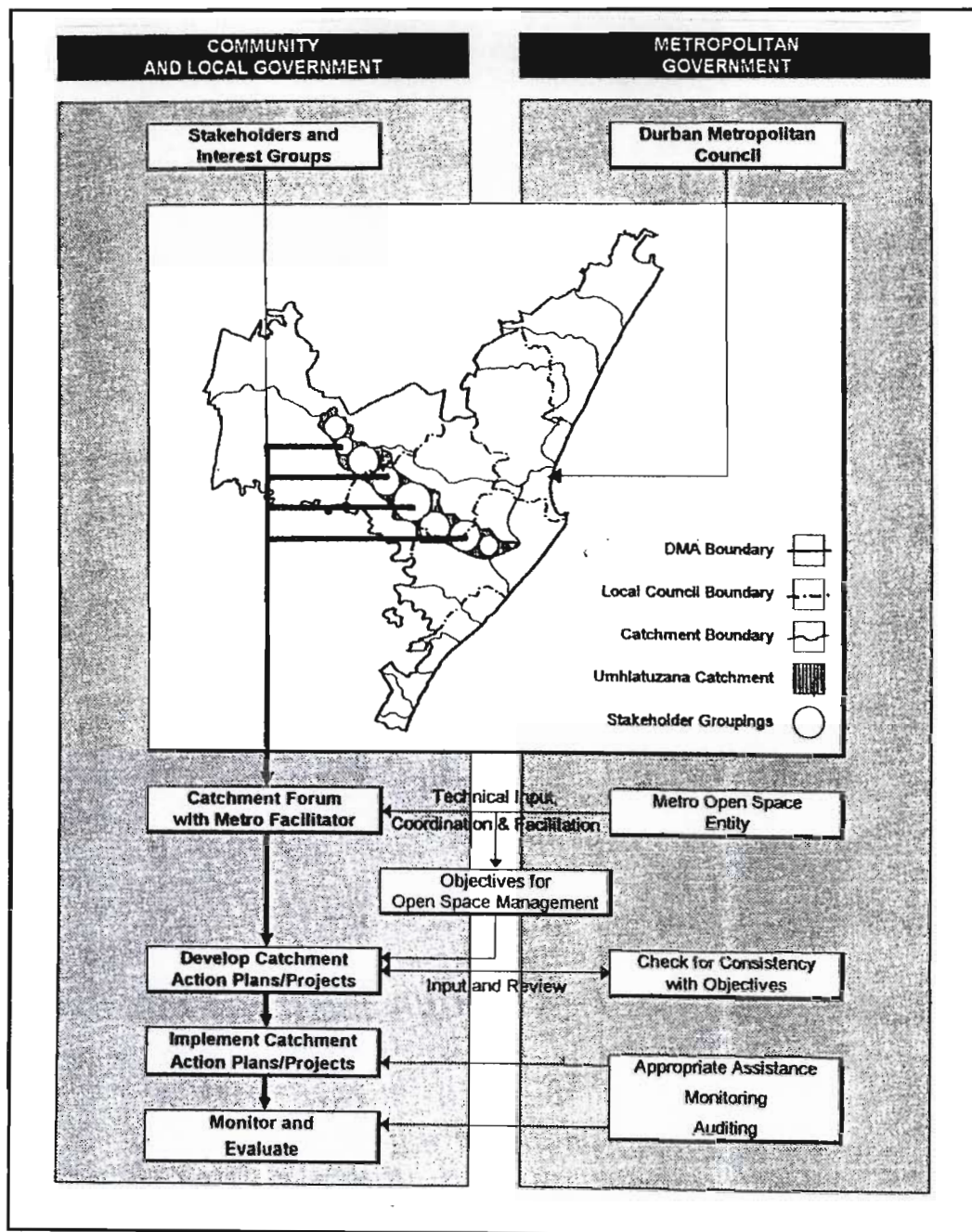


Figure 20: Spatial integration of the management systems
 After: D'MOSS Discussion Document September 1998

Catchments have also been identified as the most appropriate management unit by the Department of Water and Forestry (1998) for the collection of levies and redistribution of benefits. For each catchment, 'Catchment Management Agencies (CMA)' are made up of representatives of the water user stakeholders responsible for the management of their own catchments.

6.9.3 Conclusion

The proposed D'MOSS management framework has been examined and theoretically the 'Catchment Unit' as a management approach is considered appropriate especially since it probably will have many of the same stakeholders as the DWAF catchments. It is recommended that both processes be established concurrently where possible, so that management is integrated and to avoid duplication of meetings and capacity building. Although this dissertation did not specifically investigate the concept of catchments in detail, questions as to the practical implementation of such a system is highlighted. Establishing catchment management systems might be problematic as a catchment runs across and between municipal boundaries and will require yet another committee or steering group to be established within a system that already has an overwhelming amount of administrative committees.

