

Sustainable Regional Development: Developing a Sustainability Assessment Framework for District and Metropolitan Integrated Development Plans

Roy Dudley Gardener

*Thesis presented in partial fulfilment of the requirements for the degree of Master of
Philosophy in Sustainable Development Planning and Management
In the Faculty of Economic and Management Sciences
At Stellenbosch University*



Supervisor: Ms JI Muller

Date: April 2014

Declaration

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Date: 16/02/2014

Abstract

Achieving the goal of sustainable development (SD) and sustainability has proven to be a difficult task, *inter alia*, because some definitions of the terms are fuzzy and ambiguous and are interpreted differently depending on the context. The spatial scale, at which sustainability should be addressed, varies from site specific to the global level. The niche area, which has had little attention specifically in the South African context, is the regional scale.

Integrated Development Plans (IDPs) are just one means by which sustainability can be mainstreamed into regional development planning within the South African context. IDPs are seen as holistic, multi-sectoral, strategic plans for district, metropolitan and local government, required in terms of national legislation. Legislation and guidelines on IDPs suggest that their purpose should be to contribute to sustainable development, but it is questioned whether this is the case. Sustainability Assessments (SAs) can be seen as instruments to direct decision-making towards sustainability, and the purpose of this literature study was to review current IDP Assessment Frameworks (AFs) used by the national and Western Cape provincial governments to assess IDPs, from a sustainability perspective.

A literature review was conducted to establish the meaning of sustainability and sustainable development in the context of regional planning, the challenges facing regional planning, and the issues that need to be addressed in IDPs in order to promote sustainability. The first objective of the literature study was to analyse whether present metropolitan and district IDP assessment frameworks used in the Western Cape address sustainability adequately. The second objective was to develop a Sustainability Assessment Framework (SAF) that addresses relevant sustainability issues, based on new and innovative ways of addressing SD and sustainability at a regional scale. Lessons were also learnt through examining and assessing policies and plans both locally and abroad. The literature review highlighted lessons that can be learnt from systems and complexity thinking, transdisciplinary approach, transition management, resilience and regional innovation. The use of Impact Assessments (IAs) and Sustainability Assessments (SAs) from other countries, as well as South Africa, also proved valuable.

A review of existing IDP AFs was performed, to determine where the gaps are and

whether the principles of regional sustainability are incorporated into current AFs. It was established that current IDP AFs do not adequately assess sustainability issues in district, metropolitan and cross-border regional plans. Current AFs lack depth from a sustainability perspective, and therefore a new SAF was proposed for metropolitan and district IDPs. This SAF highlights five (5) domains of sustainability that should be used as inputs into IDPs. These are: (1) Environmental Sustainability, (2) Social Sustainability, (3) Economic Sustainability, (4) Built Environment and Technology Sustainability, and (5) Institutional Sustainability.

Further inputs into the SAF were four (4) approach-based categories derived from the literature and existing frameworks. These comprise (1) Resilience and Resilient Governance, (2) Transdisciplinary approach, (3) Complexity and Systems Thinking, and (4) Regional Innovation Systems. Different indicators were then developed which were based on these approaches, but are specific to each domain of sustainability. The indicators can be used to rate, weigh and score IDPs based on the scorecard that was developed. The overall 'sustainability rating' of the IDP could then be calculated.

Opsomming

Om volhoubaarheid en volhoubare ontwikkeling (VO) te bewerkstellig, is 'n moeilike taak, onder andere omdat sommige definisies vir die verskillende terme vaag en dubbelsinnig is en verskillend geïnterpreteer word, afhangende van die konteks. Die ruimtelike skaal waar volhoubaarheid aangespreek behoort te word, wissel vanaf terrein spesifiek tot by die globale skaal. Die nis-area wat nog min aandag geniet het, veral in die Suid-Afrikaanse konteks, is die streek-skaal.

Geïntegreerde Ontwikkelingsplanne (GOPE) is net een metode waarmee volhoubaarheid in die hoofstroom opgeneem kan word in streekbeplanning binne die Suid-Afrikaanse konteks. GOPE word gesien as holistiese, multi-sektorale, strategiese planne vir distriks-, metropolitaanse en plaaslike regerings, wat deur nasionale wetgewing vereis word. Wetgewing en riglyne oor GOPE dui daarop dat hul doel is om by te dra tot volhoubare ontwikkeling, maar dit word bevraagteken of dit wel die geval is. Volhoubare evaluering kan beskou word as metodes om besluitneming in die rigting van volhoubaarheid te stuur, en die doel van hierdie studie was om huidige evalueringsraamwerke wat deur die nasionale en Wes-Kaap provinsiale regerings gebruik word om GOPE te evalueer, te ondersoek vanuit 'n volhoubaarheids-perspektief.

'n Literatuuroorsig is gedoen om vas te stel wat die uitdagings is wat streekbeplanning in die sig staar, wat die betekenis van volhoubaarheid en volhoubare ontwikkeling in die konteks van streeksbeplanning is en wat die kwessies is wat aangespreek behoort te word om volhoubaarheid te bevorder. Die eerste doel van die literatuur studie was om te analiseer of die huidige plaaslike GOP assessering raamwerke, wat gebruik word in die Wes-Kaap, volhoubaarheid adequaat aanspreek. Die tweede doel van die studie was dus om 'n Volhoubaarheidsevalueringssraamwerk (VER) op te stel, gebaseer op nuwe en innoverende maniere uit die literatuur om VO en volhoubaarheid op streekskaal aan te spreek, sowel as om bestaande beleid en planne, beide plaaslik en in die buiteland, te ondersoek vir lesse wat daaruit geleer kan word. Die literatuur oorsig het ook beklemtoon watter lesse geleer kan word uit stelsels- en kompleksiteitsdenke, transdissiplinariteit, oorgangsbestuur, herstellingsvermoë en streeks-innovering. Die gebruik van Impakstudies en Volhoubaarheid-evalueringss vanuit ander lande, sowel as Suid-Afrika, was ook waardevol.

Die hersiening van bestaande GOP Evalueringsraamwerke (ERe) vanuit 'n volhoubare perspektief is ook uitgevoer om te bepaal waar daar leemtes bestaan en of die beginsels van streeksvolhoubaarheid ingesluit is in huidige ERe. Daar is vasgestel dat volhoubaarheid nie voldoende aangespreek is in huidige GOP ERe van distriks-, metropolitaanse en streeksplanne nie en 'n nuwe Volhoubaarheidsevalueringsraamwerk (VER) is dus ontwikkel vir metropolitaanse en distrik GOPe. Hierdie VER beklemtoon vyf (5) domeine van volhoubaarheid wat as insette tot GOPe gebruik kan word. Dit sluit in: (1) Omgewingsvolhoubaarheid, (2) Sosiale volhoubaarheid, (3) Ekonomiese volhoubaarheid, (4) Beboude omgewing en Tegnologie volhoubaarheid, en (5) Institusionele volhoubaarheid.

Verdere insette tot die VER was vier (4) benaderings-gebaseerde kategorieë, afgelei uit die literatuur en bestaande raamwerke. Dit behels (1) Herstellingsvermoë en herstelbestuur, (2) Transdissiplinêre benadering, (3) Kompleksiteit en Sisteem denke, en (4) Streeks-innoveringstelsels. Verskillende indikatore is daarna ontwikkel wat gebaseer is op elkeen van hierdie benaderings, maar wat spesifiek was tot elke domein van volhoubaarheid. Die indikatore is gebruik om GOPe te evalueer en om gewigte en tellings toe te ken gebaseer op 'n telkaart wat ontwikkel is.

Acknowledgements

The Western Cape Department of Environmental Affairs and Development Planning provided financial assistance towards this research. I am truly thankful and appreciative of this, as this journey would not have been possible without the Department's contribution. The views, thoughts and findings articulated and conclusions arrived at, are those of the author and must not be construed as being those shared by the Department.

I wish to thank my supervisor, Anneke Muller, for her help and guidance and input into the completion of this thesis.

I would also like to thank my parents who have supported and encouraged me in all that I have attempted in my life. They have taught me to persevere during trying times and to never give up. I am extremely grateful for their unconditional love.

I want to take this opportunity to thank one of my very close friends, Robin Koopman, who gave me inspiration, encouragement, guidance and input during this journey, not only on a professional level, but a personal one as well.

My wife, Abigail, deserves a special mention for her unwavering support and faith in me. She helped me get through obstacles and setbacks and made the entire journey worthwhile. She has been my pillar of strength, helping me focus on completing what I started. It has been a long road with many hours of sacrifices, for which I am forever indebted.

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List of Acronyms and Abbreviations

AF	Assessment Framework
ASGISA	Accelerated and Shared Growth Initiative for South Africa
CSC	Core Sustainability Considerations
BAR	Basic Assessment Reports
DEAT	Department of Environmental Affairs and Tourism
DEA&DP	Department of Environmental Affairs and Development Planning
DLG	Department of Local Government
DME	Department of Minerals and Energy
DoCGTA	Department of Cooperative Governance and Traditional Affairs
DWA	Department of Water Affairs
ECA	Environment Conservation Act 73 of 1989
EIA	Environmental Impact Assessment
EIP	Environmental Implementation Plan
EMF	Environmental Management Framework
EMP	Environmental Management Plan
ESDN	European Sustainable Development Network
GDP	Gross Domestic Product
IDP	Integrated Development Plan
IERP	Integrated Electricity Resource Plan
IGR	Inter-Governmental Review
IPAP	Industrial Policy Action Plan
IEM	Integrated Environmental Management
ITP	Integrated Transport Plan
KPAs	Key Performance Areas
LED	Local Economic Development
LGMTEC	Local Government Medium Term Expenditure Committee
LUMS	Land Use Management Systems
LUPA	Land Use Planning Act (Western Cape)
MSA	Municipal Systems Act No 32 of 2000
MTSF	Medium Term Spatial Framework

NDP	National Development Plan
NEMA	National Environmental Management Act No 107 of 1998
NKPA	National Key Performance Area
NSDP	National Spatial Development Perspective
NSSD	National Strategy on Sustainable Development
NWRS	National Water Resources Strategy
NUDF	National Urban Development Framework
PGWC	Provincial Government of the Western Cape
PPP	Policies, Plans, Programmes
PSDF	Provincial Spatial Development Framework
RIS	Regional Innovation Systems
RSA	Republic of South Africa
SA	Sustainability Assessment
SACN	South African Cities Network
SAF	Sustainability Assessments Framework
SALGA	South African Local Government Association
SD	Sustainable Development
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
SPLUMA	Spatial Planning and Land Use Management Act No 16 of 2013
STATSSA	Statistics South Africa
WC	Water Conservation
WCG	Western Cape Government
WDM	Water Demand Management
WSDPs	Water Services Development Plans

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CHAPTER 1: INTRODUCTION

1.1 Introduction

The elusive goal of sustainable development is said to be rooted in international policy (Bond *et al*, 2011). Since the late 1980's, after the inaugural definition of 'sustainable development' in the Brundtland Report of 1987, the notions of sustainable development (SD) and sustainability have played an ever increasing role in the way development has been valued globally. In South Africa, Sustainable Development is mentioned as the goal of development in a number of policy documents such as the Constitution of the Republic of South Africa of 1996 (RSA, 1996), the National Environmental Management Act (Act of 1998) (DEAT, 1998); the Municipal Systems Act (Act of 2000) (DPLG, 2000); the Spatial Planning and Land Use Management Act (Act 16 of 2013), The National Strategy for Sustainable Development and Action Plan of 2010 (RSA, 2011d), the New Growth Path (RSA, 2011b) and the Green Economy Accord (RSA, 2011c), as well as in a number of other laws and policies. This shift in focus towards sustainability and SD has brought about many different attempts at promoting these concepts, including through the development of pro-active forward planning instruments and the field of Impact Assessments (IAs) and eventually Sustainability Assessments (SAs) (Bond *et al*, 2011).

These different attempts have emerged, as planning for sustainability is a complex, multi-faceted and integrated task. It involves the three overarching dimensions (which, in the business sector, has become known as the triple bottom line approach (Vanclay, 2004)), namely, the environment, the economy and the social community (Kirchhoff, 2011). Local Agenda 21 plans, flowing from the Agreement signed at the Rio or Earth Summit in 1992, are examples of pro-active planning at local level, which integrates all three of these dimensions. Allen (2001) has added two further dimensions to the triple bottom line approach, namely the physical dimension which includes the built environment, infrastructure and technology, and the political dimension of sustainability, which includes governance, institutional issues and participatory issues. All five of these dimensions need to be incorporated into plans and policies to make them more sustainably orientated.

Assessment Frameworks (AFs) are used to assess these plans and policies. They can be divided into 3 categories, namely, (1) Impact Assessments, referred to as first generation

impact assessments (Pope et al, 2004; Morrison-Saunders, 2006), which are tools used to improve decision-making through the provision of information about possible impacts (Devuyst, 2000). These focus mainly on projects. (2) Second generation impact assessments (called Strategic Environmental Assessments) focus primarily on policies, programmes and plans. (3) Sustainability Assessments are therefore seen as the third generation of Impact Assessments (Pope et al, 2004; Morrison-Saunders, 2006) and are more sustainably orientated.

In the context of this study the term 'Assessment Frameworks' (AFs) is defined as any framework or checklist used during the assessment of a policy, programme, plan (e.g. Integrated Development Plan) or project, with 'Sustainable Assessment Frameworks' (SAFs) specifically focussing on sustainability issues. According to Hacking and Guthrie (2008) a Sustainability Assessment is 'a process that directs decision-making towards sustainability'. The evolution of Assessment Frameworks in analysing the degree to which sustainability and SD principles have been included in policies, plans, programmes and projects play a significant role as mobilizing instruments towards sustainability (Pope *et al*, 2004). Therefore, for the purpose of this study, the definitions of SAFs and SAs are considered to be interchangeable.

Sustainability Assessments have been described as "a new addition to the environmental toolbox" (Govender *et al*, 2006). Sustainability Assessments, as described by Gibson (2005), Dalal-Clayton and Sadler (2004), Pope *et al* (2004), Gibson (2001) and Devuyst (2000), have as a main objective to integrate the three pillars of sustainability into planning and decision-making while acknowledging their inter-relatedness. Though there is a vast array of environmental assessments, many of which are sustainably-based, Buseluch (2002; as cited in Govender *et al*, 2006) is of the opinion that a comprehensive sustainability orientated assessment has not yet been established.

Sustainability Assessments are becoming more commonly used as decision-making tools intended to anticipate the sustainability implications of proposed actions; for example, during the drafting, of policies, plans, programmes or projects (Pope *et al*, 2004), instead of just being done after the fact (*ex post facto*). From a planning perspective Sustainability Assessment Frameworks can therefore play a very important role during the planning process, as well as after the completion of a planning cycle, in preparation of the next cycle.

Integrated Development Plans (IDPs) are planning documents that operate on five (5) year cycles and were introduced as a mechanism to provide a framework for the developmental role of local, metropolitan and district municipalities. These plans, their content, and the associated processes form the backbone of integrated municipal planning. A central aim of the IDP process is to facilitate municipalities to shift their focus more on sustainability and sustainable development. IDPs are statutory requirements for Category A – C municipalities¹, to help guide and shape developments within their municipal boundaries. The category of each municipality to be formed is determined by the Municipal Structures Act (Act 117 of 1998). This Act also stipulates the different roles and responsibilities that each municipality should perform as well as its functions and powers. The challenges that these different types of municipalities face, differ owing to the scale at which they operate. Planning in South Africa has local and district IDPs as the main tool for promoting sustainable livelihoods, yet many of these documents, despite the well-intended goals and objectives of integrative development planning, are in most cases still not having the desired impact on local communities. The need to assess these plans has therefore emerged and the use of SAFs, as proposed in this study, is a means to ensure IDPs are focused on a sustainability trajectory.

According to Todes (2004: 214) South Africa's District IDPs are a new form and an integral part of regional planning 'due to the scale and complexity of municipalities, which since the re-demarcation of local government in 2000, cover huge land areas and populations, and include both rural and urban areas'. These plans aim to achieve sustainable integrated territorial development (Todes, 2004). Since recent Constitutional court cases² have limited the role that provincial governments can play in relation to municipal planning, the role that regional planning can play in guiding planning has become more important from the perspective of provincial governments. One of the roles of provincial governments is to monitor and support local authorities and one way in which this has been done in relation

¹ In the South African Constitution of 1996, municipalities are categorised into three distinct groups, namely, Metropolitan (Category A), Local (Category B) and District (Category C) Municipalities. Category A municipalities have exclusive municipal executive and legislative authority in their areas and Category B municipalities share municipal executive and legislative authority in their areas with a category C municipality within whose area they fall. A Category C (District) municipality has municipal executive and legislative authority in an area that includes more than one category B municipality (Section 155 of the Constitution of 1996).

² See *City of Johannesburg Metropolitan Municipality v Gauteng Development Tribunal and Others* 2010. Available at <http://cer.org.za/virtual-library/judgements/constitutional-court/city-of-johannesburg-metropolitan-municipality-v-gauteng-development-tribunal-and-others>

to IDPs, was through assessing IDPs, making use of Assessment Frameworks.

As Todes (2004) explains, there has been a growing interest in exploring the extent to which the notions of sustainability and sustainable development have been incorporated into IDPs. An effective way to realize this, as is demonstrated in this study, is through the use of SAs and SAFs. Consequently, in South Africa, the need to develop SAFs has materialised, to assist in the crafting, designing and improving of metropolitan (Category A), local (Category B), and district (Category C) municipality's Integrated Development Plans (IDPs).

For the purpose of this study, the term 'region' will be contextualised to include metropolitan and district planning as regional planning, as well as any planning that crosses district and metropolitan borders³. In this study Metropolitan and District IDPs are seen as a means to meet sustainability goals on a regional scale, if they are designed in accordance with principles of sustainable development.

Therefore, the first objective of the literature study was to analyse whether present regional IDP assessment frameworks used in the Western Cape address sustainability adequately and if not (as was the case), the second objective was to develop a Sustainability Assessment Framework (SAF) for metropolitan and district IDPs, that addresses relevant sustainability issues, based on new and innovative ways of addressing SD. This was based on the assumption that current assessment frameworks of metropolitan and district IDPs are inadequate in pursuing sustainable regional planning. The framework was developed through building an understanding of the concepts of sustainability and sustainable development, in the context of regional planning, from the literature and is based on the five (5) different domains of sustainability that should be used as assessment tools of IDPs (Allen, 2001).

³ It must also be noted that it is acknowledged that regions occur within and between local municipalities and the concept of a region is a variable term with a number of possible definitions. It is for this reason that within the context of this study and specifically IDPs, the region is considered to include district and metropolitan areas.

1.2 Problem Statement

In South Africa a variety of planning documents exists at the various spheres of government (see figure 1), such as the National Development Plan (NDP), the National Strategy for Sustainable Development (NSSD), the Medium Term Strategic Framework (MTSF) and the National Spatial Development Perspective (NSDP) at national level, Provincial Growth and Development Strategies (PGDSs), Provincial Spatial Development Frameworks (PSDFs) and structure plans at Provincial level, as well as IDPs at municipal level. Some of these plans are legislated and others not, and the relationships between them are not always clear.

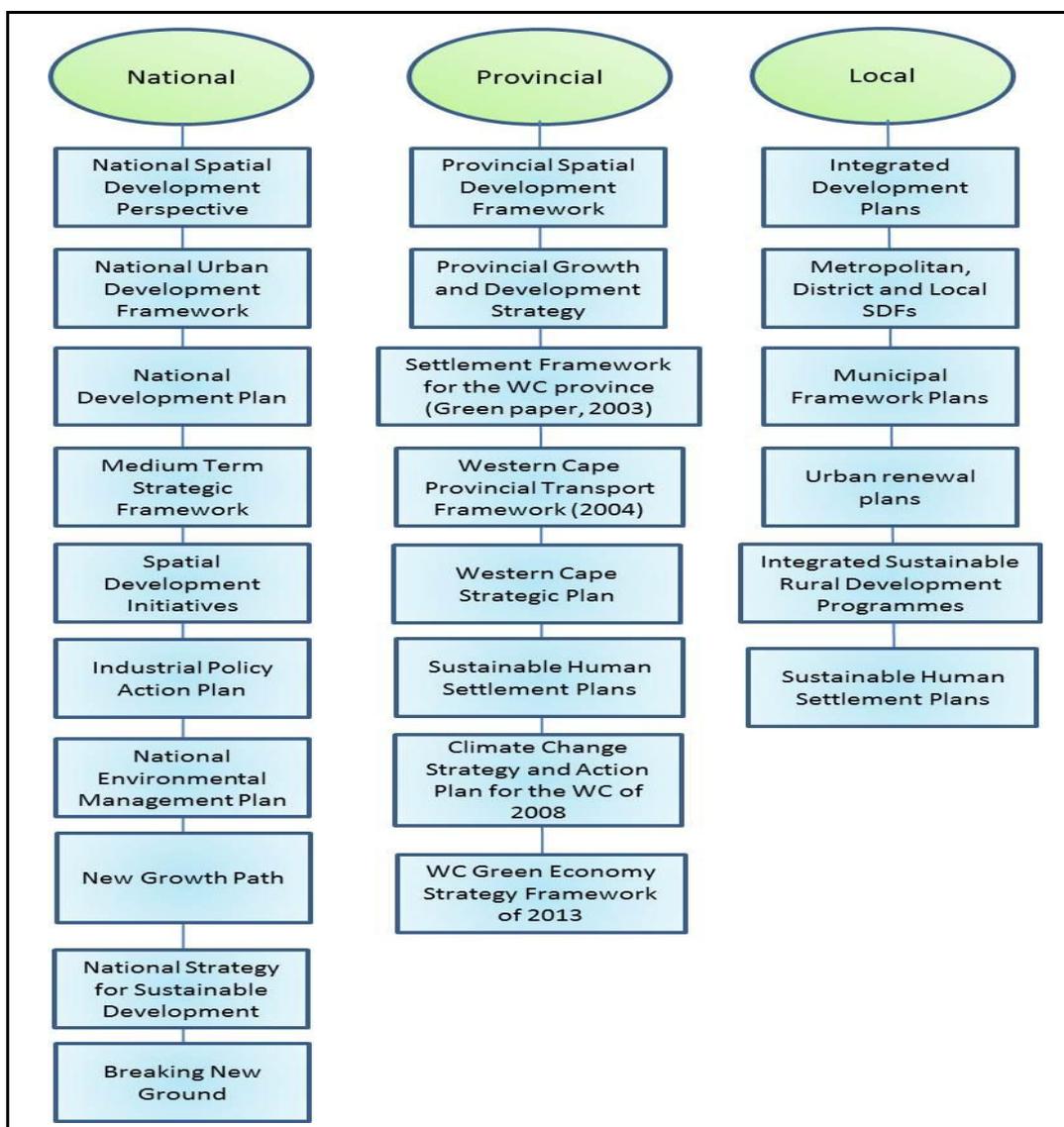


Figure 1: Planning Documents at Different Spheres of Government (Source: Author)

There is an abundance of literature that argues that the contents of current IDPs have many shortfalls (Coetzee, 2002; Mohamed, 2006; Padarath, 2007), which include poor alignment and integration of organisational structures; minimal public participation; little engagement with provincial and national governments and little focus on environmental sustainability, as well as a more holistic concept of sustainable development (Ndeke, 2011; Todes, 2004; Adam & Oranje, 2003). Moreover, IDPs lack alignment with and integration of national policies and plans and strategic issues identified by government⁴, provincial policies and strategies and different policies and strategies identified in IDP documents. Interventions are therefore required to ensure this alignment and that evaluation and assessment frameworks are developed as a means to improve the existing situation.