On a more localised level, and in the light of the findings related to the success of conservancies, it is recommended that the conservancies be given a greater role to play especially as many of them are already established with a wide representation of stakeholders. At this point in time the conservancies are already acting like a Catchment Forum, but on a much reduced scale. Existing conservancies could be linked together and would cover a river catchment. In the case of conservancies public apathy has been highlighted as being problematic. It is suggested that

active partnerships are encouraged and that particularly the guiding role of the local authority in these conservancies become more important.

With regards the D'MOSS framework plan, the interaction of the Metropolitan Service Unit with the local Catchment Forums would be a point of concern. It appears from the initial investigations that this unit will be responsible for the overall design of the system, prioritisation and the allocation of funding. This unit will be responsible for the D'MOSS framework and the Catchment Forum works within this framework. There does not appear to be any consultation with the Catchment Forum back to the Metro Unit, excluding active participation of the local organisations from the planning process. It would be unrealistic to expect these local, mainly voluntary, partnerships to manage an open space system that is not appropriate to their needs.

In order to overcome this, the planning process needs to include public participation from the earliest stages so that an understanding can be sought regarding the reason for and value of different priorities pertaining to the provision of open space resources. Although perceptions may differ between different communities, there are basic common and standard criteria for the development of an open space system, these are the biophysical criteria and the population needs. The characteristics of these components will differ from area to area and it is the incorporation of these components that will result in a specific open space pattern for a particular area.

It is suggested that the D'MOSS framework plan provide the biophysical component as it is based very much on ecological principles and that the population needs be considered jointly by the local councils in conjunction with the Catchment Forum or similar co-ordinating body like a conservancy. In this way it would be possible to, at the onset design a

system that incorporates ecological principles and at the same time provides for the needs of the community.

Once the community feels responsible for a design, which has addressed their needs, even if they have been compromised, the resulting open space will be meaningful and appropriate making the management thereof viable. Viable, in that the community will be committed to caring for their asset as well as making it financially appropriate. It is at this point where the conflict and trade off takes place as funds are restrictive and there is just not enough money to provide an ideal open space system. During the planning stages these trade offs can be addressed and although not every body will agree all the time, through the process of understanding and negotiation, a compromised plan can be developed.

6.10 RECOMMENDED GUIDELINES FOR SUSTAINABLE POS

The planning and managing of a sustainable open space should try to balance biophysical and social requirements within the framework of an existing built environment. The 'Draft Provincial Open Space Policy' prepared in 1997 (IPS), recommends that both the biophysical components and population demands are equally important as a base on which plans and decisions regarding open space can be developed. The recommendations and principles set out in this Draft document will be incorporated into proposed guidelines for a sustainable POS.

6.10.1 Open Space Planning Process

6.10.1.1 Biophysical Component

This information relates to those areas that are identified as unsuited for development or in need of protection. The criteria on which these decisions are based are scientific requiring expert consultation based on aerial photography, fieldwork and sieve mapping techniques. Areas falling in this category include:-

- Floodplains

- Hydrologically important areas
- Biological conservation areas
- Existing or potential agricultural areas
- Hazardous or noxious areas
- Attractive natural features
- Historical and cultural sites
- Nature based recreational areas

6.10.1.2 Population Component

The population needs based on socio-economic data and perception studies are to be considered. More scientific socio-economic surveys including household surveys and house counts together with the calculation of facilities based on set down norms and standards should be ascertained at the metropolitan and local authority level. In conjunction with this, the community values, goals and desires of the local people should be incorporated through consultation procedures. The following factors should be considered:-

- Population number
- Population density
- Age-sex structure
- Socio-economic background
- Recreational pre-dispositions
- Past history
- Community needs and expectations

6.10.1.3 Built Form

As public open space falls within built up areas it is necessary to consider features such as roads, sewers, stormwater, water pipes, formal and informal settlement location and layouts and the location of public facilities. This should be done on a map or through a GIS system if possible.

6.10.2 Setting Norms and Standards

The scientifically based information such as floodzones and geological hazards should form the absolute minimum standards set by the D'MOSS and local authorities. The other information is far more subjectively and culturally based, and their relative value depends very much on the socio-economic level and culture of a particular community. The role of collaborative planning and the use of platforms in this regard is appropriate in determining specific standards and open space principles for a localised area. A certain community might not value an area highly but strategically at a wider level that same area may have a special value.

Planning of open space systems should thus be a collaborative process with the involvement of all stakeholders. In this regard 'platforms' are a useful mediating tool as it gives the community the opportunity to contribute to the process. They are able to table concerns that the Council may not be aware of and where possible they could be incorporated. If these proposals are in conflict with broader more strategic principles the community can be informed of the reasons. In so doing the community will understand the reason for certain decisions and become empowered as having had an active role in the planning of the system. At the same time the more transparent council will be held accountable for the decisions it makes.

Recommendations for norms, standards and criteria for a more sustainable open space planning was presented 'Draft Provincial Open Space Policy' (IPS,1997) for the Town and Regional Planning Commission. Appendix 4 lists the various open space considerations and the criteria on which they should be evaluated.