Since the first IDPs were completed by local authorities in 2002, a number of evaluation and assessment frameworks have been used to assess these plans at national and provincial level (Adam & Oranje, 2003). In more recent years (from 2005/2006 onwards), there has been a flurry of Assessment Frameworks specifically focussed on IDPs, as will be discussed in Chapter 4. Although the Department of Provincial and Local Government (DPLG) developed an assessment framework⁵ the year following the inception of the IDP process in 2000, this assessment framework, as well as later frameworks, was not focussed on the principles of sustainability⁶. This is problematic if the goal of these plans is the pursuit of sustainable development.

The need to develop these frameworks to create guidelines for the drafting, designing and improving of current IDPs to be in line with more recent sustainable development principles has therefore emerged. As new concepts and improved methods of sustainable development have surfaced, the need to create an up-to-date Sustainability Assessment Framework which assesses the inclusion of these concepts is needed. It is further evident that Sustainability Assessment Frameworks for IDPs are still in their infant stage. Therefore, the extent to which these assessment frameworks have incorporated new development principles of sustainability is considered to be low. It is understandable then that with the increased attention to sustainability, the assessment of projects, plans,

⁴ National Key Performance Areas and strategic objectives

⁵ The Department of Provincial and Local Government: High level assessment of interim Integrated Development Plans.

⁶ Refer to Appendix B which identifies the areas of focus for each individual assessment framework.

programmes and policies for sustainability issues goes hand in hand. The increased attention given to sustainability at IDP level illustrates the appropriateness of this study.

Some of the problems experienced with current day planning originate from municipalities operating in isolation. Regional issues which have implications from a sustainability perspective span across municipal borders. Municipal borders generally do not take into account water catchment areas or ecosystems, nor do they sufficiently relate to trends with regard to migration, urbanisation, poverty, appropriate financial investment, effective resource management and climate change, to name a few. These issues are all pertinent to creating integrated visions with regard to environmental management, development planning and social issues.

There is currently a lack of integration between development and environmental planning processes, hindering the progress towards sustainable development, as can be seen through the somewhat contested attempts at developing separate Spatial Development Frameworks⁷ (SDFs), Environmental Management Frameworks (EMFs) and Bioregional plans. In order for an integrated process to be established, coordination between the National, Provincial and Local governmental spheres is pertinent for defining the roles and responsibilities of each sphere. At the IDP Indaba (2010), led by the Department of Local Government, a move towards IDPs being the “*key cooperative governance instrument and window for coordination at regional level*” was emphasised (CoGTA, 2010). Developing a Sustainability Assessment Framework for IDPs can be a means to identify this misalignment, in terms of both content and process.

During 2013 the Provincial Government of the Western Cape received a number of Draft 3rd Generation Integrated Development Plans from municipalities around the Western Cape. These documents had to be analysed and scrutinized. This posed the perfect opportunity to further advance existing Evaluation Frameworks into a Sustainability Assessment Framework that can be used to assess the contents and process of these IDP documents from many different dimensions. The purpose of this study was therefore to expand on the existing Western Cape IDP Assessment Frameworks and to help transform these into ‘Sustainability Assessment Frameworks’. These frameworks can then be used as a platform to assess the content of current metropolitan and district IDPs. The

⁷ These are spatial representations for future growth patterns of an area and are a mandatory part of the IDP process.

framework was developed through building an understanding of the concepts of sustainability and sustainable development in the context of systems and complexity thinking and regional planning. The framework will enable the Western Cape Government (WCG) to determine if the content of these plans are in fact addressing sustainability issues on a regional scale.

With the increased interest in sustainability over the last decade, it has been noted by Bond *et al* (2012) that the number of papers published which include the term 'sustainability assessment' in the article title, abstract or key words, based on the Scopus database, has increased exponentially over the last 6 to 7 years. The number of published work that makes reference to the terminology 'sustainability assessment' is depicted in figure 2 below. The increase in interest in sustainability within the IDP process therefore coincides with the general surge of sustainability orientated theoretical work referred to above.

As a Town Planner, working for the Western Cape Government, I have been exposed to a variety of different types of land use, environmental and spatial planning applications. What is strikingly evident is the minimal impact that Integrated Development Plans seem to play in terms of guiding development across a region from a sustainability perspective. Reference to the IDPs and SDFs in the application documents received, in almost all cases, is non-existent. Applications for development approval, for example, are made on an *ad hoc* basis with developers submitting applications not knowing if the subject property is within an approved urban edge⁸, or alternatively, if the application requires an amendment to the urban edge. This indicates a lack of reference to the appropriate IDPs and SDFs. Ideally, the status and proposed future use of a piece of land should have already been determined for all land situated inside the urban edge. Environmental Management Frameworks and Strategic Environmental Assessments should jointly be developed by Provincial and Local Governments to inform IDPs so that the sensitivity and environmental status of every vacant piece of land within an urban edge is known.

⁸ An Urban edge is a line drawn on a Spatial Development Framework that represents the desired expansion limits of a town or urban area. It can either be an Interim Urban Edge as per the Provincial Spatial Development Framework, as approved in terms of Section 4(6) of the Land Use Planning Ordinance (Ordinance 15 of 1985), or an Approved Urban Edge approved as per the Municipal Systems Act, in terms of Section 4(10) of Land Use Planning Ordinance (Ordinance 15 of 1985).

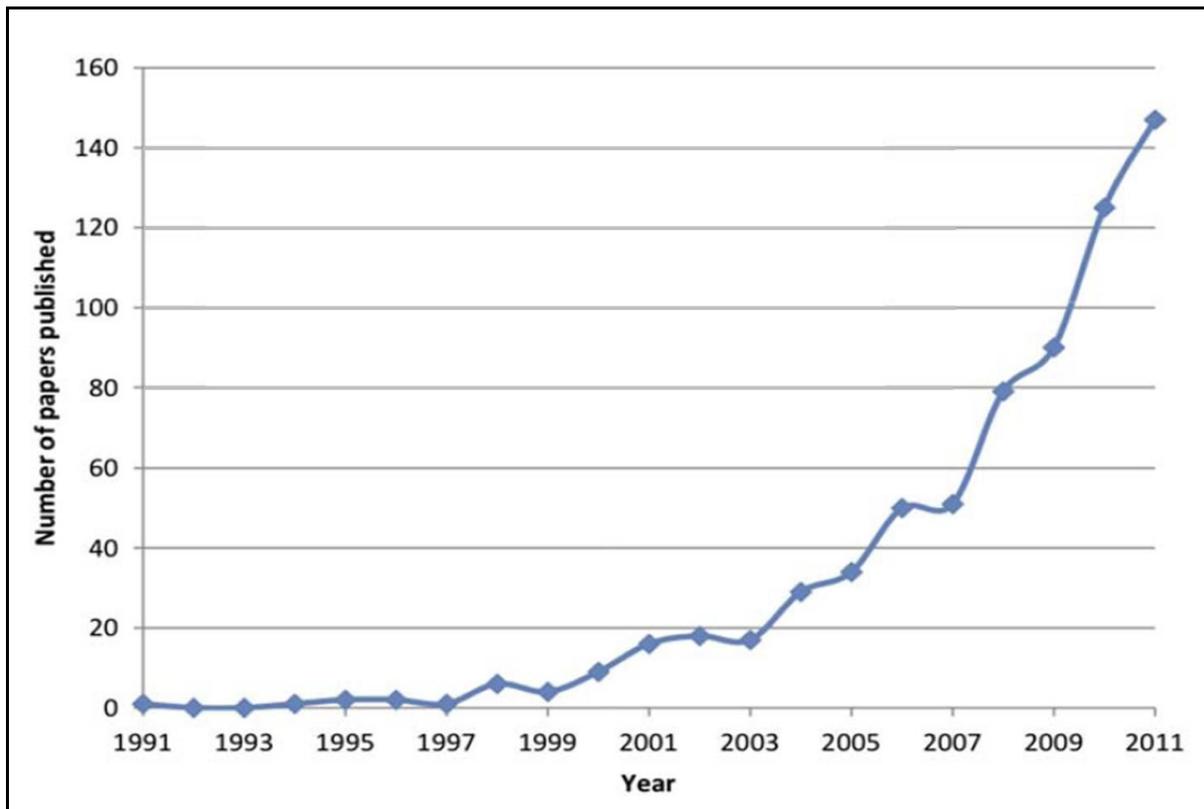


Figure 2: Number of papers published with the phrase 'sustainability assessments' (Source: Bond et al, 2012).

The disjuncture between spheres of government, as well as departments within government, is very apparent in the above regard. Planning documents need to be informed by environmental, as well as social and economic, background information. An overall vision for, as well as between, each and every town and city, is essential if a sustainable developmental future is to be made possible.

A metropolitan or district municipality incorporates more than one town or city and can extend over a vast area. Issues which span across municipal borders⁹ are evident in all municipalities and therefore regional planning has a role to play. This is why Integrated Development Plans can be seen as regional documents that need to incorporate sustainable development principles and objectives. To determine the extent to which this is being achieved, the IDPs each need to be analysed against a sustainability assessment framework. Pertinent issues relating to regional sustainability and regional sustainable development can then be captured.

⁹Regional shopping malls, educational facilities, biospheres etc.

1.3 Definition of Terms

For clarification, the following key terms are briefly defined at the beginning of the study, and, where relevant, will be further explained and unpacked later in the study.

Complexity thinking is a way of thinking about the world, where the environment is viewed holistically, in all its complexity, and the whole is seen as more than the sum of its parts. It is a means of exploring the rich dynamic interactions of textured patterns, through the exchange of energy, resources and information. This approach demonstrates characteristics of uncertainty, unpredictable (non-linear) feedback loops, and open systems which are 'far from equilibrium'. Complex systems adapt and reorganise themselves when disturbed (Cilliers, 1998; Swilling, 2011).

Environmental Impact Assessment (EIA) is the legislated process whereby the potential impacts of a development project on the environment are assessed and the project is either recommended-against in principle or, if the project is environmentally-acceptable in principle, proposals are made to mitigate or change the potential negative effects. It can be in the form of a **Basic Assessment Report** or a full EIA. If done at the level of policies, programmes and plans, it is known as **Strategic Environmental Assessments**.

Environmental Management Framework (EMF) as defined by NEMA, means "the study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific land uses may best be practiced and to offer performance standards for maintaining appropriate use of such land" (NEMA 1998, Act No. 107 of 1998).

Environmental Management Plans (EMPs) are legally binding working documents usually included in the conditions of a project approval, which stipulate environmental and socio-economic mitigation measures that must be implemented by different responsible parties throughout the duration of the proposed project.

Impact Assessments (IAs) are formalised and standardised processes "to provide information about the impacts of possible actions, with the aim of 'improving' decision-making about these actions" (Nooteboom, 2007: 646). A number of different types are found, such as health, social, regulatory and environmental impact assessments.

An **Integrated Development Plan (IDP)** as defined by the Municipal Systems Act is a

single inclusive and strategic plan for the development of the municipality which:

- (a) links, integrates and co-ordinates plans and takes into account proposals for the development of the municipality;
- (b) aligns the resources and capacity of the municipality with the implementation of the plan;
- (c) forms the policy framework and general basis on which annual budgets must be based;
- (d) complies with the provision of Chapter 25 of the Municipal Systems Act, 2000 (Act No. 32 of 2000); and
- (e) is compatible with national and provincial development plans and planning requirements binding the municipality in terms of legislation.

[Municipal Systems Act, 2000 (Act No. 32 of 2000) (RSA, 2000)]

Planning means a pro-active process of developmental visions and objectives and includes various types of planning, such as development planning, spatial planning, urban and rural planning, town and regional planning, economic planning, biophysical planning and environmental planning. A distinction can also be made between pro-active **forward planning** (making use of planning tools such as integrated development plans or spatial development frameworks) and **development control** (which is the day-to-day management of change in the built and natural environments, requiring development approvals in terms of land use management systems (LUMSs) or permits in terms of environmental legislation, based on environmental impact assessments).

Planning tools or instruments are legislation, plans or policies for example IDPs, impact assessments and zoning schemes (or Land Use Management Systems) that are used to guide planning processes.

Resilience is the capacity of a city, town or region to successfully pre-empt, adapt and transform when exposed to challenging circumstances as a result of a shock or change to the system. It includes the notion of **resilient governance** which provides leadership and support to maintain the same level of identity of the system, by managing and protecting scarce resources (Resilient City.org, 2013a & 2013b).

Region means a multi-functional, multi-purpose area which displays physical, human and functional characteristics.

Regional Planning means dealing with the design and spatial form of an area that expands further than just an individual town or city. It includes dealing with flows, linkages, connections and relationships that impact on land use activities, infrastructure, and settlement growth. It encapsulates both urban and rural planning and provides a means with which to strategically plan for sustainable growth and development.

Scorecard means a report that gives information about the success, performance, status or condition of something. In the context of this study, a scorecard is used as a rating tool to help assess the sustainability of an Integrated Development Plan.

Sustainability Assessment means a formal process used to recognise, anticipate and appraise the possible impacts of development. This includes and is not limited to, development of legislation, regulations, policies, plans, programmes and projects (Govender *et al*, 2006). The process also includes the assessment of alternatives for the sustainable development of the environment.

Sustainable Assessment Framework means a framework that is used to assess the extent to which projects, plans or programmes are promoting the concept of sustainable development.

Sustainable Development is “development that meets the needs of the present without compromising the ability of future generation to meet their own needs” (World Commission on Environment and Development, 1987).

Systems thinking is a way of thinking about systems, seeing the environment in terms of a combination of interrelated elements forming an integrated and interconnected network, where the qualities of the whole system are seen as greater than the sum of the parts. Note the similar characteristics to complexity thinking. The five overarching systems linked to the sustainable development debate are political, physical, environmental (eco-), social and economic systems (Allen, 2001).

The concept of **socio-ecological systems** is also relevant and Folke *et al* (2010) define the concept as an “integrated system of ecosystems and human society with reciprocal

feedback and interdependence. The concept emphasizes the human-in-nature perspective”.

Transition management “is a model of co-evolutionary management of transformative change in societal systems through a process of searching, learning, and experimenting. Management means adjusting, adapting, and influencing rather than the command-and-control mode.” (Rotmans & Kemp, 2008: 1006) It is specifically useful to address persistent, ‘wicked’ problems, such as sustainability poly-crises and the transition towards sustainability.

A **transdisciplinary approach** means a way of solving problems across disciplinary borders, based on real life experiences, representations and descriptions and the subsequent interactions amongst individual disciplines, the government and communities. The purpose of addressing problems and issues from a transdisciplinary approach is to understand different environments in terms of all of their complexities, as opposed to just focussing on one part of it (Nicolescu, 2002).

An **urban edge** is a line drawn on a Spatial Development Framework that represents the desired expansion limits of a town or urban area for a specific period of time. It can either be an Interim or Approved Urban Edge according to the Provincial Spatial Development Framework (DEA&DP, 2005b), as approved in terms of Section 4(6) or Section 4(10) of Land Use Planning Ordinance (Ordinance 15 of 1985).

1.4 Research Aim and Objectives

The first research objective of this study was to assess to what extent the principles of regional sustainability are being incorporated into current metropolitan and district Assessment Frameworks as used in the Western Cape Province, and the objective was to help develop an alternative Sustainability Assessment Framework which does include sustainability issues, based on new and innovative ways of addressing SD and sustainability at a regional scale, including the 4 approaches of Resilience, Transdisciplinarity, Complexity and Systems Thinking, and Regional Innovation Systems. As stated above, there seem to be preliminary evidence that present Assessment Frameworks do not adequately incorporate sustainability issues. To assist with answering the main question, and the research aim of developing the alternative Assessment Framework, the following research aims and objectives were identified:

Aims:

- To review the current literature on sustainability, sustainable development and regional planning in the context of Integrated Development Plans, focussing on themes such as systems and complexity thinking.
- To explore the challenges facing regional planning in South Africa.
- To determine how the approach to regional planning must change to promote sustainability.
- To explore the South African legislative framework with regard to sustainability and integrated development planning.

Objectives:

- To find out whether the principles of regional sustainability are being incorporated into current metropolitan and district Assessment Frameworks of IDPs as used in the Western Cape Province, and if not;
- To develop an alternative Sustainability Assessment Framework which can be used to assess (and rate through a scoring system) the extent to which metropolitan and district IDPs address current approaches to SD and sustainability principles. The SAF will be scored by using a Scorecard, which will be developed in conjunction with the SAF.

The problem statement and objectives of this study are set out in figure 3 below:

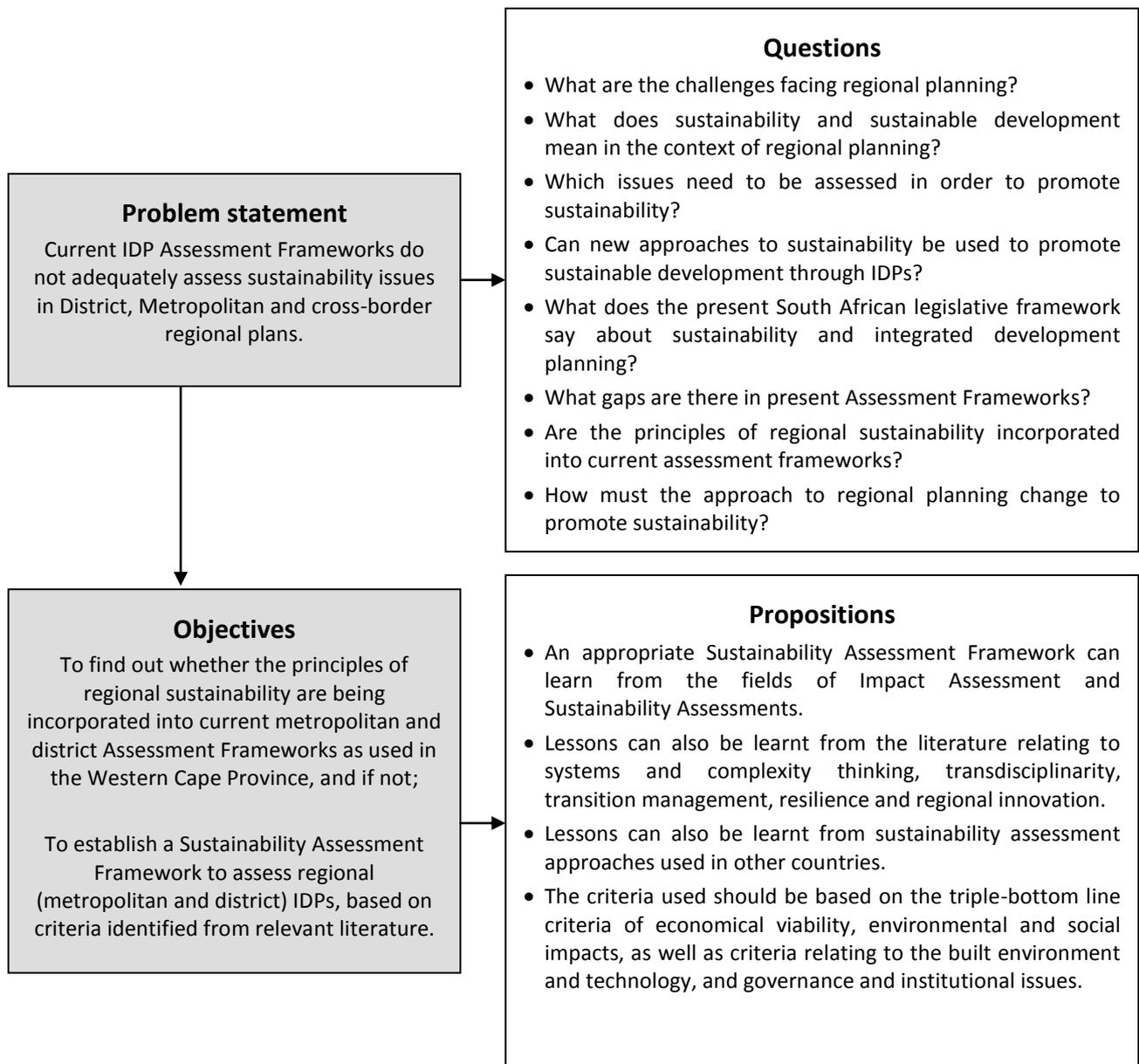


Figure 3: Problem Statement and Objectives (Source: Author)

1.5 Research Design, Methodology and Methods

This study incorporates a literature review component, used in an attempt to understand the concepts of sustainable development, sustainability, regional planning and sustainable regional development. The primary data sources incorporated into this study included relevant books, journals, articles, dissertations and case studies.

The study also focussed on themes such as transition and adaptive management, systems and complexity thinking, and relevant principles of socio-ecological systems, such as resilience. These themes were chosen because they are considered to be approaches to planning and development which incorporate holistic, cross-cutting and adaptive management characteristics that look at the social and economic environment, built environment and technology factors, and governance and institutional factors as matrix of complex interactions. For example, adaptive management, according to Murray and Marmorek (2003: 417), is “a problem-solving environmental management approach” and “a rigorous approach for learning through deliberately designing and applying management actions as experiments”. It means moving away from pursuing the ‘best’ or ‘most correct’ option to seeking options that are more flexible and which can be adapted and changed as more is learnt about the subject. These themes were also mentioned frequently in the literature in relation to sustainability.

The literature review was used to provide some clarity on the meanings of contested terms and concepts, and to identify criteria in terms of which the fields of ‘regional planning’, and specifically ‘sustainable regional planning’ could be understood in the South African context of ‘Integrated Development Planning’. The South African legislative frameworks with regard to Integrated Development Plans and other relevant plans and policies of all three spheres of government were also investigated.

Together with the literature review used in the opening chapters of this study, the empirical research that was undertaken includes the assessment and review of some of the Western Cape’s 3rd generation IDPs, as well as the review of evaluation and assessment frameworks presently used to assess IDPs in the Western Cape (which includes nationally developed assessment frameworks). This research had the objective of empirically analysing the correlations between the literature around sustainability and sustainable

development and the frequency and extent that these themes and concepts have been incorporated into guiding documents of the IDP process, such as the current Assessment Frameworks. The method of content analysis was used, which has been defined as “the systematic, objective, quantitative analysis of message characteristics” (Neuendorf, 2002: 1). Berg (2001: 241) however states that content analysis “may focus on either quantitative or qualitative aspects of communication messages”. Both these methods of analysis will be included in this study.