6.10.3 Integrated Open Space System

A successfully integrated urban open space network would be a balance between preserving a maximum biodiversity and meeting population needs for recreation and access to natural resources. Such a sustainable open

space system should be based on the D'MOSS conservation principles of cores, corridors and buffers which complements the built form providing character and a sense of visual and functional relief. Within an integrated and comprehensive open space system, the linking of open spaces and public facilities and the development of multifunctional recreational facilities is recommended especially in the light of limited resources. Open space planning thus can be used as a structuring element in the development of future urban development and a restructuring tool in the existing landscape.

Community participation is a recognised part of the planning and development process. As many of the affected parties represent disadvantaged communities a certain amount of capacity building is required in order to bring them on board. Institutional development is also necessary to ensure that the participation process is appropriately organised. Techniques such as role playing and model making are useful tools for workshops. Communities should also be allowed sufficient time to engage with the process and develop a sense of ownership.

6.11 RECOMMENDED PUBLIC OPEN SPACE POLICY

A 'Draft Public Open Space Policy For the Province' has been compiled by IPS (1997) which is based on the integration of both population needs and biophysical requirements. Appendix 5 is the Policy Statement as listed in this document.

The broad aims of these policies are to ensure that the open space system based on biophysical factors and population needs is

- integrated and sustainable
- to develop an appropriate planning framework within which urban growth and development can be managed together with the protection of the natural environment

- to integrate recreation and community facilities as part of the open space system
- to facilitate integration between agriculture and urban development.

6.12 CONCLUSION

From this Chapter it is evident that the overarching D'MOSS principles as a strategy for a sustainable environment is essential. In order for the D'MOSS to function effectively the implementation and management of the system is critical. The concept of platforms, conservancies and environmental education is regarded as an appropriate approach to management as it integrates the fundamental principles of sustainability. It provides for the inclusion of diverse stakeholders and the empowerment of local communities to take responsibility for their own areas in conjunction with local authority and specialist support. It is a flexible approach that facilitates appropriate planning and management of open spaces in accordance with the needs and perceptions of the communities themselves. It incorporates education and empowerment of the local community to take responsibility for their own open space requirements and environmental management. The conservancies are interlinked and can practically be integrated into the overarching D'MOSS strategy and the proposed catchment management approach.

Based on the above findings the proposed recommendations and guidelines for sustainable POS policy and planning are based on integrating biophysical aspects and social needs through a collaborative process. The ecological D'MOSS principles would inform the critical minimum standards of the system and population needs would be incorporated through appropriate participation and negotiation.

7. CONCLUSION

It is clear that for a city to be sustainable there must be a balance between social, economic and natural factors. In order for Durban to be sustainable then, the natural system of open space is critical. As POS is a major component of the natural environment, by virtue of the definition of sustainability, the same issues can apply to the natural environment. Is the open space system itself sustainable? Does the open space system balance the social, economic and natural factors? It is like a circle within a circle, indicative of how inter-related and integrated all these processes are. Processes that are constantly changing and shifting as the system itself tries to reach equilibrium. The balance shifts and changes with the pressures of meeting the needs of the expanding city. Strategies and interventions are implemented to guide the process towards a sustainable future. The Durban Metropolitan Open Space System Framework is such a strategy and plays an important part in the sustainability process.

From this research it is evident that the Durban POS, which is closely related to the D'MOSS, has historically focused on the natural environment using autocratic, scientific principles of biogeography, ecology and conservation as was the accepted trend in theory and environmentalism. With the general movement in theory towards sustainability and an acknowledgement that our city is diverse and multicultural in the postmodernism context, it is clear that POS needs to consider social and economic factors in conjunction with the natural component.

In the past few years South Africa has undergone enormous changes and the vision of a sustainable future has been widely embraced. Sustainability is the common denominator in most of the legislation, policies and strategies that have currently been adopted. Similarly, the City of Durban has set the principles of sustainability as a basis for

development. There are a number of initiatives in hand that are working towards a sustainable city, one of which is the Durban Metropolitan Open Space Framework. Open space is being considered within the context of sustainability; economic factors of open space as a service are being incorporated and public participation exercises have been conducted. At this point in time, it does appear however, that the population needs have taken third place after the natural and economic component but it is hoped that with the proposed management strategies of joint ventures and greater public involvement that social issues and population needs will be appropriately incorporated.

Studies done on conservancies have highlighted the importance of localised planning and management of appropriate open space in different areas. In the more affluent well-serviced areas, bio-physical issues have been identified as important in the sustainability process whereas in 'areas of greatest need', socio-economic issues are predominant. In these areas the natural environment and public open space will only be sustainable if and when basic living conditions are improved.

Thus the answer to the question, 'Public Open Space Policy for Durban and surroundings: Is it sustainable?' ultimately lies with socio economic upliftment. Only once the need for meeting the provision of basic needs is incorporated into the public open space equation, can it be sustainable.

The challenge of sustainable development and ultimately sustainable public open space, means transforming the system in a way that takes account of the ecological base of the system and meets the basic socio economic needs of the majority. Ultimately people themselves are the key to their own development and sustainable POS. The process occurs inside people, they have to do it themselves. The development path, which they ultimately will follow, is dependent on their education and facilitated by an approachable, user friendly and efficient bureaucracy.

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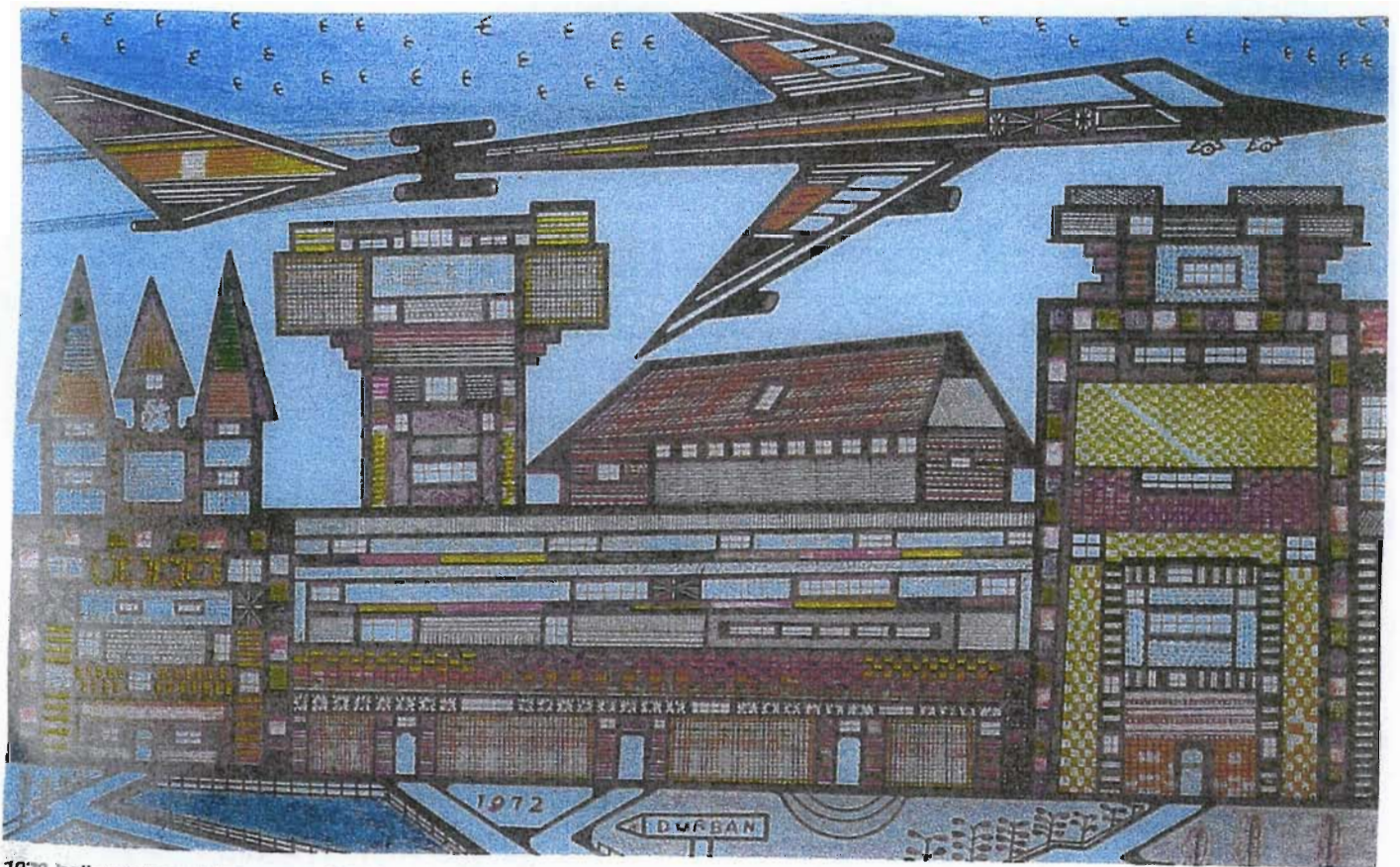
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TITO ZUNGU

ILLUSTRATION FROM THE BOOK 'ART OF SOUTH AFRICAN TOWNSHIPS' By Gavin Young, 1988

Durban's assortment of buildings have become mosaic palaces complete with minarets and cantilevered eaves. Incredibly, each brick, each storey has been ruled in with a ball-point pen. Sometimes the colour has been built up through overlap, a process Zungu calls 'twice and twice'. The drawing called 1972, like other similar ones, conveys an overall impression of opulence. The clocks may not keep time, but the building is so big that many roadways are necessary to service it. A profusion of windows and catwalks make up the façade, while corbelled towers give rise to distant vistas of untold splendour and, need one say, wealth. Strangely, although we see a small flowering shrub in the foreground of this drawing, we do not see any people. There is no sign of life in any of the windows. Even the drawings of aeroplanes clearly show the pilot's window and yet the pilot and crew are not visible in any of them.