The relationships between sustainability (and SD) and the existing frameworks was analysed through the use of relevant criteria developed based on themes, such as resilience, complexity thinking, transdisciplinarity and regional innovation systems. These assessment frameworks were also measured and compared with approaches used in other countries, as it is believed that lessons can be learnt from this as long as it is adapted to the South African context.

The study is therefore an overlap of theoretical research as well as empirical research. The theoretical research method is applicable, as the objective of the research will be to aid in the advancement of knowledge and the theoretical understanding of the concepts of sustainability and sustainable regional development. In terms of the empirical research method, the study attempts to answer the question of *‘Are the principles of regional sustainability being incorporated into current metropolitan and district Assessment Frameworks?’*

1.6 Chapter Outline

In Chapter 2 the study begins with giving context to the work, by providing an overview of sustainability at a regional level. It attempts to introduce the limitations around interpretation of the terms sustainability and sustainable development and then places these terms within the metropolitan, district and regional context. The use of Assessment Frameworks in relation to sustainable development is also highlighted. This chapter also explores the current limitations of IDPs, the spatial components of the documents as well as looking at the challenges facing regional planning.

In Chapter 3, a review is given of legislation and policies applicable to sustainable development and IDPs. Specific legislation was explored as the present design, shape and form of South African cities are heavily influenced by politics and laws of the past and have remained that way even after 20 years of democracy. Furthermore, the functions and delegations of the different spheres of government are determined by legislation.

Chapter 4 discusses sustainability assessments, current IDP assessment frameworks, in terms of their history, focal areas, inclusion and/or exclusion of SD principles, as well as the shortfalls of these frameworks. This assessment was one of the main objectives of the study. New approach-based categories are proposed (resilience, transdisciplinarity, complexity and systems thinking and regional innovation systems) to address sustainability, as well as domain-based categories and their associated (and proposed) indicators. The sustainability agenda is pursued through five domain-based categories (and the proposed indicators) of sustainability, and is done so through four different approach-based categories as mentioned above.

The fifth chapter deals specifically with one of the core objective of the study, namely, the newly developed (proposed) Sustainability Assessment Framework. The rationale behind the framework is given through an evaluation framework, and the descriptions of the activities, as numbered in the combination framework, are then discussed. Due to the size of the Sustainability Assessment Framework, it has been attached as Appendix B.

Chapter six concludes the paper and offers some recommendations on the way forward for regional and district planning and the role that the Provincial government can play.

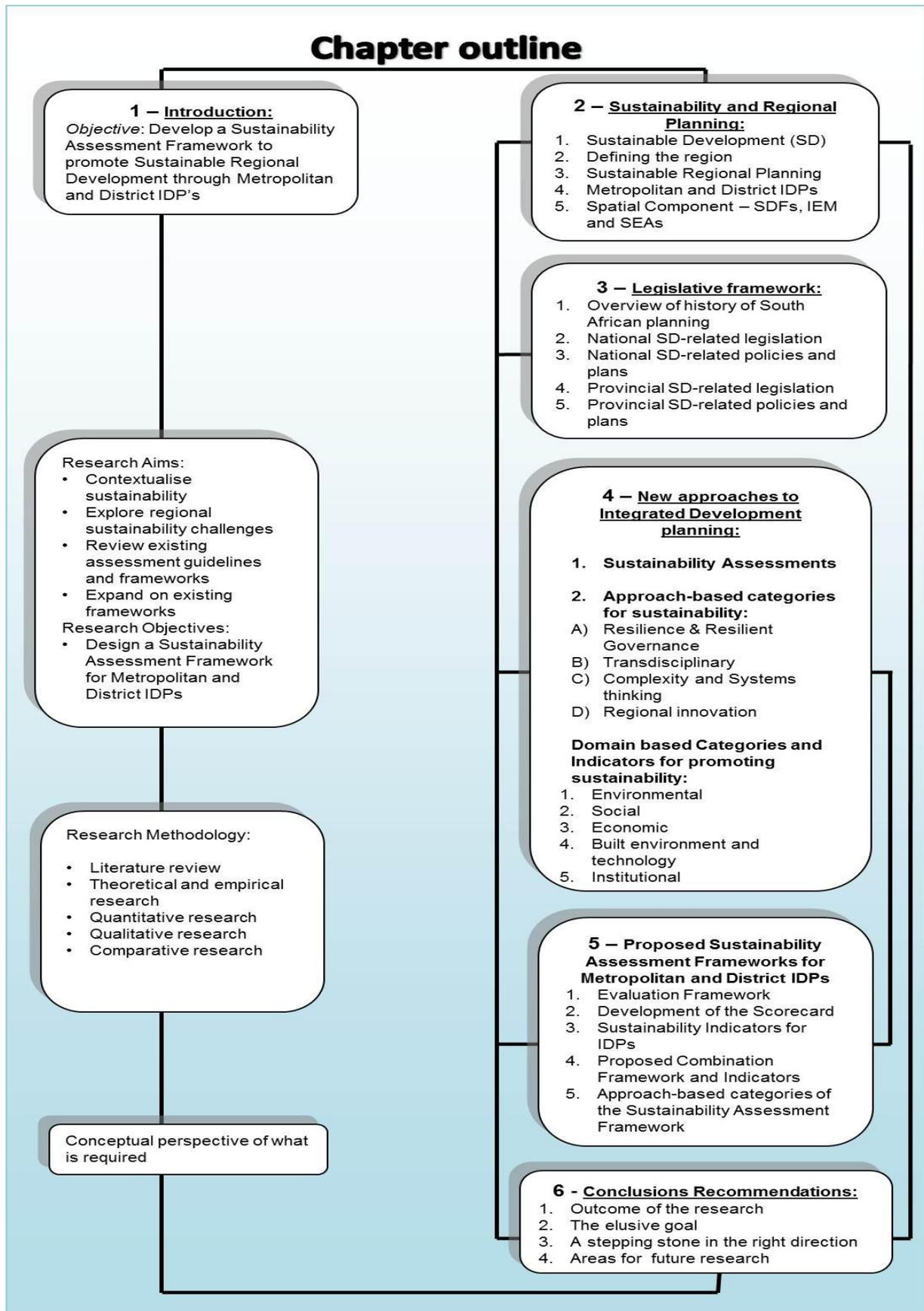


Figure 4: Chapter Outline of the Study (Source: Author)

CHAPTER 2: SUSTAINABILITY AND REGIONAL PLANNING

2.1 Introduction

This chapter explores the concepts of sustainability and sustainable development at the regional level. It aims to demonstrate that there is no fixed meaning ascribed to these terms and they are interpreted differently depending on context. It will be demonstrated in this chapter, through the views of relevant authors, that there is a growing appreciation to move beyond current practices in which sustainability and sustainable development is approached. Themes such as mitigation, adaptation and transition management, through criteria relating to more than just the triple bottom line approach, are highlighted. It will be motivated that the Provincial Government has the institutional capacity, and is appropriately positioned between the national and local governmental spheres, to be the institution that oversees district and metropolitan integrated development planning, to ensure alignment in terms of sustainability principles. The region and its plans is introduced as an appropriate space or spatial scale at which the concepts of sustainability and SD can play a very important role, and for the purpose of this literature study, metropolitan and district IDPs are regarded as regional plans.

2.2 Sustainable Development and Sustainability

Swilling (2008) begins his discussion on 'Defining Sustainability and Sustainable Cities'¹⁰ by stating that any self-respecting review of the sustainable development field begins with the UN-sponsored 1972 Stockholm Conference. This is the most frequently used definition relating to sustainable development, and by no means the most recent definition. The term sustainable development as per the definition used by the Brundtland Commission (the United Nations World Commission on Environment and Development, 1987) in their Report 'Our Common Future' reads as follows:

"...development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987:43)

¹⁰ In his article, Sustainable Cities – Rethinking the Sustainability of the South African City

The approach to sustainable development has needed to evolve over the last two decades, to become one which incorporates actions of mitigation, adaptation and transition management. Braun (2008) holds a similar view:

“To achieve more sustainable development it is necessary not only to propose development actions that support the concepts of the Brundtland Commission Report and the proposals of the Rio Summit, but also develop strategic actions to correct the causes of environmental problems due to past unsustainable social-economic development.”

Correcting these inappropriate developmental actions, in a sustainable way, requires a holistic approach to development, acknowledging thresholds and carrying capacities of systems. It is not only environmental (natural and built) systems in this instance, but institutional and governmental systems, technological systems, economic systems, and also societal systems. Hopwood *et al* (2005) remarked that the usual model for sustainable development is of three separate but connected rings of environment, society and economy, with the implication that each sector is, at least in part, independent of the others. This is also referred to as the triple-bottom line approach. Although these are fundamental elements of sustainable development, criteria relating to the built environment and technology, and **governance and institutional** issues are also essential components of sustainable development (Allen, 2001).

There is currently global recognition that environmental problems are indeed very serious, requiring solutions spanning across sectors, departments and governmental spheres, which are not merely technical in nature (Roseland, 2000). It is imperative that approaches to development move beyond the simplicity of the ‘triple bottom line’, to one which acknowledges the non-negotiable ecological thresholds (DEAT, 2008). These thresholds and carrying capacity of systems are important. Sustainable development implies the adoption of a holistic view of the interdependent relationship between human society and the natural environment (DEAT, 2001; Folke *et al*, 2010). Acquiring a holistic view in a constantly changing developmental environment requires appropriate means of adaptation and transition management. The administration and implementation of this change is essentially a core argument for sustainable regional development.

It is evident from the above, that defining SD and sustainability is problematic, as there is

no fixed meaning ascribed to either and they are contested terms and can be understood differently depending on context. Muller (2007) remarks that, “The problem with the seductive language of buzzwords (such as sustainability and sustainable development) is the lack of real understanding underlying this language”. Consequently, within the literature there are numerous interpretations, definitions and concepts relating to sustainable development, much of which can mean diverse and contradictory things to different people (Muller, 2009). One could argue that this might lead to uncertainty and tension regarding its definition; however, it can also create the opportunity for debate in order to generate a deeper meaning. Embracing this new developmental arena brings with it many opportunities to create more balanced and equitable societies. Exploring new ways to address sustainability and sustainable development provides the opportunity to open up a previously under-explored sustainability perspective. Linking this sustainability agenda directly to management, administration and implementation, when viewed from a regional planning perspective, could be pivotal in pursuing sustainable regional development.

This is specifically applicable in South Africa, as governmental structures of development planning are highly regulated, top-down and fragmented in nature. The Brundtland Commission’s definition given above is somewhat generic, and the South African government has tended to use all-encompassing definitions such as this one, and has avoided making clear choices about which values are supported and what sustainability might really mean in a South African context. However, given the new developmental tack, as envisaged by the newly adopted SPLUMA (RSA, 2013), a holistic view for planning is foreseen. The roll-out of this new approach has the potential to unlock new avenues for sustainable development. Sustainable development can therefore imply making appropriate universal governmental decisions around development that hold specific values and principles which are aligned across all spheres of government. Creating alignment and integration across sectors and departments, through shared values, targets and goals, can be considered central to sustainable development.

This can be achieved through co-operative governance. This approach in South Africa presupposes the sharing of expertise and other scarce resources to work in a co-ordinated manner to avoid the fragmentation of laws and policies and the unnecessary duplication of the administration (Van Wyk, 2007). The task of implementing successful co-operative governance is however extremely difficult and finding solutions to this problem has been

an on-going battle. Metropolitan and District Integrated Development Plans and regional planning processes can assist in creating alignment and cooperative governance. The monitoring role that Provincial government can play, for district and metropolitan administrations, is a mechanism to promote sustainable regional development. Being the governmental sphere positioned between National and Local governmental spheres, combined approaches to shared values, choices and principles around sustainability can be achieved.

This literature study below will demonstrate how District and Metropolitan Integrated Development Plans can be used as vehicles to achieve shared values, choices and principles. Furthermore, the Provincial Government, through providing a regulatory, monitoring and supportive role, can hold the administrative and managerial capacity to implement collective governmental principles of sustainable development. The use of sustainability assessment frameworks to analyse these district IDPs is one method to achieve this.

2.3 Regions – A Provincial responsibility

Many authors argue that the term 'region' is interpreted differently depending on the purpose or objective (Adams *et al*, 2006; Ashiem *et al*, 2002; Deas *et al*, 2000, Dewar, 2009; Makoni *et al*, 2008). One of the objectives of this study is to develop a sustainability assessment framework for metropolitan and district Integrated Development Plans. Bearing this objective in mind, this study supports the notion that metropolitan and district expanses can indeed be considered as regions. It is within this regional context that provincial planning can play a role.

This is because regions are suggested to have multiple identities and are subject to flows, networks and linkages (Binns *et al*, 2002; Braun, 2008). Regions can also be categorised depending on context, for example, functional economic regions, environmental regions, administrative regions, catchment regions and service regions, and can be defined by physical, human or functional characteristics (Cooke *et al*, 2007). It has been understood to mean a distinct spatial entity comprising a wider set of economic connections and institutional obligations (Gueli, Liebenberg & van Huyssteen, 2007). Amin (2007) and

Cooke and Morgan (1998) assert that regions are the appropriate scale to nurture the formation of 'associational economies'. Regions operate at scales that make them appropriate 'functional space' for economic planning and political governance (Keating, 1998). This is because regions are considered to be where interactions occur across space and between economic, social or environmental systems and can be determined by political governance systems. The success stories of regional planning, according to Makoni *et al* (2007), has turned the attention of the developmental agenda to the regional domain as remedy for growth and development challenges. The correlation between regional and district administrations becomes clear, with the Provincial sphere in South Africa being the institutional, political and governance system that can oversee planning and development in this geographical location. The region is now being seen as the arena where a fundamental transformation of all aspects of society (Stiglitz, 1998; as cited in Makoni *et al*, 2007) can occur as different challenges can be addressed in one domain.

Cooke (2003) defines a region as an intellectual concept which only exists in terms of the criteria by which it is defined. He lists the following as these criteria:

(a) it must not have a determinate size; (b) it is homogeneous in terms of specific criteria; (c) it can be distinguished from bordering areas by a particular association of related features; and (d) it possesses some form of internal cohesion. A general consensus is that the boundaries of regions are not fixed and can evolve, be refined, diminish and even perish.

Cooke (2003) proposed that "*in the current state of regionalization it is most useful to think of regions as political governance systems below the national but above the local level of public administration*". This is an important element to consider and provides support to the notion put forward in this study, namely, that provincial administrations have a regional planning responsibility. Even provinces can be seen as regions. However, in the context of this study, the administrative level below provinces, namely metropolitan and district administrations and their associated IDPs are regarded as regions and regional planning. And it is argued that within this arena, sustainability can best be promoted, since these districts include economic, environmental and social linkages.

Similarly to the above, the spatial scale at which *sustainability* ought to be addressed varies on context. The niche area with insufficient attention, specifically in the South

African context, is the regional scale (Todes, 2004). Expanding on this idea, it is motivated that the provincial scale is directly linked with the regional scale, and rethinking sustainability and the philosophy and methodology with which interactions occur, could also be the key to achieving sustainability on a regional scale (Swilling, 2005).

New approaches to regional sustainability and SD are emerging. A general perception is that regional sustainability recognises the importance of a combined (systems) approach to development. It entails a progressive transformation of a system to improve some of its parts (Gallopín, 2003), yet still trying to maintain other elements of the system. There is a good possibility that addressing sustainability through other mechanisms might set regions on a sustainability trajectory.

Healy (2000, 2004) defined regional planning as the “deliberate, strategic, forward-looking, dynamic and progressive action(s) whose impact permeates across all economic, spatial, social and ecological levels of a given polity”. Regional planning provides the arena where strategic ‘top-down’ and ‘bottom-up’ relationships can be fostered, which is essential for sustainable growth and development (Makoni *et al*, 2008). Managing these relationships is often problematic, but the provincial sphere can perform the role as a ‘middle-man’, overseeing interactions. Balancing interests between economic and environmental aspects of development was previously thought to have been the core of regional planning, but it has been realised that the economy and the (biophysical/built) environment are two sides of the same coin - the economy cannot succeed if the biophysical/built environment is in jeopardy. The inclusion of the social aspect and criteria relating to the built environment and technology, and governance and institutional issues, are also essential components of sustainable regional planning. These additional aspects therefore require new and innovative ways of addressing sustainability and herein lies the importance of the study.

The complex webs of interactions and relationships impact on the environment, the economy and social systems on a multitude of scales. There are numerous socio-economic challenges which South Africa faces, these include and are not limited to, lack of adequate housing, levels of water provision, sanitation and refuse removal well below basic level of provision, insufficient number of households with electricity, low levels of education and huge backlogs in terms of infrastructure in the health sector (services and infrastructure provision).

Multi-sectoral systems face strategic challenges of optimal development owing to the complexity of interacting perspectives, interests, preferences of decision-makers and stakeholders (non-alignment of sectors). DEAD&P (2013e) identified migration and urbanization and growing human settlements as pressures experienced across the Western Cape. This leads to habitat fragmentation, biodiversity loss, pollution and wastes and increased resource use and consumption. Sustainable regional planning needs to redress these issues, and metropolitan and district IDPs can push regions on a sustainability trajectory, if designed and crafted in a sustainable manner.

The European Network on Sustainable Regional Development is a group of researchers and research institutions that emphasise the role that the region can play when trying to create sustainable environments. This network of people put forward a notion of sustainable development, known as the Graz Charter, and defined it as *“a local, informed and participatory process, which seeks a balance between economic, ecological and social sustainability”* (Graz Charter, in Clement and Hansen 2001: 115; as cited in Todes, 2004). Though there is emphasis on the region, there is also recognition for suitable vertical linkages, and the impossibility of ‘islands of sustainability’. Regions and districts (and regional and district planning) therefore present the applicable arena where opportunity exists to direct development on a sustainability path.

Dewar (2009) requests: *“...regional planning to take its rightful leadership place at the development table, as opposed to the reactive pattern of public investment which is occurring at present”*. Todes (2007) is of the opinion that IDPs could be seen as a form of regional planning, particularly given their scale. This notion is supported, however, in the South African context, and specifically the Western Cape, this literature study proposes that it is specifically Districts (and provincial planning) which can add value.

2.4 Districts in the Western Cape Province

In the South African context, districts, or category C municipalities, can be viewed as a specific type of region, defined by municipal borders. District planning and development relating to economic, social or ecological concerns have regional impacts and implications (DDP >Z, 2004). As with district planning, regional planning is the science of efficient

placement of infrastructure and zoning for sustainable growth. Districts are therefore important regional arenas in the quest for sustainability.

The figure below is a representation of the five (5) District Municipalities and one (1) Metropolitan Municipality within the Western Cape Province. They vary in size but are all contained within the Western Cape. Each of these Municipalities is required to produce their own Integrated Development Plans.



Figure 5: Five (5) district municipalities and one (1) metropolitan municipality within the Western Cape Province

(Source: [Online] Available at <http://www.cohsasa.co.za/institution-district/cwdm>)

The City of Cape Town Metropolitan municipality is such a substantial physical size that it too, can also be regarded as region. The Department of Cooperative Governance released a document in June 2012 entitled “*Guidelines for the Development of the District Integrated Development Planning (IDP) Framework (CoGTA, 2012)*”. District municipalities

have roles and responsibilities that, according to this document, must be aligned with their mandate as 'centres of regional planning and development'. Districts have therefore been established as centres of integrated planning at a regional scale as it is in this arena that social, economic and environmental development plans can be fully integrated. The purpose of the District Integrated Development Plan is to ensure achieving alignment and integration with national and provincial mandates in terms of service delivery priorities and targets as well as economic development targets.

Edgington and Fernandez (2001) hold the opinion that regional planning is seen as a 'multi-sectoral and multi-level' domain where many sectors together with local governments collaborate to create integrated environments for development, where problems and solutions are addressed in a unified manner. This is fundamental when considering a sustainable development approach. A similar viewpoint is put forward by Dabholkar (2001) who says that territorially integrated development planning is seen as a way of addressing poverty, environmental issues, and economic and social development. This is once again a multi-sectoral unified approach to sustainable regional planning. The model is one of flexible adaptive management, based on participation towards consensus building.

Figure 6 below is a map of the Western Cape Province, on which the blue arrows indicate the potential linkages and possible interactions within and between districts, indicating the need for regional planning.

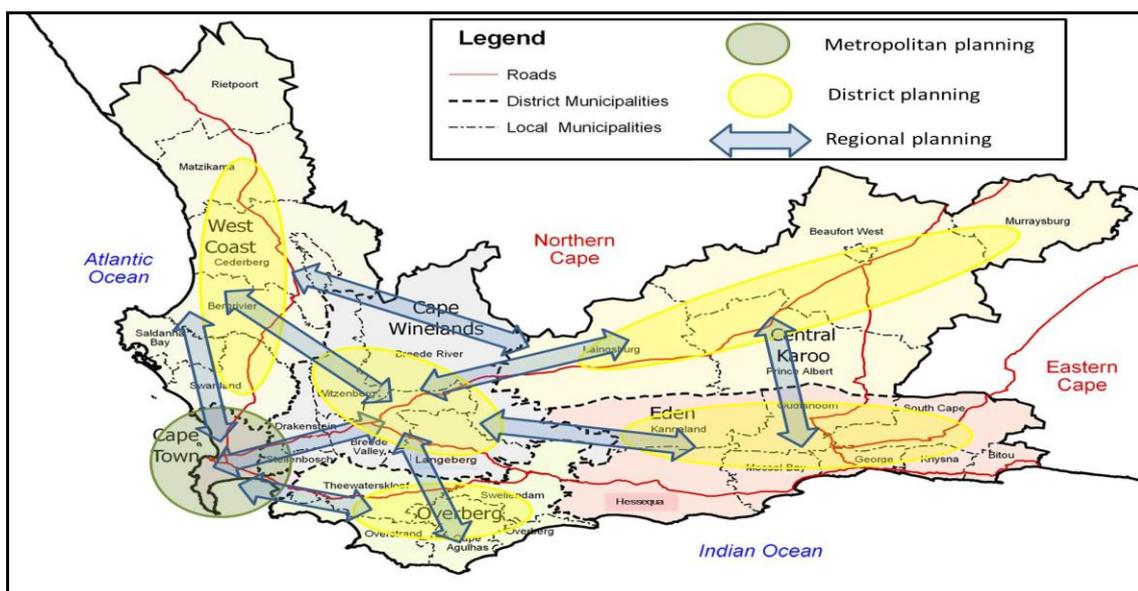


Figure 6: Conceptual Diagram of the Different Forms of Planning (Source: Author)

The figure below is a conceptual representation of functional economic regions, while figure 8 represents a conceptual representation of an environmental region. It is evident that it can expand over a large extent.