1972, ball-point pen ink on paper, Tito Zungu, 1972.

APPENDIX 1
PERSONAL COMMUNICATION

Boon, R. Wildlife Society. *Urban POS.*

Burger, M. Wildlife Society. *Open Space management in Townships.*

Cooper, K. Director of Conservation. Wildlife Society. *Open Space management in Townships.*

Cottrell, M. Member of MOSS Action Committee and Palmiet Conservancy.

Dominik, T. Urban Strategy Department. *POS and Management.*

Ferguson, C. Planner Cato Manor Open Space.

Freeman, S. Department of Water and Waste, *Adopt-A-Spot Programme.*

Hugo, D. Department of Nature Conservation. *Conservancies in the Orange Free State.*

Kumene, N. Social Responsibility manager, Msinsi Holdings, Umgeni Water, *Clermont Conservancy.*

Lindsay, J. Chairman New Germany Conservancy.

Mandur, M. Private Consultant. Environmental Economics. *D'MOSS*

Manickam, S. Student and co-founder of Clermont Conservancy.

Markewicz, T. Private Consultant. Planner. *D'MOSS*

Milton, M. Natal Parks Board. Conservancies and Open Space Management
Durban. *Conservancies*.

Nichols, G. Private Consultant. Ecologist. *D'MOSS*.

Oelofse, C. Department Geographical and Environmental Sciences. Co-
founder Clermont Conservancy.

Patrick, B. Ntshongweni Catchment Management Programme.

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Roberts, D. Director Environmental Branch. City of Durban. *D'MOSS*.

Scar, E. Director Parks and Gardens. City Of Durban. *D'MOSS*.

Scott, D. Department of Geographical and Environmental Sciences. *Social
Issues*.

Sepping, K. Environmental Branch. City of Durban. *D'MOSS*.

Sukdev, R. Keep Durban Beautiful Department. *Adopt A Spot*.

Swart, C. Director Parks and Gardens. Inner west Council. *POS*

Women's Forum. *Clermont Conservancy*

Young, G. University of Pretoria. *Open Space Management in Gauteng*.

APPENDIX 2
MEETINGS ATTENDED

DURBAN METROPOLITAN OPEN SPACE FRAMEWORK PLAN.

- Introductory Meeting City Hall, 25 March (5.00pm-7.00pm)
- Outer West Conservancies Meeting, Hillcrest, 2 April (5.00pm-7.00pm)
- Local Council Meetings D'MOSS (9.00am-12.00pm)

North	13 June
Outer West	20 June
Inner West	27 June
South Central	4 June
North Central	11 June
South	25 June
- Issue Workshops, Durban City Hall, 18 June and 1 August (partnership Forum) and 8 August (9.00am-12.00pm)
- D'MOSS stakeholder presentation on management at Durban City Hall, 19 September (9.00am--12.00pm)

DURBAN METROPOLITAN ENVIRONMENTAL POLICY INITIATIVE

- Initial policy workshop held at Durban City Hall, 5 February (9.00am-1.00pm)
- Vision Workshop, Durban City Hall, 4 April (10.00am-1.00pm)
- Policy brainstorm Workshop, Durban city Hall, 23 May (9.00am-3.00pm)
- Institutional and Procedural Workshop, Durban City Hall, 15 July (8.00am-1.00pm)
- Draft Policy Presentation, Durban City Hall, 11 September, (1.00pm-3.30pm)

KEEP DURBAN BEAUTIFUL COMMITTEE MEETINGS

- Committee meetings attended on 19 November, 10 June (5.00pm-7.00pm)

ARBOUR DAY FUNCTIONS

- Macford Community Park, Bring and Braai, 5 September (11.00am-4.00pm)
- Clermont Conservancy Ward 7B, Arbor Day Tree Planting Ceremony, 3 September (9.00am-1.00pm)

APPENDIX 3

VISION FOR ENVIRONMENTAL POLICY OF DMA

(After Draft Environmental Initiative Policy, April, 1998)

The following draft Vision Statement for the environment of the DMA was developed at a Visioning Workshop held on 4 April 1998, as part of the policy formulation process.

We share a vision of Durban as a metropolitan area that optimises the developmental benefits gained from the environment through its effective management and protection.

We share a vision of Durban as a home to people who are well-nourished, well – housed and educated, and who enjoy safe, clean and healthy places to live and work.

We share a vision of Durban where all citizens enjoy a well structured, efficient and user-friendly city which values its unique character.

We share a vision of Durban as a center with a thriving, vibrant economy that reflects a balance between social justice, economic efficiency and ecological sustainability.

We share a vision of Durban as a place with rich biodiversity and protection of unique natural resources.

We share a vision of Durban in which all people are enabled to play a role in managing the environment as an essential part of their lives, and the lives of generations to come.

We share a vision of Durban acting proudly as a world leader in metropolitan environmental management.

This statement complements the Metro Vision, developed as part of the Integrated Development Framework (1997) for the DMA:

By the year 2015, metropolitan Durban will be a thriving world class industrial and commercial center, an attractive tourist destination and the gateway to KwaZulu – Natal and Southern Africa.

It will be a clean and safe environment with full, effective employment, with its residents living in acceptably serviced housing, and with a generally high quality of life that can be sustained.

APPENDIX 4

NORMS, STANDARDS AND CRITERIA FOR PUBLIC OPEN SPACE :

(After 'Draft Provincial Public Open Space Policy, Integrated Planning Services, 1997)

1. For hazardous areas

- Floodlines
- Steep slopes
- Other geotechnical considerations
- Noise
- Pollution
- Waste disposal sites
- Noxious and dangerous industries and activities

NOTE: The standards for floodlines, steep slopes, other geotechnical considerations, hazard and nuisance avoidance can be obtained or derived from existing sources, or can be obtained from various experts and / or institutions.

2. Hydrological (other than floodlines)

- Wetlands
- Estuaries
- Perennial streams and drainage lines
- Aquifers
- Springs
- Areas for water impoundments

NOTE: The standards for hydrological areas listed above relate firstly to their definition and identification, which is done in the process of gathering site quality information, as outlined in Section 6.2.1 Then, certain standards and other protective measures such as regulations can be used to protect them For Example, areas to stay undeveloped a certain distance from them. These areas are then incorporated within an open space system in which certain appropriate areas are part of a public open space system.

3. Agricultural

These standards relate to the minimum, and sometime maximum, areas for different agricultural uses for the agricultural activities listed below. Also provided would be details of the enabling criteria necessary for these activities to be successful, such as water, electricity, security.

- Food lots
- Poultry/ rabbits
- Livestock (feedlots)
- Livestock (pastures)
- Horticulture

- Silvi-culture
- Agro-forestry
- Aquaculture

NOTE: A great deal of work has been done in these aspects, for example for the Greater Marianhill Structure Plan. Dave Dewar (University of Cape Town) and the Institute of Natural Resources have a great deal of information and experience in this regard.

4. Ecological / biological conservation areas

- Valuable ecosystems
- Areas of high biodiversity
- Valuable vegetation
- Special wildlife sites (breeding, nursery, feeding, stop over and corridors)

NOTE: The ecological and biological conservation areas also need to be identified in the information gathering exercise. In their case, some form of ranking system to indicate their relative value is frequently required. What is also required is the setting of standards or norms as to what the minimum areas and proportions are required in order for these values to be maintained. This one of the most difficult aspects to set standards or guidelines for. The application of biogeographic principles within the planning process is also necessary in regard to the objectives associated with biological conservation. These are best dealt with in terms of the application of spatial planning strategies, as outlined in Section 3.3.2.

5. Special features

- Waterfalls
- Pools
- Attractive natural landscape and features
- View sites.

NOTE : These are very site specific, and need to be identified and then incorporated into open space plans in appropriate ways. What is important in their regard is their identification, recognition of value, and the appreciation of the fact that they deserve protection and skilful planning and design to get the most out of them. Criteria can be set as to the relative value of certain features, and whether they have international, regional or only local significance?

6. Historical and cultural value areas

- Areas and features of geological and archaeological value.
- Areas of historical, spiritual and cultural value.

NOTE: The comments made in the above 'box' for scenic features apply equally to that for historical and cultural areas. In the historical, spiritual and cultural value areas, however, there is a stronger emphasis on community relationships with, and appreciation of these areas, which can only be achieved if there is adequate community participation throughout the planning process.

7. Nature-based recreational areas

- Water sports and recreation areas.
- Hiking, riding, rock climbing and natural resource based recreational areas

NOTE: These are also generally site specific, in that the environment provides the potential for these activities, which may or may not be presently realised. It is part of the planning task to identify these unutilised potentials where they exist and to provide the affected communities with the options to bring them into being.

8. Town squares, public parks and play areas

NOTE: Planning standards have been laid down for many of these areas, for example those of the National Housing Board (1992). The role of community participation and good urban design in ensuring their appropriateness is fundamental to their effective provision.

9. Areas of active recreation

- Sports field etc.

NOTE: There are well-defined 'space' standards for the various sport and recreational

APPENDIX 5

POLICY STATEMENTS FOR PUBLIC OPEN SPACE

(After 'Draft Provincial Public Open Space Policy, Integrated Planning Services, 1997)

PROMOTING SUSTAINABLE DEVELOPMENT

POLICY 1: Public Open Space must form part of integrated environmental, economic, social and spatial planning.

Comment : Open space is a system that is intimately connected to and functionally part of the total environment, and as such must be planned and managed in the context of the whole.

POLICY 2: Local Development Plans (LDP's) should be the prime vehicle through which the public open space requirements of a population and biophysical nature are integrated and through which public participation is drawn into the planning process.

Comment : Through the inclusion of open issues within the LDP planning process, the full spectrum of public open space and its ecological/ population driven planning requirements will be firmly entrenched within the hierarchy of plans as envisaged by the Provincial (Draft) Planning and Development Act.