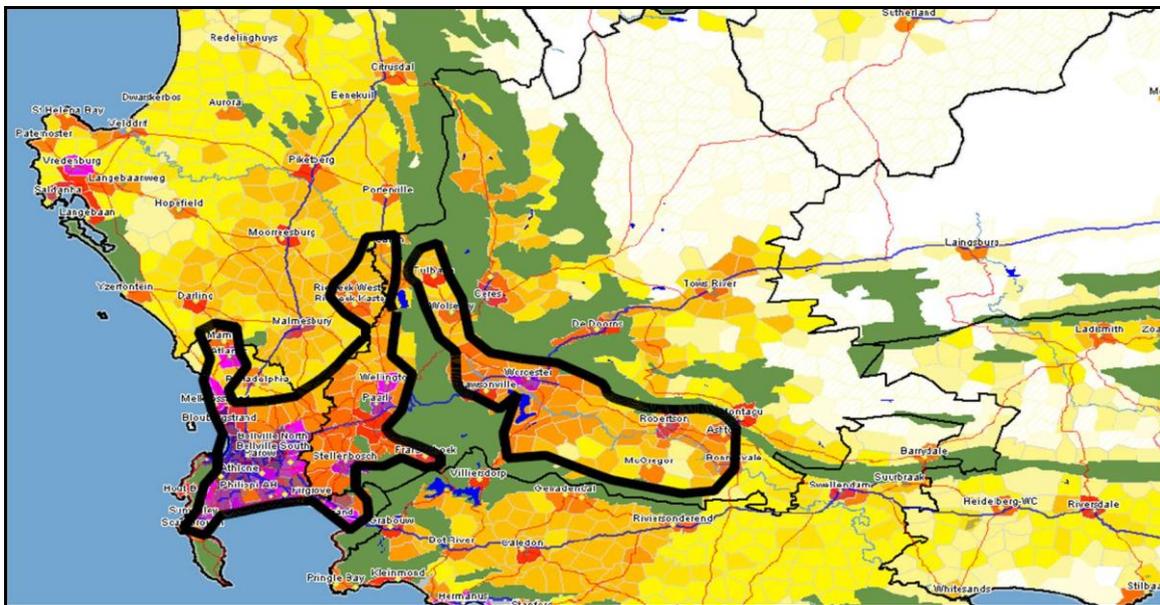


Figure 7: Conceptual Representation of a Functional Economic Region (Source: Author)

The Western Cape Government (DEA&DP, 2013) view District Municipalities' roles as important elements of presenting a more refined perspective for the province. The Provincial Government therefore considers the district and / or regions as the most appropriate level at which to have a more holistic approach to planning.

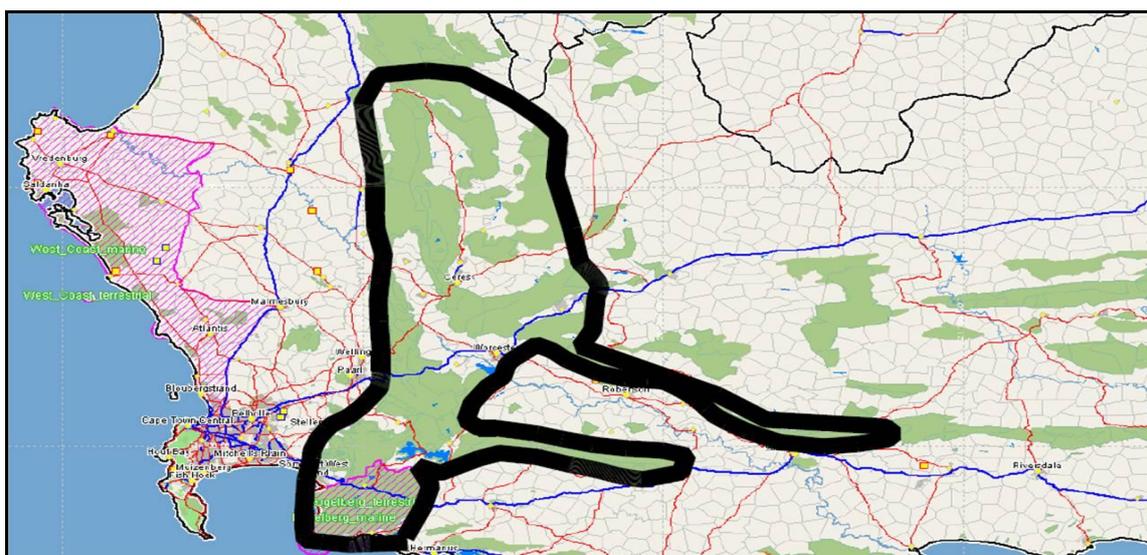


Figure 8: Conceptual Representation of an Environmental Region. (Source: Author)

2.5 District Integrated Development Plans

District planning and District IDPs are therefore an intricate part of regional planning and are regarded as appropriate vehicles to implement sustainability principles into the greater regional planning domain. These plans have the administrative legitimacy and capability to develop policies and be the instruments for developing regional innovation systems.

In the South African context, regional planning and the IDP process at district and metropolitan levels bear similar commonalities to each other as the regional space is where integration, linkages and cross-sectoral issues are evident. Todes (2004) also puts forward the notion that South Africa's IDPs bear similarities to different models of regional planning, but that there is uncertainty whether they include types of planning that promote sustainability. However, the growing literature on regional planning reflects a broader discourse specifically on sustainability (see Todes, 2004; Padarath, 2007; Makoni, 2008). It is for this reason that the study identifies assessment frameworks of metropolitan and district IDPs as appropriate vehicles or mechanisms with which to ensure the implementation of sustainability principles.

If one were to extract the important aspects given from different definitions, the Integrated Development Plan can be described as:

'A 5 year strategic development plan or instrument, legislated in terms of the Municipal Systems Act (Act 32 of 2000), that is reviewed annually in consultation with communities and stakeholders. It should be a highly participative planning process that integrates multi-sectoral strategies for the optimal allocation of resources across a geographical area. It is a co-operative and continuous process (Gibbens, 2008) that must promote sustainable growth, equity and uplift and empower the poor and marginalised (SALGA, 2002:2), through coordinating local development intentions with national and provincial legislation, policy, plans and programs (IDP Nerve Centre, 2005).'

Integrated Development Planning and Sustainable Development bear many similar characteristics, which according to Todes (2004) emphasise the complex, multi-dimensional, territorially appropriate, and multi-sectoral strategies applicable to

development. Harrison (2008) highlights certain qualities of integrated development planning and views it as a multifaceted, continual, collaborative process. Sustainably orientated decisions which occur through partnerships, harmonising of objectives and coordinated implementation are built over time, and in which there are multiple intervening variables. Current District IDPs have several weaknesses, as Ndeke (2011) explains, such as:

- poor alignment of organisational structures of the municipalities with the IDPs,
- minimal public participation
- little engagement with provincial and national governments
- little focus on environmental sustainability; and
- lack of alignment and integration of the key performance areas identified in the IDPs.

Harrison (2008) mentioned that there is insufficient indication that IDPs (and their spatial development frameworks) have positively contributed to rectifying the previously segregated forms of spatial development and that these divides are almost as evident now as they were previously, with specific reference to land ownership. The evolution of, and growing interest in, sustainability and SD has been the impetus for a changing role of the planning profession. Through an SD approach, Integrated Development Planning can potentially redress the segregated patterns of the past. Planning will now be intricately involved with developing new ways of addressing the calls for a green economy (see Montmasson-Clair, 2012), responding to climate change and promoting new mechanism to promote sustainability, through a multi-faceted approach infusing collective initiatives, from within as well as outside the realm of urban and regional planning.

Over time, planning has changed from a blueprint approach to a process approach. Reality is complex and information imperfect – planning needs to be flexible enough to account for and adapt to changing circumstances. Short- to medium-term goals need to be strived for, in order to build credibility and enthusiasm. Once goals have been met, the successes can be built on to address more complex problems.

Although the system of integrated development planning has been around since the mid 1990's, it can still be regarded as an emerging system that is influence by current thinking in both developmental and spatial planning, which according to Pieterse (2004:7) is based on a “*communicative approach to planning*”.

The process of integrated development planning includes fundamental principles that can be used to promote sustainable regional development (Todes, 2004). Each context, within which it is applied, must be understood in terms of the different social, economic and political dynamics encasing the process (Todes, 2004). Support needs to be given not only to process, but to the content as well. Todes (2004) emphasises further, that plans can be instruments that change the developmental paradigm to one which is all-encompassing and holistic in approach, transforming governance into a revolutionized, competent and informed agency, moving beyond just a project-based approach.

2.6 Limitations of Integrated Development Planning

IDPs are multifaceted and intricate plans and owing to their complex nature, they are very seldom flawless. However, with cognisance of these shortfalls and using a particular mechanism, such as a Sustainability Assessment Framework, these shortfalls can be addressed. Some of the shortfalls from the literature (DPLG, 2008 & 2009; Ndeke, 2011; Todes, 2004; Muller, 2006 & 2009, Coetzee, 2002; Mohamed, 2006; Padarath, 2007) are listed below:

- Integration more successful at the local level (but still problematic).
- Less successful for integrating activities and planning interventions of national and provincial level.
- There is only higher level of participation at the local scale – less at provincial and national.
- The participatory element not integrated well due to targets and timeframes.
- One size fits all approach due to guidance and support.
- Limited sustainability principles.

- Interrelationships between large numbers of variables not explored.
- Limited use of time series data to evaluate impact of trends.
- Insufficient comparison with surrounding areas.
- Limited monitoring of IDPs to evaluate impact.
- Inconsistency of data analysis.
- Limited use of analysis techniques

The following diagram is a representation according to Gibbens (2008) of the 'Ideal Integrated Development Process', in terms of flow of information, with the greatest amount of communication evident across and between different spheres and sectors of government. The diagram depicts the three spheres of government, with their associated departments, displaying open lines of communication with overlapping flows of information. Integrated Development Planning should lie at the heart of this open dialogue between departments and spheres of government and can be considered the anchor for promoting intergovernmental integration.

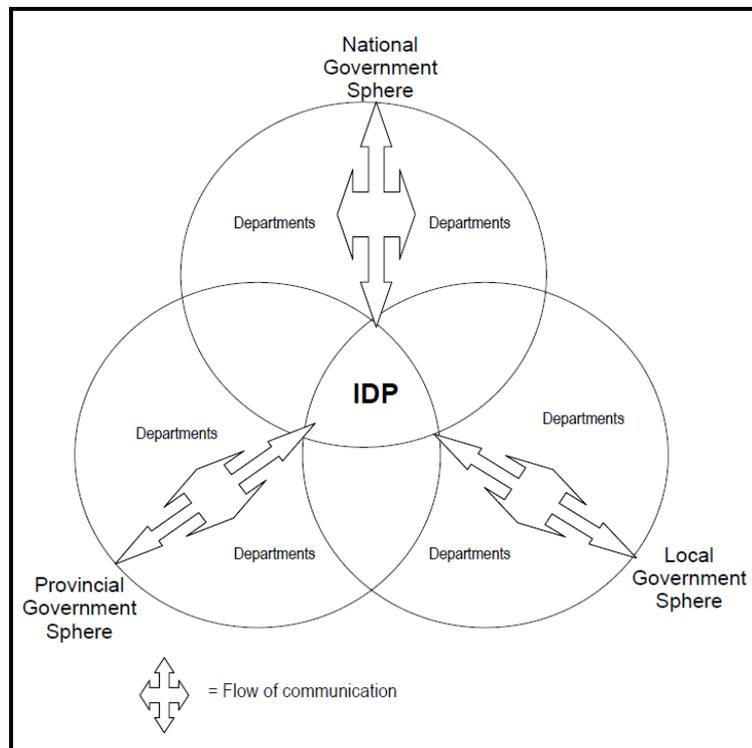


Figure 9: Conceptual diagram of the 'Ideal Integrated Development Process' (Source: Gibbens, 2008)

2.7 Spatial Component

2.7.1 Spatial Development Framework

An intricate component of the IDP process is the physical representation of the future growth patterns of the defined area, in terms of land usage and spatial allocation, with the intent of reducing spatial inequalities. This is the role of the Spatial Development Framework (SDF). One purpose of the SDF is to provide guidance for investment opportunities in infrastructure and services, specifically for private sector investments. It is not only a means for creating and fostering private sector interest, but also to promote collaboration between the public and private sectors for regional development. In essence, it is a spatial representation for integration, guidance and consistency in decision making matters within and between sectors.

According to DPLG (2008 & 2009), a credible SDF can be described as having the following components:

- Is based on agreed vision and principles to promote equity and sustainability.
- Is aligned with national and provincial policy.
- Reflects reality of spatial environmental, social and economic systems.
- Provides sufficient spatial information to inform Council decisions.
- Includes an implementation plan with measurable targets.
- Is realistic in terms of growth prospects and financial and institutional capacity to implement proposals.
- Is aligned with the municipality's Environmental Management Framework.
- Provides guidance for sector plans and development initiatives from all government agencies.
- Displays a high level of buy-in from all stakeholders.

Provides guidance for land use management systems (DPLG, 2008 & 2009)

2.7.2 Integrated Environmental Management

The purpose of IEM is to safeguard the environment against negative impacts of development. It is a means to fully understand and adequately consider alternatives during the planning, implementation and management of development. Sowman (2002) is of the opinion that sustainability principles are not widely reflected in IDPs, and environmental aspects are inadequately embraced (Sowman 2002). Integrated Environmental Management puts the environment on the forefront of SD thinking and ensures that it is taken into consideration during all phases of development, from conceptualisation to decommissioning. Many principles governing the IEM process are similar to those of integrated development planning, as they are developmentally orientated. Informed decision making must occur through an open and participative forum where cooperative, pro-active and positive planning can be done (Spinks *et al*, 2003).

If stringently incorporated into the IDP process, the IEM process can play a pivotal role in understanding significant adverse impacts on the environment long before any development is contemplated. Sowman *et al*, (1995: 51) mentioned that the term IEM was chosen as it implicated the integration of environmental aspects into all stages of the development process, from planning to post-assessment monitoring.

Approaching development through the use of environmental management tools, as proposed in the IEM toolbox, is an approach targeted towards sustainability. It includes a range of approaches which include fundamental principles of sustainability that are part of a process, can be a stand-alone process, or be integrated into existing complementary processes (e.g. integrated development planning) (DEAT, 2004).

The use of EIAs as proactive tools during the early stages of a project planning process is proposed by Weaver *et al* (2008) as the most effective way to implement innovation and change. It is far more influential than as a reactionary tool as has been used previously. In current day practice it is evident that many Environmental Assessments (EAs) are done incrementally, on a project based manner, which are very often rushed and reactionary. These lack scope and lead to failure in addressing broader spatial impacts of projects. Furthermore, EAs are often technocratic, protocol based processes that are not well integrated with broader planning, political and economic processes. As a result, a call for Strategic Environmental Assessments that not only cover environmental concerns, but

also take into consideration sustainability and regional issues at a more strategic level of decision making, is required. Therefore, according to Fischer (1999) (cited in Kirchhoff *et al*, 2011), the role of SEAs are fundamental in anticipating the impacts that certain projects can have, thereby improving the effectiveness in decision making and ultimately reducing the burden of work for project EAs. Some authors in more recent times (see Dalal-Clayton and Sadler, 2005:10) contend that SEA's 'take a broader, more complex and varied perspective, and see SEA as including the social (and sometimes the economic) dimension'. Therefore SEA's together with IDPs have an instrumental role to play for informed decision making. The IDP is already a well-developed process that has strong social and economic attributes and together with an environmental process, has the potential to be a highly integrated, polycentric and evolutionary approach to not only project level development, but also regional spatial and land use planning. As early as 1989, during the formulation of the first legally binding EIA procedures under the ECA, there was a call for integrated environmental management (IEM) aimed at integrating all stages of planning and development.

2.7.3 Strategic Environmental Assessments as inputs into Integrated Development Plans

According to DEAT (2004) the SEA tool as required in South Africa establishes sustainability as its main consideration. Although in-depth studies are conducted to ascertain how development will impact on the environment at the project level, through EIAs, there are strategic decisions that are generally imposed at the planning, programming and policy level. SEAs therefore have an integrative role, focusing on combining environmental, social and economic considerations. According to DEAT (2004), SEA "has the potential to promote an integrated system of planning that incorporates sustainability objectives into the planning process". Approaches to SEAs are varied according to context, however DEAT (2004) has provided examples of SEA approaches, categorised according to key characteristics or adaptations of each approach:

- *The integration of sustainability objectives into plans and programmes;*
- *The environmental assessment of a region (e.g. Regional Environmental*

Assessment);

- *The environmental assessment of sector plans and programs (e.g. Sectoral Environmental Assessment);*
- *The nature of the policy, plan or programme and level of decision making;*
- *The need for simplicity and speed in a context of limited resources; and*
- *Flexibility that enables self-assessment and the early integration of environmental considerations into the development of policies, plans and programmes.*

The IDP and SEA processes should be mutually informative. They propose practical recommendations for the implementation of the principles, strategies and guidelines that are integrated into developmental processes. Todes (2004) is of the opinion the IDP process is assumed to carry the sustainability intent and that the associated plans will reflect the principles of sustainability. She argues further that the notion of sustainability itself has therefore not been given due consideration. A Sustainability Assessment Framework can ensure that the developmental process is informed by the IDP and SEA processes. Although the IDP process is in theory already focussed around sustainability and is a useful vehicle for formulating sustainable plans, greater attention needs to be given to environmental issues. This is where Strategic Environmental Assessments can play a pivotal role and the SAF can safeguard against the exclusion thereof.

Therefore, because the focus of the SEA process is on environmental sustainability, this process will be highly informative and significant when compiling an IDP. As with the IDP process, the purpose of an SEA is to determine the future direction of development in a way that promotes sustainability. The main aims of the IDP (and more specifically the associated SDF) and the SEA processes should be to determine the opportunities and constraints of certain types of development on the relevant receiving environment, thereby eliminating certain projects from the get-go, if those proposals are in conflict with the sustainability agenda. Furthermore, the IDP process calls for a more comprehensive participation process and the SEA can enable stakeholder engagement at a strategic level in the planning and policy-making process. The SEA can be integrated into the planning process to derive a particular product, i.e. the Spatial Development Framework. According

to DEAT (2007) the legislated Integrated Development Planning (IDP) process provides appropriate opportunities to integrate SEA into the IDP and associated Spatial Development Framework (SDF) processes. In practice SEA is often carried out as a separate, parallel process rather than being fully integrated into the policy formulation or planning process (also because that is what the MSA regulations require). The proposed integrated model has specific advantages and DEAT (2007) lists the following:

- is more readily accepted by stakeholders since it is not seen as a competing or 'new' process;
- often saves time and money and avoids duplication of resources and activities, and/or 'stakeholder fatigue';
- influences decision making at key points throughout the policy formulation or planning process, enabling a proactive and iterative influence on the process;
- enables SEA to be incorporated into existing, legally required processes, thus giving it a legal platform (e.g. Municipal Systems Act (Act 32 of 2000) regulations require SEA of Spatial Development Frameworks);
- can build SEA capacity amongst authorities with a legal obligation to undertake plans, policies and programmes (PPPs) processes, but which are not conventionally tasked with environmental assessments;
- ensures that PPP's are underpinned by sustainable development principles.

Partidário and Clark's definition (2000: 4) just after the inception of the IDP process, already acknowledged the emergence of this perspective on SEA:

SEA is a systematic on-going process for evaluating, at the earliest appropriate stage of publicly accountable decision making, the environmental quality, and consequences of, alternative visions and development intentions incorporated in policy, planning and program initiatives, ensuring full integration of relevant biophysical, economic, social and political considerations.

The Strategic Environment Assessment process has the potential to be an integrative and

sustainable approach but has not been realised. SEA could thus be used as an instrument to inform these plans directly or via the SDFs (Retief *et al*, 2007).

Braun (2008) explains that SEAs take an approach to development that assesses the strategic implications from a broader, large-scale and holistic standpoint. The questions posed by SEAs relate to issues on a wider spectrum, with regional significance. Strategic Environmental Assessments are not compulsory in terms of legislation in all countries. Some countries have SEA under EIA legislation as a formal requirement. In South Africa SEAs are already a legislative requirement in terms of the MSA regulations of 2001¹¹. Unfortunately this only requires an SEA of a completed SDF.

The graph below shows the results of a survey that was conducted between 1996 and 2003 by Retief *et al* (2007). The correlation between the introduction of the IDP process in 2000, and the increased number of SEAs conducted is evident from the graph.

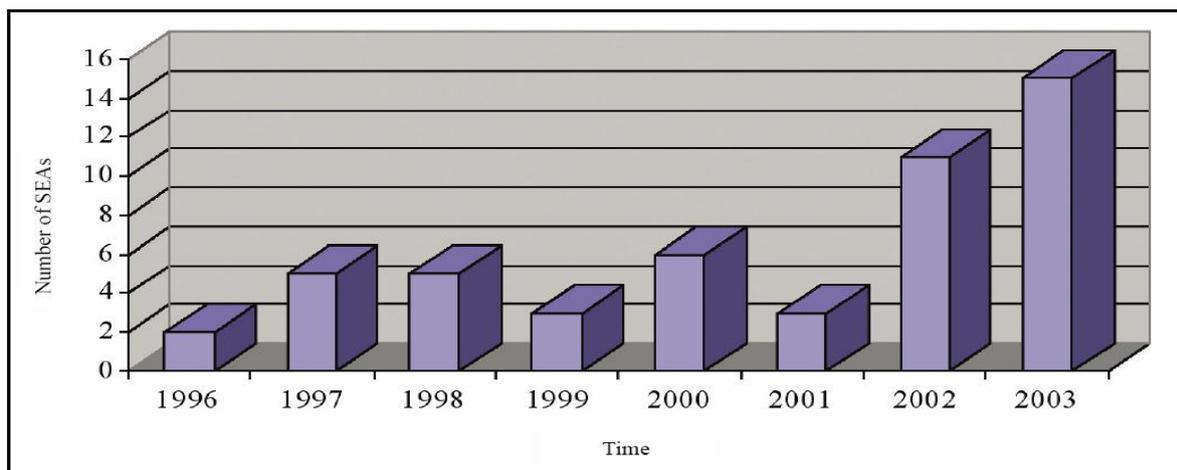


Figure 10: Survey results of SEAs conducted in South Africa, 1996 – 2003. (Source: Retief *et al*, 2007).

Retief *et al* (2007) is of the opinion that as legislation changes and new legislation is implemented, the possibility of SEAs being required is dramatically increased. SEAs are therefore seen as valuable tools in identifying the opportunities and constraints in a particular region, by incorporating sustainability objectives and targets. They are high level assessment documents that give a better understanding of environmental considerations,

¹¹ The Act requires that local authorities adopt a single inclusive plan that forms the policy framework for the Municipality and for the allocation of capacity and resources. The Regulations to this Act state that a strategic assessment must be undertaken of the environmental impact of the spatial development framework contained in the Municipality's plan (DEAT, 2007).

through a report, so that likely environmental effects of plans and programmes can be factored in and where necessary, mitigation and adaptations measures can form part of an integrated assessment and policy response. However, in order to promote the holistic concept of sustainability, SEAs will have to move beyond environmental sustainability, and integrate economic, social, physical and governance sustainability with environmental sustainability. This study demonstrates how a Sustainability Assessment Framework can ensure that the developmental process can be mutually informed by the IDP and SEA processes.