Important : The inclusion of Public Open Space as part of an LDP will mean that :

- The LDP will have to contain within it a biophysical development plan and a population needs development plan from which Public Open Space in all its variety can be constructed as a sub-set;
- The LDP will require a database encompassing biophysical elements and a data of population needs based upon normative standards, census statistics and community canvassing and participation.

Note: The Public Open Space requirements of the LDP should be expressed spatially through generating the network of biophysical requirements matched with population, social and economic needs and resources.

POLICY 3 : Applications to rezone, subdivide or dispose of land zoned as Public Open Space should be refused unless the decision has been reviewed against a biophysical and population needs data base for the TLC concerned.

Comment: In the absence of an LDP or other category of plan that contains and makes available detailed data pertaining to biophysical requirements and population needs / existing provisions,

applications to alienate, subdivide or rezone areas of public open space must be refused on the grounds of insufficient data on which to make a decision or advise sensibly.

POLICY 4: In the absence of a system of plans containing biophysical and population requirements and needs, the TRPC should set about systematically helping TLCs across the Province to develop the necessary biophysical and population need network plans in order that Public Open Space can be effectively integrated with local development plans.

Comment: Assistance should be given through making available the necessary support, guidelines, brochures and manuals for this purpose, providing training seminars for Councillors and TLC managers, and in some instances providing direct assistance to planners for preparing the necessary data bases.

Note: The TRPC should aim to have had a single round of training seminars with all TLCs by the end of 1998, where after, the application of the various policies should be stringently imposed as a significant element of the LDPs.

EDUCATION, TRAINING & TRANSFER OF TECHNOLOGY

POLICY 5: Develop and promote educational programmes on sustainable development, open space planning and management with relevant case studies, that can be included in:

- formal programmes at universities, technikons and schools
- educational and training programmes for the under-educated and developing communities.
- material for the education and training of TLC Councillors and staff.

Comment: Environmental education is critical to ensuring the development of a environmental and conservation ethic within all strata of our society. The education of decision – makers such as councillors and local authority staff is of vital importance to ensuring the implementation of policy and the advancement of open space planning.

POLICY 6: Initiate and develop capacity building programmes for:

- local communities to enable such communities to understand environmental issues and take an active role in the sustainable management of public open spaces and natural areas;
- local authorities with regard to sustainable planning practices, with particular emphasis on open space planning and management.

Comment : International and local case studies indicate that open space planning initiatives will only be successful if they are perceived to belong to and to address the needs of the community. A sense of

'plan' ownership can only be cultivated if communities are actively involved in all stages of the planning and development process.

DEVELOPING PARTNERSHIPS & EXPANDING ORGANISATIONAL STRUCTURES

POLICY 7: Coordinate all assistance in the form of skills, knowledge and technical know-how from international agencies, central government, provincial government, local authorities, NGO's, educational and research institutions, business and other private organisations.

Comment: To be effective and to make optimum use of resources, environmental planning and management must involve all actors in a process of participatory action and decision making. However, since the operationalization of such widespread participation is often difficult and slow to emerge, the TRPC should make every effort to initiate and coordinate such involvement.

POLICY 8: Initiate, at the Provincial and regional level the development of new organisational structures or the adjustment of existing structures to guide and facilitate open space planning and management, advance the practice of sustainable development planning and promote the productive use of available land resources.

Comment: The above comment applies. In addition, it must be noted that in order to sustain an going interest and the involvement of public and private sector organisations and groups, to monitor the implementation and impact of open space policy, and to promote environmental education requires the formation of an independent or semi-government agency with sufficient and adequately trained staff.

COMMUNITY UPLIFTMENT & PUBLIC PARTICIPATION

POLICY 9: Develop and promote anti-poverty programmes based on the productive utilisation of urban open spaces.

Comment: Poverty has not been found to be a hindrance to either the desire or will of communities to improve their environmental conditions. However, were economic survival is a priority, the value of natural open space areas will only be recognised if the usefulness of such places supports this need.

POLICY 10: Promote the establishment of community based educational centres for the sustainable development of urban open spaces which, among other purposes, will also provide such communities with the necessary support and basic skills needed to manage their own natural areas and to become more productive.

Comment: Poor communities must be given positive support in order to equip them with the relevant skills required to manage their own open areas.

POLICY 11: Link local environmental management initiatives to an increase in household income among affected communities.

Comment: In low-income communities where daily survival is the main priority, experience has found that successful local environmental management has been linked to an increase in the household income of the affected community.

POLICY 12: Initiate the necessary research to determine the viability of the utilisation of open spaces for urban agriculture, market gardening, the production of building materials, etc.

Comment: The environmental, economic and social viability of urban-based systems of agriculture and open space utilization is yet to be determined. Theoretically, the concept suggests many opportunities for moving beyond mere subsistence farming towards active market production.

INFORMATION SYSTEMS

POLICY 13: Establish an easily accessible information and data base system with the necessary administrative structure for the dissemination of environmental and population based information to both the public and private sector.