2.8 Summary

- The literature suggests that regions and districts have an unchartered role to play from a sustainability perspective (Todes, 2004, Deas *et al*, 2000; Keating, 1998).
- The regional scale is an arena where social, economic and environmental development plans can be fully integrated (Deas *et al*, 2000).
- Regional planning is seen as a ‘multi-sectoral and multi-level’ domain where many sectors together with local governments collaborate to create integrated environments for development (Cooke *et al*, 2006).
- Districts need to be understood in terms of the wider environmental, economic and social connections and institutional obligations.
- District planning and the district IDPs should therefore be seen as intricate parts of regional planning and are regarded as appropriate vehicles to implement sustainability principles into the greater regional planning domain.
- The approach to sustainable development has needed to evolve over the last two decades, to become one which incorporates actions of mitigation, adaptation and transition management, resilience, and innovation.
- The triple-bottom line approach must be expanded to include built environment and technology, and governance and institutional issues are also essential components of sustainable development.

2.9 Conclusion

This chapter introduced the concepts of sustainable development and regional planning as well as the one of the aims of this study; namely, how to promote sustainable regional planning. This regional arena is considered to be the space where sustainability and SD can have a direct impact. Furthermore, sustainability impact assessments and Sustainability Assessment Frameworks can play a significant role when trying to include and incorporate SD principles into the developmental process.

This chapter set the scene, to give context to the study. This regional space, together with district and metropolitan IDPs, forms the basis of, and creates the setting for, this study. The following chapter explores the South African legislative framework with regard to sustainable development and integrated development planning.

CHAPTER 3: LEGISLATIVE FRAMEWORK

3.1 Introduction

This section of the study sheds light on the current legislation and policies promoting sustainability and SD in South Africa and the Western Cape Province. It must be noted that an array of legislation, policies and plans exist, but for the purpose of this study, only certain legislation considered applicable to sustainability and SD in the context of the Integrated Development Planning process will be discussed. Further to Chapter 2, this legislative analysis will demonstrate how, in terms of legislation, the provincial government has already been mandated to oversee, regulate and monitor regional and district planning and development. Having said this, its role could however be more refined from a sustainability perspective, ensuring that corresponding choices and values around sustainability filter down from the national sphere, to implementation on the ground through local municipalities.

The South African government has tended to use all-encompassing definitions of sustainability and sustainable development, and has avoided making clear choices about which **values** are supported and what sustainability might really mean in a South African context. The applicable planning and environmental legislation, such as the Municipal Systems Act (Act No. 32 of 2000) (RSA, 2000) the National Environmental Management Act (Act No. 117 of 1998) (RSA, 1998a); the Spatial Planning and Land Use Management Act (Act No. 16 of 2013) (RSA, 2013) and the National Strategy for Sustainable Development and Action Plan¹² (NSSD1) (2011–2014) (RSA, 2011d) are the overarching laws to promote, foster and guide sustainable development in the country and province. Although their intention might be appropriate, it is argued that the efficacy to implement the concepts seem to be lacking. Bond *et al* (2012) share a similar view and are of the opinion that South Africa needs to focus on improving the effectiveness of practice and not so much on redrafting and refining the legislative framework. The effectiveness of practice is based on implementability and clarity around values and choices. It is evident from South Africa's NSSD that it supports a systems approach to sustainability expressed as 'nested eggs' (DEAT, 2008a). This views the economy as a subset of socio-political systems which

¹² This document was approved in 2010.

are considered to be dependent upon the integrity of ecosystem services (Bond *et al*, 2012) and the integration of these three dimensions of sustainability is achieved through governance. Although the content of many policies and legislation are sustainably orientated, the alignment, integration and implementation of policies and plans are however not sufficient to promote sustainability (Ndeke, 2011).

After the democratic transition that South Africa underwent after the 1994 election, there was a great number of parliamentary legislation, some of which were directly linked with promoting and strengthening local governments' role in implementing the IDP process. These five (5) acts were directly related to Integrated Development Planning and include:

- (a) The Constitution of the Republic of South African (1996);
- (b) The Local Government Transition Act (LGTA, 1993), as amended in 1998;
- (c) The Development Facilitation Act (DFA, 1995);
- (b) The Local Government Municipal Structures Act (1998); and
- (e) The Municipal Systems Act (MSA, 2000).

A fluctuation in focus of legislation over the past 20 years, demonstrates how initial legislation intended to provide basic services and infrastructure in an effort to improve the quality of lives of the poor. Later, the emphasis turned to economic development and macro-economic visions which were investment led. With both these efforts being somewhat unsuccessful, other avenues were explored and the first signs of spatial economic initiatives surfaced. District and metropolitan municipalities were then identified, through the devolution of powers, as governmental spheres that could be used to develop partnerships, promote regional economies, while still valuing social relationships as important elements of development. In recent years, the combined efforts to protect the environment, promote economic transformation, and provide inclusive growth has shifted the developmental field on a sustainability path. The Provincial Government's role has now changed to one of regulation, support and monitoring of local and metropolitan municipalities. The literature study demonstrates that this role can be implemented through District and Metropolitan IDPs, and more specifically, through the crafting of sustainability assessment frameworks of these IDPs. IDPs can also be measured by the degree to

which they comply with legislation. This is also an important element of creating sustainability assessment frameworks, as this compliance can then be measured.

3.2 National: Sustainability-Related Legislation

3.2.1 Constitution of the Republic of South Africa of 1996

The Bill of Rights contains rights that must be respected, protected, promoted and fulfilled by the state, for example rights dealing with equality (s9), housing (s26), health care, food, water and social security (s27), and cultural, religious and linguistic communities (s31) which clearly align with social sustainability expectations (Bond *et al*, 2012). The Constitution also sets out the powers of the various spheres of government and how they have to relate to each other. People's Constitutional rights can be directly linked to the **central pillars of regional planning, which are environmental, economic, human settlements and service provision**. According to Dewar (2009) integration of all four of these pillars need to be in association with each other in a symbiotic way if these Constitutional rights are to be respected.

“Everyone has the right:

- (a) To an environment that is not harmful to their health or well-being; and*
- (b) To have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that*
 - i) Prevent pollution and ecological degradation;*
 - ii) Promote conservation; and*
 - iii) Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.”*

Provinces have exclusive legislative powers with regard to functions such as provincial planning and concurrent legislative powers with regard to regional planning, urban and rural development, and municipal planning. This is an important aspect to consider in relation to the focus of the study, as sustainability and SD can be pursued in regions, districts and metropolitan areas through provincial management.

3.2.2 National Environmental Management Act and Integrated Environmental Management

NEMA promotes sustainability through the implementation of listed activities and is the foundation for impact assessments, which are the means to identify, predict, evaluate, and mitigate the potential negative environmental impacts of land development proposals (Bond *et al*, 2012). Although this section deals with the National Environmental Management Act, No. 117 of 1998 (NEMA), other tools within the NEMA framework are also introduced.

Section 24(2) of NEMA is the legal basis for environmental impact assessments (EIAs) through a series of procedures and listing notices (Kihato, 2012: 65). Certain activities are considered 'listed' which means that they require environmental authorisation. This promotes sustainability as listed activities are those activities that could have negative impacts on the environment. NEMA also includes related processes of appraisal of policies, plans and programmes such as SEAs (Kihato, 2012: 64). This law has been put in place to create the foundation for assessments – to identify, predict, evaluate, and mitigate the potential negative environmental impacts of land development proposals (Bond *et al*, 2012).

At its core, this piece of legislation is based on principles of sustainable development which are used to regulate the environment (Van Wyk, 2007). In theory, this legislation should work in conjunction with planning legislation so that a holistic approach to sustainable land development can be achieved. As Van Wyk (2007) demonstrates, the definition of sustainable development in NEMA¹³ supports this view.

Integrated Environmental Management (IEM) is the title of Chapter 5 of NEMA. DEAT (2004) considers IEM to be the overarching framework for the integration of environmental assessment and management principles into environmental decision-making. Several environmental assessment and management tools provide invaluable information that can be used at the various levels of decision-making (DEAT, 2004).

¹³ The integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations. [National Environmental Management Act, No 117 of 1998 (NEMA)].

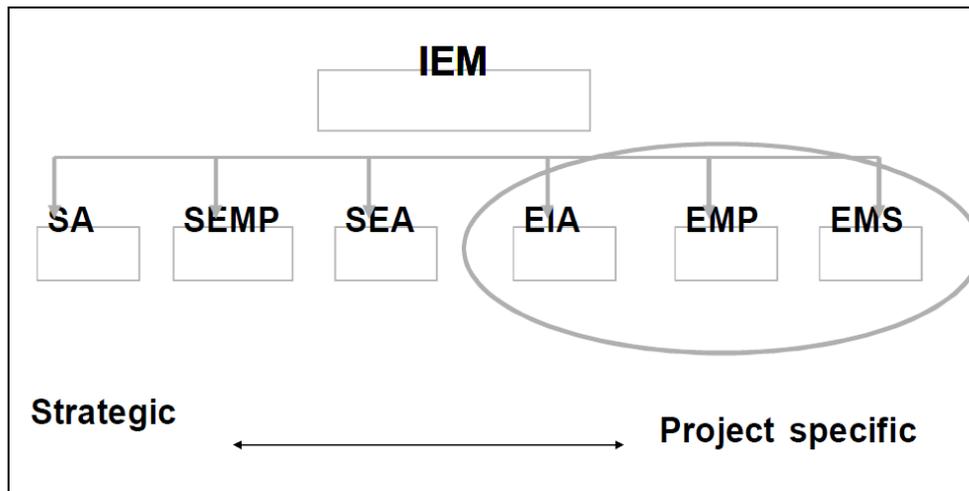


Figure 11: Toolbox for Integrated Environmental Management

Integrated Environmental Management (IEM) promotes a variety of tools, such as Strategic Assessments (SAs), Strategic Environmental Management Plan (SEMP), Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), Environmental Management Framework (EMF), Environmental Management Plan (EMP), and Environmental Management Strategy (EMS). In South Africa, however, EIAs are the tools that are mostly used when it comes to environmental assessments and the use of them are comprehensively legislated. They are seen as the main tools with which to promote sustainability.

In as early as the 1990's it was evident that the use of EIAs in the absence of broader strategic frameworks for sustainable development, had its drawbacks. When an application was lodged to mine mineral sands on the Eastern Shores of Lake St Lucia (CSIR Environmental Services, 1993), it resulted in an extensive research programme around the use of broader spatial tools such as SEAs and, later, integrated development planning tools, together with their related policies and guidelines (DEAT, 2007; Weaver, 2008).

SEAs are required for Spatial Development Frameworks in terms of the 2001 MSA regulations, but only after the SDFs have been drafted (*ex post facto*). In the DEAT 2007 guidelines regarding SEAs, the purpose of SEAs is considered central to promoting SD. Weaver (2008) remarks that SEAs in South Africa are actually similar to sustainability assessments in other countries. This study investigates the use of these tools as inputs

into the integrated development process, considering the legislative requirement of both SEAs and IDPs.

3.2.3 National Biodiversity Act (2004)

In 2004, within the NEMA framework, the National Environmental Biodiversity Act (NEBA), (10 of 2004) was introduced, which presented concepts of biodiversity and bioregional management plans. This assisted the management and conservation of biodiversity at national and bioregional scales. Provision is made for the preparation of bioregional plans as the basis for the management of biodiversity and its components, which, in terms of legislation, should be aligned with Spatial Development Frameworks. These also form part of the IDP process. Many developing countries have 'biodiversity hotspots' that are highly important from a global biodiversity and conservation perspective (Retief *et al*, 2007). The Act seeks to conserve and protect areas which display high levels of biodiversity, through the alignment of IDPs and their associated SDFs.

3.2.4 Municipal Systems Act (2000) and its Regulations (2001)

The regulation of Integrated Development Planning in South Africa is guided by Local Government through the Municipal Systems Act, 2000 (Act No. 32 of 2000) ("MSA") and the Municipal Planning and Performance Management Regulations (2001) ("MSA Regulations"). These documents provide the legislative framework which regulate and guide development within a region. As part of their mandate, Chapter 5 compels each municipality to prepare an Integrated Development Plan and addresses the core components of IDPs, as well as the processes involved for planning, drafting, adopting and reviewing the plans. Local and district authorities must prepare Integrated Development Plans. This is a "single, inclusive and strategic plan for the development of a municipality" (section 25 of MSA). It's a 5 year vision for strategic development of the municipal area and includes a Spatial Development Framework and specifically defines the duties of all municipalities. The MSA makes it clear that the intention of the IDP is to:

"Build local government into an efficient, frontline development agency

capable of integrating the activities of all spheres of government for the overall social and economic upliftment of communities in harmony with their local natural environment". (Long title of MSA)

Significantly, the MSA defines 'development' as:

*"Sustainable development and includes integrated social, economic, environmental, spatial, infrastructural, institutional, organisational and human resources upliftment of a community aimed at (a) improving the quality of life of its members with specific reference to the poor and other disadvantaged sections of the community; and (b) ensuring that development serves present and future generations"*¹⁴.

Section 53 of the MSA refers to the roles and responsibilities of municipalities:

*"A municipality must, within the framework of and in accordance with relevant provisions of the Municipal Structures Act, this Act and other applicable legislation, define the specific role and area of responsibility of each political structure and political office bearer of the municipality and of the municipal manager"*¹⁵.

The Act calls for the specific functions, in terms of roles and responsibilities, of each sphere of government to be clearly defined. Although this is a legislative requirement, it is an area where much improvement is needed. Section 53 of the Act unambiguously defines the need for communication lines to be established across governmental spheres, in terms of relationships, accountability, and procedures for interaction. All of these are pertinent to the efficient drafting, working and implementation of IDPs. Provincial government, through its new mandate, can assist with the establishment of communication lines.

One of the key aspects when compiling an IDP is to ensure alignment across different spheres of government through co-operative governance. Section 24 (1) & (2) calls for alignment and "co-operative governance":

"The planning undertaken by a municipality must be aligned with, and

¹⁴Local Government Municipal Systems Act, 2000 (Act No. 32 of 2000)

¹⁵Local Government Municipal Systems Act, 2000 (Act No. 32 of 2000)

complement, the development plans and strategies of other affected municipalities and other organs of state so as to give effect to the principles of co-operative government contained in section 41 of the Constitution. Municipalities must participate in national and provincial development programmes as required in section 153 (b) of the Constitution”.

The Municipal Systems Act and the associated IDP assigns certain responsibilities to different spheres of government in terms of policy and legislative debates, as well as intervention on local level planning. This responsibility was given to, and accepted by, the National Department of Cooperative Governance and Traditional Affairs (CoGTA). This department has been instrumental in developing assessment frameworks of IDPs.

The Integrated Development Plan has multiple functions. Not only is it intended to guide development spanning across all spheres of government, but it also directs and unpacks the development of the Municipality for the forthcoming 5 year period. It is therefore considered as a means to promote principles of Inter-Governmental Relations and sustainable development outcomes.

The Local Government: Municipal Planning and Performance Management Regulations (“MSA (or IDP) Regulations”) were promulgated on 24 August 2001, in terms of Chapter 12 of the MSA (GN No. R. 796 in Government Gazette No. 22605 of 24 August 2001 refer) (South Africa, 2001). Within these Regulations, certain elements are highlight that must be included in a municipality’s IDP, with Regulation 2(4) specifying that:

“A spatial development framework reflected in a municipality’s integrated development plan must –

- (a) give effect to the principles contained in Chapter 1 of the Development Facilitation Act, 1995 (Act No. 67 of 1995);*
- (b) set out objectives that reflect the desired spatial form of the municipality;*
- (c) contain strategies and policies regarding the manner in which to achieve the objectives referred to in paragraph (b), which strategies and policies must
 - (i) indicate desired patterns of land use within the municipality;*
 - (ii) address the spatial reconstruction of the municipality;**

and

- (iii) provide strategic guidance in respect of the location and nature of development within the municipality;*
- (d) set out basic guidelines for a land use management system in the municipality;*
- (e) set out a capital investment framework for the municipality's development programs;*
- (f) contain a strategic assessment of the environmental impact of the spatial development framework;*
- (g) identify programs and projects for the development of land within the municipality;*
- (h) be aligned with the spatial development frameworks reflected in the integrated development plans of neighbouring municipalities; and*
- (i) provide a visual representation of the desired spatial form of the municipality, which representation –*
 - (i) must indicate where public and private land development and infrastructure investment should take place;*
 - (ii) must indicate desired or undesired utilisation of space in a particular area;*
 - (iii) may delineate the urban edge;*
 - (iv) must identify areas where strategic intervention is required; and*
 - (v) must indicate areas where priority spending is required.*

It is therefore legislated in the IDP Regulations that an SEA must inform, or form part of, the SDF. The SDF which is an integral part of the IDP is intended to combine numerous municipal objectives and strategies and then to reflect these on a plan to depict the desired spatial form and patterns of land use development. These include strategies, policies, plans, programmes, action plans and projects to achieve the objectives and implement the strategies.

3.2.5 Municipal Structures Act and District Functions (1998)

The Municipal Structures Act governs the type of municipality to be formed. The municipalities are categorised into three different groups, namely, Metropolitan Municipalities (Category A), Local Municipalities (Category B), and District Municipalities (Category C). The Governance Structure of each Municipality is informed by the Municipal Structures Act (Act 117 of 1998). This Act stipulates different roles and responsibilities that each structure within the municipality should perform.

In terms of Section 83 (1) *“A municipality has the functions and powers assigned to it in terms of sections 156 and 229 of the Constitution”*. In terms of subsection 2 of Section 83, the functions and powers referred to in section 83 (1) must be divided between local and district municipalities. The subsequent section, Section 83 (3) states that:

“A district municipality must seek to achieve the integrated, sustainable and equitable social and economic development of its area as a whole by-

- (a) Ensuring integrated development planning for the district as a whole;*
- (b) Promoting bulk infrastructural development and services for the district as a whole;*
- (c) Building the capacity of local municipalities in its area to perform their functions and exercise their powers where such capacity is lacking; and*
- (d) Promoting the equitable distribution of resources between the local municipalities in its area to ensure appropriate levels of municipal services within the area.”*

The division of functions and powers between district and local municipalities is defined in Section 84. Section 84 (1) (a) specifically refers to Integrated Development Planning where district municipalities as a whole must take the IDPs of individual municipalities into account. This promotes a fully integrated system between local and district municipalities where cross-border issues relating to, for example, bulk infrastructure supply¹⁶, health, fire-fighting, markets, tourism etc. are taken into account. Table 1 below illustrates the district

¹⁶Include but not limited to, water, electricity, sewage, solid waste, roads and health services.

functions as set out in the Municipal Structures Act (Act 117 of 1998).

Category of function	Functions	Legal provision in Section 84
Integrated development planning		84(1)(a)
Bulk infrastructure	Water	84(1)(b)
	Electricity	84(1)(c)
	Sewage disposal	84(1)(d)
	Roads	84(1)(f)
District-wide services	Solid waste disposal, affecting the district as a whole	84(1)(e)
	Municipal health services serving the district	84(1)(i)
	Regulation of passenger transport	84(1)(g)
	Fire fighting serving the district	84(1)(j)
District-wide facilities	Municipal airports serving the district	84(1)(h)
	District-wide fresh produce markets and airports	84(1)(k)
	District-wide cemeteries and crematoria	84(1)(l)
	Municipal public works	84(1)(n)
Economic development	Promotion of tourism	84(1)(m)
Financial redistribution	Receipt and distribution of grants	84(1)(o)
	Imposition and collection of taxes and levies	84(1)(p)

Table 1: District Municipality functions in terms of the Municipal Structures Act. (Source: Atkinson 2003: p6)

3.2.6 National Spatial Planning and Land Use Management Act (2013)

The introduction of the National Spatial Planning and Land Use Management Act no 16 of 2013 and the Western Cape Land Use Planning Act (LUPA) during 2014 will bring about a substantial change in the way local and regional planning will be done in South Africa and the Western Cape. The opportunity now exists for positive changes to be implemented, with each sphere of government taking on a changed role. The following are regarded as the main impacts of SPLUMA and LUPA on planning for the provincial sphere of government:

- (a) *SPLUMA sets out the requirements for the drafting of a Provincial Spatial Development Framework, a Rural Spatial Development Framework and a Metropolitan Spatial Development Framework.*
- (b) *It will create national uniformity for municipal planning.*
- (c) *It will encourage certainty for private sector development.*
- (d) *It will set norms and standards to achieve urban, rural, municipal, regional*

and provincial development goals and objectives.

(e) It provides for and promotes cooperative government and intergovernmental relations in respect of spatial development planning and land use management.

(f) It allows for development applications and processes affecting national interest.

3.3 National: Sustainable Development-Related Policies and Plans

3.3.1 National Strategy for Sustainable Development (2010)

This document is orientated around sustainable development principles. It adopts a systems approach which considers all systems as being imbedded within each other. The strategy is one that extends beyond the three pillars of sustainability, and addresses issues of governance and institutional arrangements, as well as enhancing science and technology. The document has identified the following five points as strategic objectives:

“Priority 1: Enhancing systems for integrated planning and implementation

Priority 2: Sustaining our ecosystems and using natural resources efficiently

Priority 3: Towards a green economy

Priority 4: Building sustainable communities

Priority 5: Responding effectively to climate change”

The strategy identifies the Integrated Development Plan as a means with which to ensure the effective planning and implementation of sustainable development and sustainability. The NSSD acknowledges the strategic oversight role of the **provincial government** (emphasis added) to ensure that IDPs at municipal and district levels have incorporated sustainability indicators. The proposed SAF is a means of achieving this.

3.3.2 National Development Plan: Vision for 2030 (2011)

In terms of the National Development Plan, Objective 5 relates to environmental sustainability and resilience, with one objective being to “increase investment in new agricultural technologies, research and the development of adaptation strategies for the protection of rural livelihoods and expansion of commercial agriculture”. This also links with the new approaches to sustainability as it includes principles of adaptability, transformability and innovation, and a systems approach. The Western Cape Provincial Transversal Management Plan launched in September 2010, also contains certain Provincial Strategic Objectives which are in line with the objectives contained in the National Development Plan. The purpose of the Provincial Government, in terms of its mandate in the Constitution of 1996, is to provide a regulatory, supportive and monitoring role for municipalities. Provincial Government can therefore take up the role of overseeing regional planning and development from a sustainability perspective. The following are regarded as the key aspects from the NDP that Provinces need to take guidance from:

- (a) Sustainability (financial and environmental)
- (b) Focussed on the needs of the poor
- (c) Emphasis on social justice
- (d) Resource sharing
- (e) Incremental development
- (f) Community participation / local based solutions.

The approach proposed in the plan to change the current development trajectory ‘revolves around citizens being active in development, a capable and developmental state able to intervene to correct our historical inequities, and strong leadership throughout society working together’ (RSA, 2011a).

3.3.3 The National Urban Development Framework (2009)

The Working Draft for Consultation of the National Urban Development Framework (NUDF), dated June 2009, also identified improved urban form and sustainability as one of its outcomes. This outcome is seen to be achieved by measures that will promote greater urban integration and densification (particularly along the major transport corridors);

greater access and mobility through improved public transportation and new mobility technologies; and greater resource efficiency and sustainability (RSA, 2009:37). These concepts are further elaborated in the 2010 guidelines for the formulation of spatial development frameworks (RSA, 2010a) which include a set of sustainability principles for spatial planning. These include, amongst others, socio-economic and functional integration, efficient urban structure, compaction and densification, and a **framework for promoting sustainability** (emphasis added). The principle of efficient urban structure can be achieved through appropriate densification (guided by density targets) and the limitation of the lateral growth of settlements through the use of an urban edge (RSA, 2010a:15). These concepts thus became entrenched in the South African spatial planning policy since the early 1990's, and can be viewed as the overarching South African approach to urban spatial development (Geyer *et al*, 2011)

3.4 Summary

Although sustainability is a core element of policy and legislation, its implementation remains weak. The following points are considered to be key points emanating from a review of national legislation, policies, frameworks and plans:

- People's Constitutional rights are directly linked to the **central pillars of regional planning, which are environmental, economic, human settlements and service provision**. (Dewar, 2009)
- **Sustainable development is a constitutional right:** The Constitution requires *ecologically sustainable development to be secured and use of natural resources while promoting justifiable economic and social development*.
- The NSSD supports a **systems approach** to sustainability expressed as 'nested eggs'.
- Legislation promotes, fosters and guides sustainable development in South Africa.
- Governance can promote SD through the integration of the three dimensions of sustainability.

- Sustainable development is at the core of and is mainstreamed into environmental legislation. IEM tools all promote SD. SEA is a legislative requirement in terms of the 2001 MSA regulations. Similarly, the MSA promotes sustainability through IDPs.
- The Municipal Structures Act states: “*A district municipality must seek to achieve the integrated, **sustainable and equitable social and economic development of its area as a whole by...***”
- The NDP, MTSF, NUDF and NSSF all promote the five pillars / dimensions of SD.
- NDP Objective 5 relates to environmental sustainability and **resilience**: “*increase investment in new agricultural technologies, research and the development of adaptation strategies for the protection of rural livelihoods and expansion of commercial agriculture*”. This also links with the new approaches to sustainability as it includes principles of **adaptability, transformability, innovation and a systems approach**.
- The following are regarded as the key aspects from the NDP that Provinces need to take guidance from:
 - (a) Sustainability (financial and environmental)
 - (b) Focussed on the needs of the poor
 - (c) Emphasis on social justice
 - (d) Resource sharing
 - (e) Incremental development
 - (f) Community participation / local based solutions.

3.5 Provincial: Development-Related Legislation

3.5.1 Land Use Planning Ordinance of 1985 and draft Land Use Planning Bill of 2013

Land Use Management in the Western Cape is guided and controlled by the Land Use Planning Ordinance (15 of 1985) (LUPO) and can be regarded as the most important piece of legislation in this regard. It deals with a variety of planning arenas, such as spatial

planning (structure plans), regulation of development (zoning schemes) as well as the processes involved with the submission of applications relating to developmental rights (departures, subdivision and township development). This document was successful in creating some form of control over development within the Province; however it has now been considered as outdated and will be replaced by the Land Use Planning Act (LUPA) during 2014. LUPA is at present still a Bill.

3.6 Provincial: Sustainable Development-Related Policies and Plans

3.6.1 Western Cape's Draft Strategic Plan (2011)

The Western Cape Strategic Plan is described as the Western Cape Government's roadmap to an 'open opportunity society for all'. There are a number of strategic objectives identified which are considered to be the key areas of focus. The main focus of the document is on creating a safe and equitable place for all the citizens. The document makes use of statistical data and status quo information and is strategic in its approach. It highlights 12 clear objectives that the government wishes to achieve in the medium term. The document identifies innovation and the need for innovative policy solutions, a citizen-centred approach to service delivery, and transparency and accountability as core characteristics the government wishes to promote. It has been motivated that the document reflects the core values of the government and is informed by an evidence-based analysis of the different circumstances of the Western Cape.

3.6.2 Provincial Growth and Development Strategy (2006)

On a provincial level, the Provincial Growth and Development Strategy (PGDS) has a strong economic focus identifying the importance of understanding functional regions and the associated economic linkages and polycentricity. The concepts tie in closely with complexity and systems thinking, regional innovation systems and transdisciplinarity. The document displays a rigorous analysis of growth potentials, economic opportunities and associated challenges as well as the problems facing the region. The provincial and regional focus of the PGDS is on priorities and objectives for spatial development across a

region, with clear spatial rationale to guide provinces on a positive developmental trajectory.

The PGDS is based upon the NSDP and the MTSF from a national perspective within a sustainable development paradigm. Its main aim is to be a developmental framework for the province, which can be used in a collaborative way to drive the implementation of development.

3.6.3 Western Cape Provincial Spatial Development Framework (2005)

This policy document is a plan in terms of Section 4(6) of LUPO, developed by the Provincial Government, and attempts to create alignment from National to Local Government. It identifies specific objectives and Key Performance Areas (KPAs) that need to be addressed.

According to the Department of Environmental Affairs and Development Planning, the PSDF has four main purposes, these are:

- “(1) Be the spatial expression of the Provincial Growth and Development Strategy (PGDS).*
- (2) Guide (metropolitan, district and local) municipal integrated development plans (IDPs) and spatial development frameworks (SDFs) and provincial and municipal framework plans (i.e. sub-SDF spatial plans).*
- (3) Help prioritise and align investment and infrastructure plans of other provincial departments, as well as national departments' and parastatals' plans and programmes in the Province.*
- (4) Provide clear signals to the private sector about desired development directions. Increase predictability in the development environment, for example by establishing no-go, conditional and "go" areas for development and redress the spatial legacy of apartheid.”*

The PSDFs intention was to ensure alignment of local and national frameworks and plans. It acknowledges this as a guiding tool for Integrated Development Plans. It also includes very good spatial representations of the desired growth patterns of the economy and places high value on the integrity of the environment.

The PSDF aimed at redressing the spatial legacy of apartheid and to spatially express the PGDS of the Western Cape. It provides guidance to municipalities for their Integrated Development Plans, and aligns investment and infrastructure plans. It also aims to give guidance to the private sector about desired development directions and establishes 'no-go', 'conditional' and 'go' areas for development. The framework attempted to strengthen the principles of sustainability and give substance to provincial and municipal planning.

3.6.4 White Paper on Sustainable Energy (2010)

In an attempt to address the energy consumption patterns and usage across the Western Cape, and the need to develop a more sustainable energy sector, the WCG: Department of Environmental Affairs and Development Planning (DEADP) published a White Paper on Sustainable Energy for the Western Cape Province. This White Paper document follows from the Proposed Renewable Energy Plan of Action (2007), Sustainable Energy Strategy and Programme of Action (2007) and Draft Integrated Energy Strategy (2007). In order to achieve the vision of sustainable energy supply that moves away from a dependency on fossil fuel based energy, energy demand management programmes will be pursued, as well as a mix of renewable energy generation and clean energy technologies (DEADP 2010). The inclusion of these plans and strategies into IDPs is therefore very important.

3.7 Summary

- The PGDS is based upon the NSDP and the MTSF from a national perspective within a **sustainable development** paradigm.
- Provincial legislation and policies tie in with national and are **sustainably orientated**. National legislation such as SPLUMA and Provincial legislation such as LUPA are considered to be highly SD orientated.

- Provincial policies, plans and frameworks are on an SD trajectory as they focus on the core pillars of SD.
- Key pillars are evident across legislation, policies and plans.
- Energy and resource consumption practices are important.
- Below is a figure representing the linkages between the Millennium Development Goals, the National Development Plan Vision 2030, and the Western Cape Strategic Plan. The alignment of goals and objectives is regarded as being instrumental in attaining sustainable outcomes.

CHAPTER 4: ASSESSMENT FRAMEWORKS

4.1 Introduction

This chapter gives an overview of how sustainability can be incorporated into Assessments Frameworks (AFs), as well as an evaluation of present assessment frameworks used in South Africa to assess IDPs. It demonstrates how sustainability has not featured sufficiently in these AFs. New approaches to sustainability are derived from the literature and are considered to be a step in the right direction in terms of ensuring the principles of sustainability are incorporated into planning and development processes. The chapters end with a section developing alternative criteria and indicators from the literature that can be integrated into a sustainability assessment framework in order to rate IDPs. Chapter 5 then explains how these indicators can be scored in order to establish and overall rating for IDP.

4.2 Incorporating Sustainability into Assessment Frameworks

An aspect of this study was to explore the role that Assessment Frameworks (AFs) can play by considering other mechanisms such as a complexity and systems approach to sustainable development. The following was emphasised by Govender *et al* (2006) as a set of criteria that should be used in assessment processes to promote SD:

- Consider the whole system;
- Consider the well-being of social, ecological and economic sub-systems;
- Consider the fair distribution of costs and benefits for human and ecological systems (taking into account unique circumstances and different value systems);
- Consider intergenerational equity;
- Consider effects of economic development on human well-being and their ability to meet basic needs through *inter alia* equitable access to resources;

- Consider the limits of life supporting systems;
- Have adequate scope (both in terms of time and space – taking account of global implications);
- Allow for broad and meaningful participation in policies, plans and programmes; and
- Allow for the policy, project, plan or programme to sustain itself through its lifecycle. (Govender *et al*, 2006)

From the above it is evident that SD is an approach to development that is grounded in the “limits of growth” mentality (Swilling, 2005). It must be considered through a systems approach, giving equal value to all components.

4.3 Sustainability Assessments

Lessons can be learnt from the way development is approached in other countries. As part of this study, examples of international approaches to sustainable development were explored in order to determine how sustainability is being addressed elsewhere around the world. The growing acceptance of SD as an overarching guiding principle for policy making, has prompted the development of impact assessments (ESDN, 2007), and more recently, Sustainability Assessments. For the purpose of this study, the framework that was developed is explicitly developed around SD principles and therefore share very similar characteristics with Sustainability Impact Assessments as they have similar objectives, namely, good governance, policy integration, transparency, participation and efficiency. Although the SIAs mentioned above were developed on a European Union level and in a few European countries, mostly on an experimental basis, the findings can help guide sustainable development initiatives in the South African context.

Impact Assessments are used as evaluation tools to determine the potential impacts of projects, plans, programmes or policies, in order to assess potential effects of decisions before they are made. The evolution of Sustainability Impact Assessments originated as third generation Environmental Impact Assessments (with Strategic Environmental

Assessments (SEAs) as the second generation (Morrison-Saunders, 2006)) and can be viewed as the first step in environmental policy towards sustainability (ESDN, 2007).

IAs are highly focussed on specific policy sectors and the integration of their results were often only made in the final decision-making stage. As the call for policy integration increased, the role that IAs and SEAs could play, was explored. The role of these documents has paved the way for the development of Sustainability Impact Assessments as an integrated assessment tool which incorporate the three dimensions of SD. The European Sustainable Development Network (2007) has identified SIA as being particularly relevant for assessing the implementation of National Sustainable Development Strategies (NSDSs).

Sustainable Development seeks to integrate different policy issues into one assessment process as well as through an interdisciplinary and transdisciplinary approach. The ESDN has emphasised that it must be acknowledged that single disciplinary approaches will not suffice (Bond *et al*, 2001). The proposed sustainability assessment framework therefore bridges this divide.

It is evident that in the United Kingdom and Europe, sustainability is being mainstreamed into development and the approaches undertaken are through sustainability impact assessments and frameworks that acknowledge the importance of sectoral integration, trans- and inter-disciplinary approaches, and the pillars of sustainable development. The challenge however, which is subject to further research, would be to determine how to get these sustainability impact assessments and sustainability assessment frameworks to be more influential earlier on in the developmental process.

4.4 Integrated Development Plan Assessment Frameworks

4.4.1 History of Assessment Frameworks for Integrated Development Plans in South Africa

Since 2005/2006, more and more Integrated Development Plan 'evaluation or assessment frameworks' have been developed in South Africa. These Assessment Frameworks have primarily been developed by Provincial and National Government departments. According

to the DPLG's 2008 IDP Format Guide, there were IDP hearings in 2002 (Adam & Oranje) and in 2005 and IDP Engagements during 2006/7. To date there have been no studies that have documented the history of all these assessments and frameworks used during the assessments, the total number of frameworks, as well as their area of focus. It was therefore part of this study to identify what frameworks exist and the table attached as Appendix A gives an overview of these frameworks, when they were produced, by whom, as well as the area of focus of each.

One of the noteworthy developments regarding the assessment of IDPs has been the introduction of the concept of 'credible' IDPs. The origins of this concept dates back to 2005, when, according to the DPLG (2008):

"The Leadership of the Country questioned the Validity or Credibility of the Rustenburg Local Municipal IDP during the Presidential Izimbizo in 2005. "Is the IDP Credible" was the central question that the Izimbizo hung onto. Credible is derived from form the Greek Work crediculus, which means realistic. Therefore in striving to have credible IDPs, they need to be realistic and implementable."

The focus of IDPs was therefore on implementability. During 2007 the Western Cape was already assessing IDPs in terms of this concept. In 2008 DPLG in their 'IDP Format Guide' referred to a good (credible) IDP and in 2009 the DPLG brought out a 'Credible IDP Evaluation Framework'. In recent IDP guideline documents the concept seems to have become less important, which could possibly be seen in a positive light. The focus on implementable and practical IDPs, might have taken away from a focus on sustainability, social justice and participative governance.

According to section 34 of the Municipal Systems Act, a municipal council must review and amend its IDP annually, and according to section 31, provinces may monitor and assist municipalities with the planning, drafting, adoption and review of their IDPs. As can be seen in the attached table, up to now, the monitoring or assessments of IDPs has been less than annually. The proposed Sustainability Assessment Framework can be used by Provincial Government to assist municipalities to implement sustainability principles into their IDPs.

4.4.2 Current Informants of Western Cape Assessment Frameworks

The assessment frameworks compiled by the Department of Cooperative Governance during 2012, namely, the WC IDP Assessments 2012, are templates for assessments for local, metropolitan and district IDPs. The assessment criteria used to assess these IDPs has been divided into six focal areas. These are: (1) Spatial Development Frameworks; (2) Service Delivery and Infrastructure Development; (3) Local Economic Development (LED); (4) Financial Viability; (5) Institutional Development and Organisational Transformation; and (6) Good Governance. These criteria have been described as 'Key Focal Areas' taken from different documents spanning across different departments. These assessments are not directly linked to provincial or national objectives. It is not clear why these focal areas were chosen.

4.4.3 Identifying Sustainability Principles in Assessment Frameworks

Thirteen years after the introduction of the IDP process in South Africa, the assessment frameworks which are used to assess the IDPs are still lacking in sustainability content. The frameworks asked questions around the principles of sustainability, but no insight was given about what SD entails or core issues emerging from sustainability discourse. Many frameworks call for alignment and sector integration, and orientation with national and provincial Key Performance Indicators. However, with the growing amount of sustainability research and the exploration of new innovative concepts, the assessment frameworks need to be continually renewed.

Through a content analysis of the AFs compiled by the Department of Cooperative Governance during 2012, namely, the WC IDP Assessments 2012, and noting its reference to the terms 'sustainable development' or 'sustainability' (as well as the four overarching concepts), the following reference was made:

[“...improve the content of the MEC’s commenting process so as to ensure we move towards a **sustainable environment**,...advancing **sustainable** human settlements”

“does the SDF addressmainstreaming of **sustainability**”]

These terms only appear three times in the document. They do not provide guidelines for municipalities with regard to the crafting, designing and improving of IDPs. Very little guidance was provided on how these frameworks will help to develop credible IDPs. The frameworks appear to be a checklist, with basic questions being asked around alignment, but no sensible guidance as to how sustainability can be included.

The initial frameworks (refer to Appendix A) focused primarily on the content of the IDPs in terms of their quality, the impact they have had as a developmental tool as well as compliance with process. As time elapsed, the focus shifted to also include environmental management and planning. In the 2009 DLPG assessment framework, sustainability is narrowed down to only asking whether there are strategies in the IDP for SD taking the natural heritage and potential into account and whether the IDP is based on adequate research to *inter alia* promote sustainable human settlements. The attached table gives a comprehensive overview of the history and shifts in focus of these assessments. The notions and principles of sustainability have only been noticeable in the frameworks within the last four (4) years. From approximately 2010 onwards, certain principles of sustainability can be noted; however this has been limited to:

- giving value to the environment;
- inclusion of sustainable economic development processes;
- investigation into governance systems;
- the promotion of alignment and integration;
- the inclusion of sustainability factors such as waste management, air quality, biodiversity, energy and climate change implications.

4.4.4 Identifying Shortfalls of Assessment Frameworks

The study has demonstrated that the inclusion of sustainability principles into assessment frameworks over the last decade has been relatively poor. It is only in more recent times that these principles have become more evident but there is no clear indication that a sustainability approach has been made priority. There are no specific criteria or methods

which have been developed which would help promote and mainstream the sustainability agenda. Derived from this study, the following are examples of what is considered to have been excluded from current assessment frameworks.

- Mainstreaming sustainability and SD.
- Viewing sustainability also in terms of the built environment and technology, and governance and institutional issues and not just the triple bottom line.
- Identifying key relationships and interactions across sectors.
- Approaching development from a complexity and systems thinking perspective.
- Promoting innovation and cluster development.
- Enhancing the economy as a subset of socio-political systems.
- Approaching governance through resilience.
- Redefining of powers and functions of governmental spheres.
- Identifying intra- and intergenerational equity as important elements.
- Utilising Integrated Environmental Management tools to create a holistic approach to sustainable land development.
- Promoting renewable energy generation and clean energy technologies.
- Acknowledging that joint action and coordinated implementation are built over time.
- Emphasising the importance of the public and private sectors for regional development.
- Mainstreaming hard scientific projections, simulations and modelling, and scenario formulation into the IDP process.
- Changing new growth models to be centred on social and environmental

sustainability, as IDPs involve wicked problems embedded in systems that are characterised by fragmentation, uncertainty and complexity.

- Boosting the concept of clusters and regional innovation systems through science and technology, industrial clusters, higher education and knowledge transfer.
- Identifying, reserving, protecting and planning of minerals.
- Including different sustainable transport modes into plans.
- Proving choice of modal transport.

The section to follow identifies new approaches to SD that incorporate the criteria listed above, but is based on trending methods with which to promote SD.

4.5 New Approach-Based Categories for a Sustainability Assessment Frameworks

Based on the literature review, applicable policies, legislation and frameworks and research into current sustainable planning practices, the following section identifies certain approach-based categories which, as put forward by this study, are approaches to development that should be included in a development framework (Folke *et al*, 2010; Resilience.Org, 2013a; Walker, 2004). Due to the wide scope of this study, four approaches have been identified from the literature which deals with issues that span across a wider spectrum. These are expanded upon briefly below:

4.5.1 Promoting Resilience through Planning

Our planet faces many ecological, social, economic, and technological uncertainties daily. Regions and districts must be planned by taking cognisance of these uncertainties. The concept of resilience is considered relevant in this context. The South African Cities Network (SACN, date unknown) defines resilience as the:

“Capacity of a place to anticipate, respond to and adapt successfully to

challenging conditions”.

A resilient region can, in many ways, factor in and plan for these uncertainties. Issues relating to climate change, degradation of ecosystems, natural disasters, social riots, economic recession and impacts of technological advances on the environment are some examples of what regions need to consider, in order for sustainable futures to be created.

Resilience is not restricted to one domain of sustainability. For example, it is the degree to which eco-systems tolerate disturbance; similarly, the ability of social systems to anticipate and plan for the future. Systems with high adaptive capacity are able to reconfigure themselves without significant declines in crucial functions in relation to primary productivity, hydrological cycles, social relations, and economic prosperity. Resilience is defined by Walker *et al* (2004) as “the capacity of a system to absorb disturbance and re-organize while undergoing change so as to still retain essentially the same function, structure, identity and feedbacks”.

The City of Tshwane in South Africa has adopted this approach of resilience. The city has used certain principles put forward by ResilientCity.org¹⁷ to help them create their own resilient city. The definition put forward by this non-profit network for a resilient city is:

‘A Resilient City is one that has developed capacities to help absorb future shocks and stresses to its social, economic, and technical systems and infrastructure so as to still be able to maintain essentially the same functions, structures, systems, and identity’.

Urban resilience is therefore both a city’s capacity to endure and/or recover from external shocks and its ability to adapt and transform to changing circumstances. Tshwane has adopted this approach through the buy-in of the city’s residents, stakeholders, and independent experts in an attempt to build their resilient, sustainable, flexible and adaptable city. The City of Tshwane highlights four (4) main principles which are believed to be critical in maintaining resilience, and these are:

- *Building a resilient economy that has the capacity to adapt to difficult*

¹⁷This is a non-profit network which has created an interactive website containing a blog which aims to create global awareness of climate change and population growth implications in an attempt to assist in building more sustainable and resilient cities. The website is: <http://www.resilientcity.org>

circumstances, such as the impact of the recent global crisis;
(economic sustainability)

- *Creating a resilient environment system that has the capacity to withstand environmental changes and disasters; **(environmental sustainability)***
- *Planning for a resilient social urban system that demonstrates high levels of inclusivity; **(social sustainability)** and*
- *Ensuring a resilient governance system where there is capacity and capability to provide leadership, as well as institutions to support the developmental aspirations of the City's citizens and support an active citizenry. **(institutional sustainability)***

This vision has incorporated the 3 pillars of sustainable development and has also identified the governance/institutional system, through the promotion of capacity building, as an additional feature for improving the city. Although the Tshwane approach is a long-term plan, which is distinctly different from medium or short-term plans such as an IDP, the concept builds value by incorporating its principles into the development of Integrated Development Plans. A resilient city is considered a sustainable city. Using the concepts of sustainability and sustainable development as instruments, resilience can be seen as an approach to be used when incorporating sustainability into Integrated Development Plans.

The IDP is a short-term plan and incorporating the principles of a resilient city will change the perception of this approach from being considered an “inspirational plan”, as Oranje (2012) defines, to a goal orientated plan. The goal is therefore sustainability, achieved through an adaptive, integrated and resilient city approach. The short-term plan becomes more realistic and will include hard scientific projections, simulations and modelling, scenario formulation and so forth.

There is growing (global) attention given to the importance of creating resilient cities. The scope of interest ranges from social scientists, environmentalists, urban planners, architects and politicians to local governments, NGO's and non-profit organisations. This has been prompted by the rising effects associated with climate change, environmental

and ecosystem degradation, natural disasters, potential energy and resource scarcity and the noticeable changes that the planet is undergoing.

A **set of principles** are discussed below, which include views expressed by various authors (Folke, 2002 & 2010; Walker *et al*, 2004, 2006; Janssen *et al*, 2006; Milman, 2008), and websites (ResilientCity.Org¹⁸) and was used during this study, to develop a set of indicators applicable to sustainable regional planning, from a resilience perspective. These will form part of the proposed Sustainability Assessment Framework (discussed in Chapter 5), and can be used to plan and design regions to be more responsive to external shocks. Combining information gathered from different sources, as well as refining the argument to be applicable to the regional planning domain, and more specifically the IDP process, the section below is a review of the resilient cities concept making it germane to the current area of study. The adaptability of systems to these 'shocks and stresses', is core to the argument.