Comment: There is an urgent need for an accessible, accurate and adequate centralised information and data base system. The information system must integrate data pertaining to natural systems, social systems, the built form and available resources. It is recommended that the database be housed under a single roof in order to facilitate effective data base capture, analysis and management.

POLICY 14: Develop, promote and coordinate the development of guidelines, brochures and manuals on the various aspects of sustainable development, open space planning and management for use by both the public and private sector.

Comment: Both the public and private sector require guidelines and criteria on which to develop, assess and monitor public open space planning, management and sustainability. The information made available through the suggested medium of guidelines, brochures and manuals must be kept up to date, be specific to the problem, easily understood and accessible in order for it to be useful. However, the availability of such information should not obviate the need for professional input.

STATUTORY PLANNING

- POLICY 15:** Advance and standardise the Public Open Space land use categories as used in the preparation of Town Planning Schemes.
- Comment:** The descriptive land use categories for open space presently in use by most local authorities do not have sufficient depth to reflect the complex nature of 'open space'.
- Note :** It is recommended that the 'Public Open Space " land use zoning category be more fully developed and given greater depth so as to reflect both biophysical considerations and cadastral data by the inclusion of the following sub-categories or zones:

- **CORE CONSERVATION ZONE:**

Human intervention in these areas should be minimal in order to preserve plant communities and ecosystems. These areas should have statutory conservation status as provincial or local authority nature reserves. The main function of these areas should be conservation of biological diversity. These areas could provide opportunities for the scientific study of ecological processes. Controlled recreation and eco-tourism activities could also be accommodated.

- **BUFFER ZONE (TRANSITION ZONE 1)**

These would be areas adjacent to the core areas containing natural and semi-natural ecosystems (such as mountain slopes). Due to the interconnection of natural systems, the management of these areas is critical to the protection of biodiversity in the core area.

These areas could buffer negative impacts that humans/urban areas may impose on its representative ecosystems and extend the migratory range of its plant and animal species. The ecological and cultural attributes of these areas should also be protected.

Activities which could benefit from these area's ecological and aesthetic qualities could be allowed in this zone, such as research, recreation, environmental education and the sustainable harvesting of flowers for medicines.

- **MIXED USE PUBLIC OPEN SPACE (TRANSITION ZONE 2)**

These areas could comprise areas of aesthetic, cultural and recreational value that have been subject to a greater extent of human modification than Transition Zone 1 and therefore consist of a mosaic of natural, modified and developed areas. Landscape features that contribute towards sense of place and natural attributes of recreational value could be permitted in this zone and it should however, buffer the first transition zone and extend the area for the migration of plant and animal species, as well as ensure that natural, historical and/ or cultural assets are protected.

- **HIGH QUALITY AGRICULTURAL LAND (TRANSITION ZONE 3)**

Highly productive agricultural land could be designated as this zone. The purpose of this zone would be to facilitate the efficient cultivation of food and fibre products as well as the accommodation of associated tourism and recreation facilities.

- **SMALL HOLDER AGRICULTURE (TRANSITION ZONE 4)**

Areas forming the rural/urban interface (areas adjacent to both areas of agricultural production and urban infrastructure could comprise TZ4. Within this zone, small-scale agriculture or market gardening could be accommodated. Space extensive activities such as golf courses could also locate here.

- **ACTIVE PUBLIC OPEN SPACE ZONE (TRANSITION ZONE 5)**

Areas suitable for intensive urban development, well positioned in relation to social and utility infrastructural investments. Within these areas, areas of ecological, aesthetic or cultural value should be reserved from urban development and linked to surrounding conservation areas to promote the conservation of their valuable features and to support biodiversity conservation efforts.

POLICY 16: Applications for the subdivision of residential land must include, in addition to the standard diagrams prepared by a registered land surveyor, the following:

- A plan locating the application site within its greater context (an orthophoto is recommended for this purpose).
- A detailed site plan indicating all biophysical information pertinent to the property eg. contours, water courses, vegetated areas, existing buildings, access, servitudes and other relevant information. That is, the site plan must reflect the full range of biophysical information.
- A motivation for subdivision.

Comment : In order to monitor, control and prevent the loss of private open space as a result of the subdivision of residential, applications for subdivision must be motivated and reflect the bio-physical nature of the site and the surrounding context.

FINANCING AND IMPLEMENTATION

POLICY17: Innovative financing and implementation strategies are required at TLC level through allocating funds for the purpose, including the following possibilities:

- Community interest groups (eg sports clubs, environmental organizations etc) taking care of and responsibility for managing particular pieces of open space;

- Utilization of endowment funds for receiving levies paid in lieu of setting POS aside as part of green fields developments – the money enabling other suitable land to purchased for POS.
- Individuals who take on the care for and responsibility of adjoining pieces of POS provided that they do not develop the land.

Comment: If POS is not protected for biophysical or population-need reasons at the outset, once developed, it is lost forever to POS uses.