The first principle is '**diversity**'. Regions are complex; there is an assortment of systems operating within and across systems, ranging from (and not limited to) cultural, social, environmental and economic to infrastructural, institutional, political and sectoral. With greater diversity emanates the ability to adapt, prosper and endure through trying times. If one system within a complex system is disturbed, the opportunity arises for another system to stand proxy. Similarly, where a system is reaching a critical state in terms of resource depletion¹⁹, other systems could develop. Diversity can reduce the vulnerability of regions in the event of one system failing. Complexity and systems thinking, transdisciplinarity, and regional innovation all tie in closely to the principle of diversity. As Healey (2007) put it, urban areas are not just containers in which things happen, they are "...a complex mixture of nodes and networks, places and flows, in which multiple relations, activities and values co-exist, intersect, combine, conflict, oppress and generate creative energy" (Healey, 2007). Godschalk (2003) also views diversity as multiple components working together to protect the system against change.

¹⁸ ResilientCity.org is an open, not-for-profit network of urban planners, architects, designers, engineers, and landscape architects whose mission is to develop creative, practical, and implementable planning and design strategies that help increase the capacity for resilience of our communities and cities to the future shocks and stresses associated with climate change, environmental degradation and resource shortages, in the context of global population growth. http://www.resilientcity.org/index.cfm?pagepath=Resilience/Resilient_Design_Principles&id=11900

¹⁹ Such as the coal driven energy resources. Technological advances in renewable energy sources would be a response to the highly resource intensive coal driven sector.

'Fail-safes' is the second principle. If a system fails, or is damaged, fail-safes is the principle to 'take up the slack' of that failed system²⁰. Systems must meet the carrying capacity of a city, but there should also be a back-up system which provides excess (or can access an alternative) in the event of an environmental shock for example. This system would need to only provide the service until such time as the original system can be replaced or repaired.

The third principle is **'component & system autonomy'**. This links closely to that of fail-safes as a system. It should be able to operate at full capacity, but relies on itself in the event of a problem. The components of a system should have sufficient independence to be able to cope with the situation, independent of outside control (Godschalk, 2003; Lebel, 2001).

'Monitoring and response' is the fourth principle. The more quickly a system can detect and respond to changes throughout the system, the greater its potential for effectively coping with these changes, and it will therefore be more resilient. Tight controls need to be imposed to monitor and respond to the impacts of development.

The fifth principle is **'Ability to adapt'**. A regional system is only as efficient, effective and successful as its ability to learn from experience and adapt to change (Godschalk, 2003; Folke *et al*, 2002). The sustainability of a region will be drastically improved by the relative adaptability of the various components within that region.

When change occurs, the resilience of a region to adapt is pertinent to its future growth. Similarly, the rate at which it can recover is just as important. Defined here as **'Rapid Rebound'**, this is the sixth principle developed with which a region can be evaluated. It is the region's capacity to re-establish function and to avoid long term disruption, and its capability to self-organize (Folke *et al*, 2002).

'System integration' is the seventh principle, which is the extent to which natural systems, services and resources have been incorporated and integrated into industrial and technical systems and functions (manufacturing, transportation, communications and construction), to increase the industrial and technical systems' energy efficiency and

²⁰ If an infrastructural system such as a water supply is damaged or even runs dry during unusually dry summer months, then there must be an alternative or fail-safe within the city system as a whole to cater for this compromised system

environmental footprint. Integrating systems is intrinsically connected to an increase in the economic health and vitality of regions.

'Durability', being the eighth principle, refers to a regions ability to be durable through advanced levels of design of critical infrastructure systems. By designing systems that can withstand environmental stress (such as during severe storms, floods, or other weather related events) so that the system can remain sufficiently functional, absorb shock and remain intact if one or more of the constituent parts of the system is compromised, a high level of durability will be evident (Folke *et al*, 2002). Using innovation and technology, as will be discussed in the section to follow, can assist in this.

With the continual rising cost of Peak Oil, the environmental costs and the transportation costs of goods and energy (and services) will increase proportionally. This in turn pushes up the costs of non-local sources to the everyday consumer. The consumption of **'local agricultural yields'** is therefore very important. This concept applies across the board and is applicable to all resources which we consume. Large amounts of energy for example, are lost when transported a far distance. Providing local energy sources such as wind farms will mitigate this. Regional plans can identify land appropriately located for local produce. Resilience will promote and designate land appropriate for food productions as local foods are valued more. Intensive urban agriculture, that is highly labour-intensive, makes a city become more related to its bioregion. City and regional plans defining and allocating land for redevelopment must include intensive urban agriculture as part of the city's and region's projects. This can only be achieved by local and district municipalities facilitating the growth of urban food markets. This is an important aspect of a resilient region which must be included in IDPs and SDFs. The concept of green infrastructure is no longer only the 'left overs' in urban design as has been the case in the past, but is now an active area of interest where designs are being sensitive to the underlying ecology. This green infrastructure holds the potential to facilitate the resilient region. Newman²¹ (2012) sees green infrastructure as having an integrated function in recreational activity, regenerative activity (carbon sinks and biodiversity), and regional agricultural activity.

The set of principles above are approaches that can be incorporated into regional

²¹ The American Society of Landscape Architects held an interview with Peter Newman, Author of Resilient Cities: Responding to Peak Oil and Climate Change; 2012. Available online: <http://www.asla.org/ContentDetail.aspx?id=23940>

planning. They display sustainability characteristics and are concepts that can be integral for Integrated Development Planning. Regional planning can therefore play a pivotal role in developing sustainable cities and the use of IDPs in the context of a resilient cities approach will help achieve this. It must be remembered that there are a number of important aspects to consider. Sustainable Development is not an easy task and there is no quick-fix. Although a resilience approach has been termed ‘a planners dream’ and something that is ‘long overdue’ (Oranje, 2012), the reality is that it will take a combined effort through a ‘process plan’ to achieve it. The future trajectory of regions must also be done through scientific forecasting, model simulation, scenario formulation (Oranje, 2012) and the inclusion of a combined visions and projections based on tangible data. This involves engagement across municipal borders, with active participation of community members at all scales, where nothing is left unquestioned, unexplored or unturned (Oranje, 2012).

4.5.2 Transdisciplinary Approach to Integrated Development Planning

Sustainability is known to deal with a diverse array of complex, cross-cutting, inter-generational societal problems (McGregor, 2004), and in recent times, the notion of a transdisciplinary approach has started to play a pivotal role in the way forward for policy and law makers. The purpose of addressing issues from a transdisciplinary approach is to understand different environments in terms of all of their complexities, as opposed to just focussing on one part of it (Nicolescu, 2002). McGregor (2004) describes transdisciplinary research as *“a new form of learning and problem-solving involving cooperation among different parts of society, including academia, in order to meet the complex challenges of society”*.

Breaking down communication and knowledge barriers through a transdisciplinary approach will allow for greater understanding of South Africa’s social-ecological systems, which will allow for a collective ability to manage them in a more sustainable way. Burns *et al* (2006) agrees with this notion as they state that: *“Policy makers and implementing agencies play a critical role in promoting sustainable development, but are often isolated from essential sources of knowledge necessary to do so prudently and effectively. The*

transdisciplinary approach of sustainability can assist in bridging these divides”.

One example of a transdisciplinary approach is the field of ecological economics which Costanza (1991) describes as “*a transdisciplinary effort to link the natural and social sciences broadly, and especially ecology and economics*”. Costanza (1991) emphasises that the goal of ecological economics is to “*develop a deeper scientific understanding of the complex linkages between human and natural systems, and to use that understanding to develop effective policies that will lead to a world which is ecologically sustainable, has a fair distribution of resources (both between groups and generations of humans and between humans and other species), and efficiently allocates scarce resources including ‘natural’ and ‘social’ capital*”.

Muller (2006; citing Costanza, 2003) states that “ecological economics requires new ‘comprehensive, adaptive, integrative, multi-scale, pluralistic, [and] evolutionary’ approaches, which take note of the vast array of uncertainties involved” (Costanza, 2003). The integrated development process in South Africa deals with an array of cross cutting issues involving many disciplines. Wiek *et al* (2008) put forward an approach to development which they term Transdisciplinary Integrated Planning Synthesis (TIPS). This approach to development is twofold; the first is a process of “mixed scanning” which favours principles of ‘sufficiency and uncertainty over completeness and determinism’. The second approach is one of communicative and collaborative planning, which seeks to balance consensual efforts among various stakeholders and decision-makers. A similar approach is proposed by this study, in the sense that system analysis, scenario construction, multi-attributive assessment, and decisive strategy building is seen as essential for an integrated development approach.

4.5.3 Complexity and Systems Thinking to Inform Integrated Development Planning

A sustainable development agenda displays high levels of vertical, horizontal and lateral connectivity between sectors, stakeholders, timescales, causes and effects. Everything is linked to almost everything else (McEvoy *et al*, 2001). It is not possible to entirely understand how a complex system works, due to the intricacies of the internal and external relationships between numerous components within a system. Almost all planning issues

involve wicked problems embedded in systems that are characterised by fragmentation, uncertainty and complexity (Innes & Booher, 1999). However, trying to understand the relationships between each of these components within a system is the key to understanding, or at least partially understanding, the system as a whole.

If one were to consider the region as a complex system owing to the vast array of components, such as biospheres, natural habits, natural ecosystems, transport networks, urban form, and water systems, then it makes sense to try to understand the relationships between these different components within the system. Only once the relationships and interactions between the components are understood better, can rational and comprehensive plans be compiled and subsequently implemented. The relationships between components are important; understanding each component individually is just as important. Having an understanding of the associated or cumulative impacts that certain actions will have on other components within a system will give insight and increased knowledge of the functioning of the system to help develop mitigation measures in response to these actions.

Cilliers (2000) provides a definition of a complex system, that when put in context with regional planning, is considered very relevant, as he states that: "A complex system has a large amount of components that could by themselves be fairly simple. These components are richly interconnected so that they can interchange energy and/or information". Cilliers (2000) states that: "It is too difficult to deal with complex systems as a whole, so they are divided into separate, less complex components that can be analysed through traditional (mathematical) methods". This thought process has been applied when analysing and critiquing current contents of IDPs from a scientific, transdisciplinary approach.

Trying to understand a complex system by its parts, will provide some information which can be used to analyse the cause and effect of certain activities on individual components and as well as between components. However, looking at a system holistically and the interactions between the parts, might lead to new and even different insights.

Humans' involvement in the system should not be limited to only knowledge or comprehension, but rather aim at an understanding of the system. Morin (1999: 50) states that: "Human understanding is beyond explanation. Explanation is adequate for objective or intellectual comprehension of anonymous or material things. It is inadequate for human

understanding". Furthermore, complexity thinking will also assist in establishing mechanisms to counteract poor decisions.

In order to develop a comprehensive, all-inclusive, sustainable IDP, it is evident that these different approach-based domains must cooperatively work together to investigate and create an understanding of how the different components of the world work together, namely the physical, living, social or economic systems (Van Kooten Niekerk & Buhl, 2004).

4.5.4 Regional Innovation Systems for Sustainability

Swilling (2007: 3) argues that it is not capital investment and GDP per capita *per se* that matters most when it comes to durable growth, development and effective poverty eradication, but rather institutional quality, social learning/knowledge, innovation and capabilities for development are more essential than capital growth. As we move further into the 'technology age', novel and improved methods of development, communication and innovation are becoming available. This poses the opportunity for these systems to be used to help city and regional planners to predict and design the future patterns of city and regional growth in a more sustainable way through innovative growth models focused on social and environmental sustainability. This can be done more effectively through computer modelling, geographical information systems, shaping of virtuous innovation trajectories and mapping of the new economic geography. Policies and plans, such as Integrated Development Plans, have an important role to play in promoting innovation from a regional perspective. All regions can improve their capacity to adapt knowledge for their region's innovation needs, and these include fields such as regional development, science, technology and innovation, enterprise, and higher education, which could boost clusters and regional innovation systems. This in turn will promote economic development and as Seppänen (2008) motivates, 'innovation has become an important determinant of the competitiveness and success of firms, regions and nations'. The SDFs which are required in terms of the IDP process have the potential to be used as a mechanism to cluster developmental and technological nodes.

Literature around regional innovation systems has highlighted science and technology,

industrial clusters, higher education and knowledge transfer (see Asheim & Isaksen, 2002; Cooke and Memedovic, 2006) as main areas of policy focus. Cluster-building policies are becoming the new approach to development; since regional and local innovation systems are built on clusters. The new-economic centres are testament to this shift in planning and policy development. As Swilling (2007) confirms, Information and Communications Technology (ICT) are the 'means for producing new innovations that can massively reduce the energy and material content of production and consumption systems'. So too can these ICT centres be used to inform and assist with settlement design across a region.

Innovation systems literature suggests innovation as an interactive and evolutionary process (Seppänen, 2008; Asheim *et al*, 2002). Regions are seen as complex systems, and similarly, innovation can be considered a complex process (Cooke, 2006). A system of innovation is established by components interacting during the creation, dispersal and use of knowledge (Lundvall 1992: 2).

Although institutional structures which facilitate innovation include many elements, the focus should be on governance structure and its autonomy including public and private administrative set-up. This is important for the development of trustful relationships, and the generation of knowledge is seen as central to the sustainable agenda. As Cooke *et al* (1997) describes, "*knowledge generation and diffusion include four types of institutions, namely, public research institutions, education and skill-development institutions, workforce mediating institutions, and technology mediating institutions or other intermediary organisations*". It is evident that knowledge transfer is a fundamental role of innovation systems and the associative organisations form the regional learning system that is a part of the regional innovation system (Cooke *et al* 1997). Furthermore, sustainable development can be promoted through competitiveness, as the more competition is linked to innovation, the further progress will be achieved.

Innovative systems can be used to enhance the effectiveness, efficiency and safety of systems. Innovation lies at the heart of any green economy strategy. This requires systems and institutions that support, promote and stimulate innovation and knowledge²². The notion to improve the overall sustainability of cities lies in its ability to use its technical and industrial systems in an effective, competent and safe way. Cities need to reduce their

²²Western Cape Green Economy Strategy Framework (2013)

reliance on fossil fuels by developing industrial processes and technical systems to reduce negative environmental impacts. This will result in a reduction of harmful wastes and by-products.

The sustainability of towns, cities and the region as a whole, in terms of health and integrity, can be regarded as an outcome of regional innovation systems. This will lead to better economic performance and help create healthy neighbourhoods with minimal negative impacts on the natural environment.

Technology is the critical link between energy services and access, affordability and Environmental compatibility. But energy planners must think of technology as more than power plants, motor vehicles and appliances. They must consider infrastructure such as buildings, settlement patterns, road and transportation systems, and industrial plants and equipment. Technology choices are also linked to laws and regulations that reflect national capabilities, social preferences and cultural backgrounds (IAEA, date unknown).²³

Collaboration between businesses, tertiary institutions, government, NGOs and community groups alongside an ability to adapt knowledge to meet the regions' needs, lie at the heart of a regional innovation system. Opportunities exist to strengthen the Western Cape's innovation systems and to provide incentives to attract and retain innovators in the local economy.

4.6 Domain-based Categories and Indicators for promoting sustainability

Section 2.1 demonstrated the necessity to approach sustainability from five (5) different pillars of sustainability, namely, Environmental, Social, Economic, Built Environment and Technology, and Institutional. Each of these categories has certain rudiments that have emerged from the study, which are essential to achieving sustainable regional planning. These have been classified as Indicators. The section below proposes these domain-based categories and their associated indicators, as elements from which the 'Core

²³<http://www.iaea.org/OurWork/ST/NE/Pess/assets/IEPSD%20Brochure%20WEB.pdf>

Sustainability Considerations' (CSC) in the proposed Sustainability Assessment Framework will be derived.

4.6.1 Domain-based Category: Environmental Sustainability

4.6.1.1 Indicator: Regional Resource Planning

The Western Cape is in the very fortunate position of having a variety of renewable energy resources, biomass, wind as well as solar sources available and to date, these have remained largely unexploited (DEAP&P, 2013d). According to DME (2003) there are many sources of non-depletable energy resources, which can be used to produce a variety of energy types. DME has developed a programme linked directly to the generation of renewable energy, which is known as the Renewable Energy Independent Power Producer Procurement Programme. This programme encourages private sector businesses²⁴ (power producers) to bid for certain renewable energy projects in order to generate a portion of the national target for renewable energy as stated in the Integrated Electricity Resource Plan (IERP) for South Africa 2010 to 2030 (RSA, 2010b). This programme is aimed at stimulating the local renewable energy industry and promoting sustainable development and growth. Swilling (2007) has raised the point that ecological economists have convincingly demonstrated that the on-going unsustainable use of resources will continue to undermine growth at all scales and the livelihoods of poor communities if nothing is done to change the current patterns of resource use. The IERP is therefore testament that Swilling's concerns have in fact been raised in plans and policies in an attempt stimulate local renewable energy growth. However, planning for renewable energy is not yet found in most IDPs.

Energy is crucial for almost all human activities and, indeed, critical to social and economic development²⁵. The production and consumption of energy is directly related to the overall sustainability level of a city. Sustainable energy planning will improve the resilience of cities to external shocks, firstly through improved diversity in supply; secondly, through a better balance between local production and imported energy, and lastly, through

²⁴This is done independently of the parastatal Eskom

²⁵<http://www.iaea.org/OurWork/ST/NE/Pess/assets/IEPSD%20Brochure%20WEB.pdf>

participation in regional networks²⁶.

4.6.1.2 Indicator: Growth Management and Land-Use Planning

The Western Cape has vast expanses of agricultural land, yet the majority of people are found within the urban areas (DEA&DP, 2013e). Western Cape governmental spheres must encourage economic development and redress the spatial inequalities of the past while still protecting present scarce agricultural land. The Western Cape is said to have nearly 20% of its land under agriculture and produces between 55% and 60% of South Africa's agricultural exports (StatsSA, 2007).

According to the DEA&DP (2013f), land within the Western Cape has been categorised into different groupings according to their 'Land Capabilities'. The figures and maps provided in this report, however, have not been updated since 2005. This is disconcerting as these provide valuable statistical information to determine what the best utilisation of the land would be in order to sustainably use resources without compromising their quality. Geographical Information Systems provide a means to rectify this. A Plan-led approach, with an associated Spatial Development Framework, could be an invaluable tool when it comes to mapping the envisaged development of the region. The lack of updated land cover information is therefore one of the key challenges facing sustainable development in the Western Cape. Koomen *et al*, (2008) have identified the use of simulations as important elements for the development of spatial plans and strategies. Government and regional authorities have an important, and somewhat unexplored, function when it comes to land-use simulations on a regional scale. These simulations can be used to contribute to policy formulation and are viewed as essential elements when developing land-use models. It involves knowledge transfer from academic research to actual planning practice (Koomen *et al*, 2008). Koomen *et al* (2008) argues further that land-use simulation can help solve two key questions related to regional planning. The first being what regional spatial development can be expected in the future and the other related to the role that regional policy can play in directing such development.

²⁶<http://www.iaea.org/OurWork/ST/NE/Pess/assets/IEPSD%20Brochure%20WEB.pdf>

4.6.1.3 Indicator: Water Planning

Over the last decade and a half the municipal sector has lost six-sevenths of its engineers and technicians, rendering most outlying municipalities impotent to deliver even the most rudimentary services (Herold, 2009, p1; as cited in DEA&DP, 2013d). Many production activities are reliant on water resources, and a secure and safe water supply, and for this reason the protection of water resources is an integral part of any economy. In a country which is semi-arid, and a burgeoning economy, the possibility of running out of water by 2020 is a great cause for concern. There are large numbers of people across South Africa who still experience high levels of poverty and therefore increase in economic development still needs to occur even in the midst of this water scarcity. It is the responsibility of all Local Authorities to compile Water Services Development Plans (WSDPs) which task each municipality to provide projections, strategies and targets to Water Service Providers as well as the Department of Water Affairs. The National Water Resources Strategy (NWRS) is opportunistically due every 5 years, and with its first edition in 2004, the Department of Water Affairs was expected to roll out its new plan in 2009. However towards the end of 2010, the plan was yet to be seen. It was only on 26 June 2013 that the final draft of the NWRS2 was approved by Cabinet.

The serious failures with integration clearly demonstrate that this is not merely an administrative chore, but it is essential to the well-being of our country. The NWRS has the responsibility to set out key water challenges and then identify and highlight applicable responses thereto, which the local and district municipalities can incorporate into their IDPs so that an integrated approach can be proposed. In return, the local authorities should inform the NWRS through their Water Services Development Plans.

“In the face of increasing water scarcity, the unquestioned matching of escalating demands could become unsustainable, or at least very expensive to achieve when increasingly distant resources have to be tapped. Under such circumstances the DWA needs to point out the economic and practical implications and may suggest the need for Water Conservation (WC) and Water Demand Management (WDM) measures. A healthy feedback between the DWA and Local Authorities should ensue, leading to the adoption of a viable and efficient plan”. (Herold, 2009; as cited in DEA&DP, 2013d)

The problem lies therein that there is no guarantee that the local authorities and Water Boards can in fact communicate the needs emanating from the local contexts and highlight the actual needs on the ground. It is questioned whether they have the insight to determine the critical issues at play and where these WSDPs are being prepared. As the gap between water supply and demand increases, it becomes evident that it can be attributed to the failure of the local authorities to meet the targets emphasized in the Water Demand Management and Water Conservation fields.

Water availability plays an important role in regional differences in land use in the Western Cape. The realities of water deficits in parts of provinces and the impacts of climate change, necessitates guidelines across all spheres of government to align land use with water resources, both in terms of water resource utilization (e.g. agriculture, rural industry) and water resource protection. Thus, in preparing regional and district plans and administering applications for spatial change, close collaboration is required between provincial and local government and the Department of Water Affairs and Forestry.

Water is not the only issue hindering the sustainability agenda, so too is education and the policies and strategies associated therewith. In order to address the water issues, we need competent and qualified engineers and technicians that are capable of developing equitable solutions to the issues we face as a country in general.

The Strategic Framework on Water for Sustainable Growth and Development Summary Discussion Document (RSA, 2008) highlights the opportunities water offers to enable growth and development, through adaptive management, innovation and appropriate technology. Addressing water challenges through technical innovation and appropriate technology is encouraged, across all spatial scales. It also highlights the need to develop relationships between government, business and civil society due to the important interactions of energy, water and wastes. Of relevance to this study, it proposes that more sophisticated responses by the sectors with multi-disciplinary expertise must be undertaken, which encourages adoption of new approaches. The IDP as a transdisciplinary, innovative and holistic approach to development and can be considered as one means to enable this new approach to development. Furthermore, the document considers adaptive and innovative approaches to development as important. These require valuable data and information for the effective monitoring of the state of the country's water resources, water use, water infrastructure and institutional performance.

This requires appropriate institutional arrangements to share information and act on the outcome of monitoring and evaluation processes.

Rebuilding partnerships between water providers and citizens as well as capacity / skills development are two areas of focus in the document. It deals with promoting mechanisms to enhance civic engagement as building capacity through the sector training and education authorities has been disappointing.

4.6.1.4 Indicator: Mineral Resources Planning

The scope of sustainable development challenges is endless and the developmental needs of different sectors are often not brought into the process of integrated development planning. Considering the contribution that the mining sector has, and will have in the future, to the socio-economic and environmental wellbeing of the country, the operational issues and constraints need to be addressed (DME, 2007). The Department of Minerals and Energy have given an example of where sustainable development practices have been lacking and this has to do with the sustainable closure of mines. A comprehensive and appropriate Sustainable Development Strategy which could provide guidance in this regard has been largely absent in the country (DME, 2007). The associated impact from an environmental perspective can be highly destructive through the pollution and contamination of underground water sources, as can be seen in the acid mine drainage and sinkhole problems presently experienced in South Africa.

Not only are comprehensive strategy plans important for protecting the environment, so too are they important when dealing with social and labour aspects. The Mineral and Petroleum Resource Development Act (Act 28 of 2002) specifically states that the social and labour plans must fall in line with the municipal IDP, SDF and LED Plans, amongst others. This Act along with many other pieces of legislation applicable to different sectors promotes integration and alignment of plans. The Integrated Development Plan should be the arena where all these plans are brought together. It has the spatial (SDF) and well as theoretical (IDP document) aspects with which a unified approach can be sought. Furthermore, it is a legislative requirement which has been implemented through state intervention which can bring together strong policies aimed at processing minerals to

ensure minimal consumption in industry, transport networks and public and private commercial dwellings (Pons-Vignon, 2011)

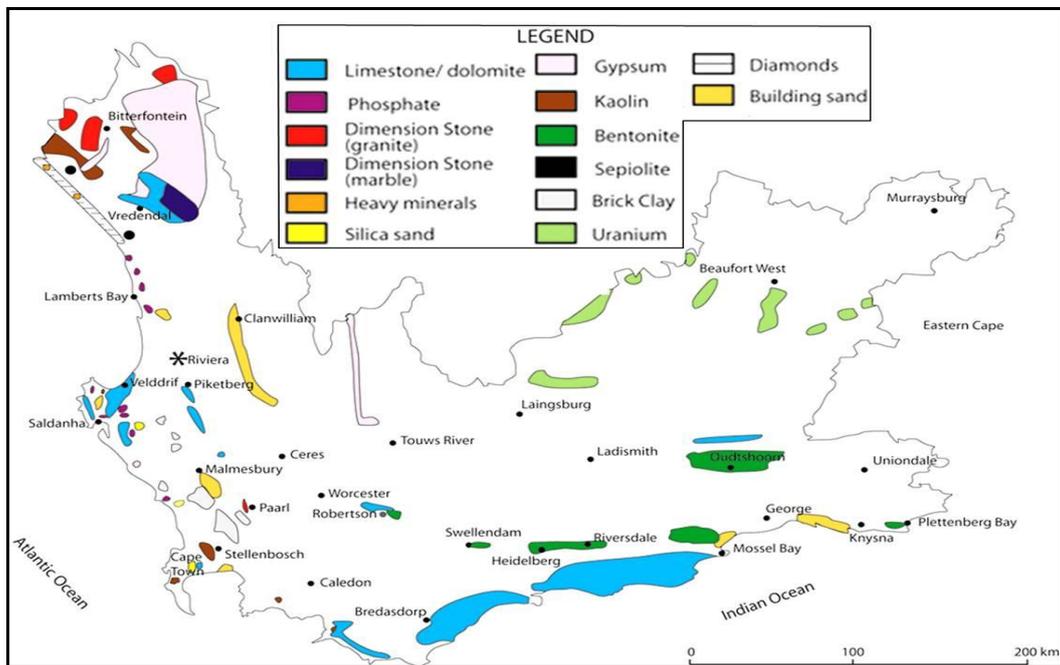


Figure 12: Location of mineral resources in the Western Cape (Source: DEA&DP, 2013)

South Africa is said to be one of the richest countries in terms of its mineral resources and even after many years of mining activity it remains one of the most geologically and mineral rich regions in the world (DME, 2007). This being the case, Legassick (date unknown) explains that increase of manufacturing exports is necessary to upgrade the economy from being a mere dependent raw materials (agricultural and mineral) exporter. Increased manufacturing is therefore central to job creation and which is one yardstick in meeting sustainable development objectives.

4.6.1.5 Indicator: Biosphere and Biodiversity Planning

South Africa is a country with massive biodiversity (Crane, 2006). Conservation and an integrated approach are necessary in order to maintain this biodiversity so that human activity will not lead to its destruction. The overarching legislation promoting biodiversity in South Africa is the Biodiversity Act of 2004. In terms of Chapter 3 of this Act, a National Biodiversity Framework is called for, and any Environmental Management Plans,

Environmental Implementation Plans, Integrated Development Plans, Spatial Development Plans or any other plans prepared in terms of national or provincial legislation²⁷ may not be in conflict with it.

The incorporation of biodiversity objectives into IDPs is to promote an integrative approach to sustainable development. It appears that the smaller municipalities which lack capacity, display low levels of biodiversity inclusion. It is only some of the better capacitated and resourced municipalities (such as the metropolitan areas) that have completed 'State of the Environment Reports' and employ conservation officers, who display better signs of integration. The City of Cape Town has developed a Biodiversity Strategy, but admits that implementation is a challenge²⁸.

It is appropriate then, that EIPs/EMPs and IDPs must be aligned with this Framework. In almost all sectors, planning systems form an essential component as it is through this system that different 'land-use areas' are identified which dictate what happens and where, in order to ensure an effective land use system that meets each sector's needs, without compromising the needs of the environment (King *et al*, 2005; as cited in DEAT, 2006)²⁹.

Inter-species equity and the associated importance of biodiversity has been put forward by Houghton (1999; as cited in Hopwood *et al*, 2005) as one of the (five) principles of sustainable development. Planning to include biodiversity is core to achieving sustainable development owing to the link between human equity and the environment. As with almost all planning issues currently faced, redressing the previously segregated and fragmented spatial form while still maintaining the integrity of the environment seems to be problematic. Under the Constitutional obligations, the current government must safeguard environmental assets and undertake land reform which will benefit the previously dispossessed. Consequently, there is a continuous challenge of reconciling complex and often conflicting relationships between poverty, inequitable access to resources, and the protection of biodiversity (Crane, 2006). South Africa's legislative and policy frameworks do incorporate, include and entrench the concept of sustainable development; however, according to Crane (2006), the socioeconomic issues tend to override the calls for

²⁷ See South Africa's National Biodiversity Strategy and Action Plan - draft 2 for discussion July 2004

²⁸ See South Africa's National Biodiversity Strategy and Action Plan - draft 2 for discussion July 2004

²⁹ Background Research Paper produced for the South Africa Environment Outlook report on behalf of the Department of Environmental Affairs and Tourism

biodiversity conservation. Creating a balance between poverty alleviation and economic development against environmental protection is thus a challenge for the planning profession.

According to the Department of Environmental Affairs and Tourism (2008), tools have been developed for mainstreaming biodiversity. This has been attempted on privately owned land through the establishment of stewardship programmes. More recently, there have been government incentives to implement fiscal incentives to support conservation on private land (DEAT, 2008).

The large majority of biodiversity loss can be attributed to human intervention and the change in use of land owing to increased human activity (DEA&DP, 2013b:28; Crane, 2006). There is a large expanse of coastline in the Western Cape which has in recent times become vulnerable to rapid coastal development³⁰. The development of human settlements and the provision of associated infrastructure and services are highly detrimental to ecologically sensitive habitats, and if adequate planning measures are not put in place, the impact on critical resources could lead to the destructions of valuable biodiversity areas.

Biodiversity is a critical resource for many communities in the Western Cape and sustains local economies and livelihoods (DEAD&P, 2013b: 28). Rural and natural areas are under increased pressures as urban development expands beyond the present built environment. Ecosystems play a fundamental role with regard to counteracting the impacts of climate change and are seen as systems that prevent erosion and provide clean air and water, flood actuation and the storage of carbon. Many of the poorer communities are the ones directly affected by the impact on ecosystems, as their neighbourhoods are not equipped in terms of infrastructure and services to cope with natural disasters, flooding and so forth and are therefore highly vulnerable to change. The importance of biodiversity and the conservation of ecosystems cannot be stressed enough, and the National Spatial Biodiversity Assessment sums this up well by stating that “our path towards poverty reduction and enhancement of human well-being is dependent of how effectively we conserve biodiversity” (Driver *et al* 2005; as cited by DEAD&P, 2013b). This principle is of crucial importance to attaining sustainable regional development. The inclusion of urban

³⁰The Betty's Bay coastal development is one example of very poor planning.

edges in spatial frameworks is a means adopted by local authorities to restrict the expansion of urban development into critically endangered biodiversity areas.

4.6.2 Domain-based Category: Social Sustainability

4.6.2.1 Indicator: Regional Social Planning

With the increased technological advances and the ease with which social networks and organisations are currently formed, social capital is one of the concepts which is believed to be able to build social cohesion (Thomas, 2002). Thomas discussed the views of Jane Jacob (1961) who was instrumental in introducing the concept of social capital in 1961. Thomas quotes Jacobs's (1961) definition of social capital as "that intricate web of human relationships built up over time – that provides mutual support in time of need, ensures the safety of the streets, and fosters a sense of civic responsibility." Of relevance to this study, Jacobs (1961) views diversity on the district level as important in maintaining social capital so that people can remain in their local area even as their housing needs, jobs, and lifestyles may change. The district IDPs can play an important role in cementing social justice across a region by installing a sense of trust, through a cohesive planning and participatory process. Yet this alone is not enough. Social capital relates to how the communities and public organisations interact and develop relationships with local governments to promote civic engagement. To claim responsibility of the development of their regions, communities and civic organisations must be mutually inclusive in the process. Putnam (1995: 67, as cited in Bayat, 2005) believes that at the core of social capital is the idea that there are "features of social organization such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit". Thomas (2002) sees social capital as a useful umbrella under which to group all the so-called "soft aspects" related to hard development outcomes. It is the mechanism with which to provide an enabling environment where all members of the community are provided equal access to opportunities and resources. Organisations that assist in producing social capital are considered, according to Thomas (2002), as valuable in informal settlement development initiatives and could include building trust, leadership, capacity to engage with government institutions, commitment to working together and meeting local expectations in a sustainable way. It also entails the creation of better bonds and ties in social activities.

Building social capital into the Integrated Development Plans has not been well documented. Community development and the role of education in facilitating social capital have the potential to create integrated opportunities (Roseland, 2000). The development of partnerships, social capital and creating a standpoint for the poor and previously disadvantaged is thus essential.

Sustainable human settlements are more commonly being designed on issues relating to the social value of land and indigenous knowledge and are giving human rights and ethics far more significance than previously. Giving communities a voice and promoting high levels of inclusive participation through capacity building has an instrumental role to play when trying to alleviate poverty. The use of innovative approaches to development is proving valuable. Trans- and multi-disciplinary planning approaches address a variety of cross-cutting issues through advocacy planning, policies, law and development strategies. It is because of the complex, disordered and consequential interactions occurring across sectors.

Notwithstanding the above, there still remains a huge driving force, more so by the private developers, towards segregated landscapes through gated communities, social exclusions, higher end target markets, fortress looking exteriors, private streets and even private police or security companies. The need to curb this approach to protect the rural environment is highly important and the spatial development frameworks forming part of the IDP process can be used as a tool to achieve this.

4.6.2.2 Indicator: Building out Human Rights

The relationship of rights to sustainability is equivocal (Conway *et al*, 2002). According to Conway *et al* (2002) rooting policy in universal basic rights may be the most appropriate means with which to refocus government priorities towards the poor. Literature suggests that basic human rights are linked to basic needs, and eradicating extreme inequalities strengthens social rights and will support social and political stability (Conway *et al*, 2002; Moser *et al*, 2001; Harvey, 2008).

The Constitution of the Republic of South Africa (RSA, 1996) was the first legislation in South Africa to include a Bill of Rights, which gives many rights to the citizens, however

the 'right to the city' as Harvey (2008) explains, where people have the freedom to design, construct and manage cities, is arguably one of the most neglected human rights. According to Moser *et al* (2001) "...the concepts of livelihoods and sustainable development both require a stronger analysis of power relations, institutions and politics if they are to provide a useful basis for a holistic understanding of development processes". Interestingly, up to now, human rights have not featured much in IDPs (Muller, 2006 & 2009).

4.6.3 Domain-based Category: Economic Sustainability

In terms of macroeconomic development, government must spend its budget in areas where appropriate levels of private investment can be induced (Engel-Yan *et al*, 2005). Similarly, local and regional planning must promote urban development through public investments which should be geared towards attracting private development. The private developer in turn will be responsible for a large portion of the financing, and the public-private partnerships for urban development need to be maintained and strengthened, whether it's for the formal or informal sectors (Engel-Yan *et al*, 2005).

Economic development is intrinsically related to spatial economics, as the spatial pattern of the economy has many influences. Locating businesses with similar interests can lead to competitiveness, information flows, knowledge transfer and improved knowledge base. Mapping the spatial economy and economic geography of regional clusters must tie in with district economic development strategies. Cross-sectoral collaboration is needed so that local and regional economic networks can be established. Spatial planning elements such as corridors, nodes and nodal development is a means with which to create these regional networks.

The informal sector is one which can provide much needed employment as well as income for developing countries, in the context of a formal economy that is not creating the jobs needed. Informal markets are very prevalent in the urban context, many of which are located around modal interchanges and along pedestrian routes. The existing location of these sites, as any land use, is key to their success. It seems as if the government does not understand the realities of this sector and that government is in fact, disallowing

informality (Charman, 2012). A sustainable and socially just IDP will therefore make sure that adequate provision is made for informal markets in well located sites.

4.6.4. Domain-based category: Built Environment and Technology Sustainability

4.6.4.1 Indicator: Regional Infrastructure Planning

Planning can be seen as the overarching process that incorporates a variety of sectors and which has the pivotal role of integrating these different systems. The multifaceted nature of sustainable development requires a holistic perspective to be taken and by addressing sustainability on a regional scale, infrastructure planning must be defined in a broad manner. Engel-Yan *et al* (2005) quote Hudson *et al* (1997) as an example for defining infrastructure, who sees it as "... combined facilities that provide essential public services of transportation, utilities (water, gas, electric), energy, telecommunications, waste disposal, park lands, sports and recreational and housing". It can be argued, however, that it is not necessarily addressed in a combined manner as infrastructure is more often than not designed by individual specialists, such as sewerage, transportation, water distribution etc. (Engel-Yan *et al*, 2005). The important thing to note is that, as Engel-Yan *et al* (2005) describe, "...such specialists may lack an understanding of how all the infrastructure systems interact as a whole". It is for this reason that an integrated system is required where all different sectors can together inform, as well as be informed by, other sectors through a transdisciplinary approach. Interactions of local systems with those systems which form part of the greater urban region are important for a sustainable development approach.

4.6.4.2 Indicator: Green Infrastructure

Green infrastructure within the regional domain is not often addressed. However, as settlements grow and new settlements emerge, this new arena needs to be considered. We need to take greening into account beyond just buildings and infrastructure (Cross, 2000). The urban form of metropolitan areas, regions and districts must be reconfigured in

ways to promote social wellbeing and cohesion. Locating people closer to opportunities and reducing distances between places of living and working, through integrated infrastructure, services and housing, will also improve overall sustainability levels. Transportation needs to be sustainably orientated by developing functional public transport systems (Engel-Yan, 2005). Furthermore, 'infrastructure-led growth' can be seen as a driver of growth and employment in the regional domain. District municipalities must therefore include extensive infrastructure plans and frameworks to align the planning, delivery and management of infrastructure. There needs to be buy-in by all stakeholders towards this new green infrastructure movement. Investment strategies must be aligned with 'green' orientated development. Infrastructure greening and resilience to climate change and resource constraints are important elements of these frameworks (Kirchhoff *et al*, 2011). Natural habitats, biospheres and ecosystems are put under immense pressures and a coordinated and integrated approach need to be addressed as part of this green infrastructure network, that is crucial to supporting the economy. Policies and strategies that promote green industries for innovative solutions are important (Newman, 2012; Kirchhoff *et al*, 2011).

4.6.4.3 Indicator: Waste Management

Waste management is a very important aspect of regional planning. As landfill sites are put under pressure and space is running out, the need for reusing and recycling on a district scale is important. New systems to reduce wastes must be explored and promoting the concept of wastes to energy is essential. Waste Management Plans are important elements of IDPs and regional planning, as there are unfulfilled challenges in the sustainable management of waste. New innovative systems to facilitate the improved management of waste by providing timely, reliable information to relevant role-players, are needed. Strategic waste management issues must therefore be addressed on a district and regional level. The use of Environmental Impact Assessments, as well as other Integrated Environmental Management tools, are mechanisms that can be used to explore systems to reduce wastes.

4.6.4.4 Indicator: Transport Planning

Transportation will remain heavily dependent on liquid fuels unless significant shifts in modal choice can be achieved to allow for more electricity driven public transport and non-motorised transport (DEAD&P, 2013d). Transportation is highly intensive in terms of energy usage and this energy consumption occurs in two ways. As goods and people being moved from one place to another is the first obvious driver of consumption, and secondly, as transport networks expand, so too will the energy intensity of human activity. The relative energy intensity of the different modes differs, and therefore also the relative impact of shifts in modal choice (DEAD&P, 2013d). The transport sector is the largest consumer of energy in the province, at 52% (DEAD&P 2013d).

Furthermore, as development occurs towards the outskirts of cities, the number of trips and the distances to be travelled increase proportionally. In planning terms it is referred to as urban sprawl. An increased reliance on transportation is evident and this, together with the greater distances, results in higher exhaust emission and deteriorating air quality. The resultant urban sprawl can lead to a loss of habitats and biodiversity and a degradation of sensitive environmental features. The urban edge is a means to limit the outward expansion of urban areas.

It is interesting to note that rail transportation 'hardly features in the otherwise quite thorough, local government-based arrangements for transport planning in the country, including Integrated Development Plans (IDPs), Spatial Development Plans (SDPs), Integrated Transport Plans (ITPs) and Public Transport Registers' (DEAD&P, 2013d).

The rising costs of transportation call for the need to reduce distances that foods and goods need to be transported. The inclusion of urban agriculture within spatial development frameworks appears to be very low with a tendency for there to be a rural bias (Swilling, 2007). The promotion of urban agriculture will reduce the cost of food in cities because, as Swilling (2007) explains, current costs are high owing to cold-storage and high cost chemically-dependent large-scale commercial farming. The functioning of individual neighbourhoods and suburbs is directly linked to their proximity to transit stations or stops and the extent and quality of regional networks (Engel-Yan *et al*, 2005). The design and layout of regional transportations routes and their associated modal choices play a huge role in the functioning of the city and region. Transportation networks

affect the costs of foods, employment opportunities for the poor, integration of the region and the general movement of people, which all significantly contribute to increased pressures on the environment.

Transportation routes and modes play a vital role towards creating sustainable human settlements. They are pivotal in integrating settlements within the greater city and regional perspective. As Dewar (2009) explains, greater prosperity and growth is fostered when settlements are more accessible to larger hinterlands. Regional transportation routes are highly important infrastructural networks that provide greater accessibility to places located close to regionally significant routes than those further away (Dewar, 2009). The building blocks of a region are said to be public transportation lines and investment in built infrastructure (Dewar, 2009), which are used to create accessibility frameworks and thereby improve human prosperity. Through building these accessibility frameworks, a spatial system of accessibility is created, which ultimately distributes opportunities more equally.

4.6.5 Domain-based Category: Institutional Sustainability

4.6.5.1 Indicator: Adaptive governance

In order to promote institutional sustainability, government needs to be able to manage and protect scarce resources. It therefore requires adequate capacity and capability, and institutions, to provide the leadership and support needed (Resilient City.org, 2013a & 2013b).

New approaches to sustainable development and sustainability, bring with them adaptive procedural and organisational management approaches. The notion of adaptability can be seen as inseparably close to that of the concept of transition. With the complex web of actors and relationships spanning over diverse systems, recent focus has been on transition management which has been broadly referred to as the deployment of multiple methods and tools (a) for intervention, with appropriate processes of resilient governance, across multi-sectoral and multi-level dimensions involving diverse (multi)actors and knowledge, and (b) for explicit recognition of the uncertainties and limitations of science-based expertise (Shove and Walker, 2007). Transition management is therefore a process

by which intervention is seen as a means to attain a certain goal, such as sustainability, which is possible and potentially effective (Shove and Walker, 2007). When existing scenarios are factored in and it is determined that existing systems are weak or unsustainable, transformability is the capacity of the governance structures (governance structure and its autonomy including public and private administrative set-up) to fundamentally create new systems to deal with the situation (Walker *et al* 2004:5). Governance structures must therefore be sufficiently attentive to identify when complex systems and embedded systems might require a nudge or push in a specific direction to change its trajectory to reach a goal. Sustainability is now being seen as that goal and resilient governance is the approach needed to achieve that goal.

Although there is increasing literature on the roles that transition management can play, certain authors (See Shove and Walker, 2007) caution on the impact and effects of shifting technologies, practices and social arrangements with the attempt of altering the sustainable trajectory. However, having said this, transition management sees a variety of different opinions and ideas of what it entails. Resilience and resilient governance including transition management, transdisciplinary approach, complexity and systems thinking and regional innovation systems have been identified through this study as possible approaches to sustainable development. They share common characteristics as they are holistic, cross-cutting and dynamic mechanisms which are showing their value to promote sustainability.

Governance needs to be democratic and participatory and enjoy the support of the public. The study has shown that the tools to be used to promote resilience include planning and development control.

4.6.5.2 Indicator: A 'plan-led' approach and relevant planning tools

"Whether in education or any other structural economic weakness, policy and legislation is not the problem - we have good plans that never get adequately implemented³¹." (from Trevor Manuel's speech during a panel discussion on the National Development Plan hosted by the UNISA Graduate School of Business Leadership and CNBC Africa in June

³¹ Available at <http://www.timeslive.co.za/thetimes/2013/06/24/r500bn-on-ndp-table>

2013). The implementation of our plans and policies has often been criticized; with less disparagement on the actual content of these documents. Having said that, it might be however that the content of plans could be linked to the reason why the plans are not implemented. This is still an ongoing debate. Notwithstanding this, and in the context of planning, it is imperative that any plan is a shared, all inclusive plan which will promote and foster sustainable economic development and growth yet still protect the physical and social environments. It is especially important to remember, however, the fact that the implementation of plans is mostly done by the private sector (except for infrastructure provided by the public sector) and therefore institutions are needed to put the mechanisms in place to foster sustainability.

In South Africa, the National Spatial Development Perspective (RSA, 2006) identifies areas of economic growth potential as places where poverty alleviation and shared sustainable development can converge. Policies, National and Provincial Spatial Development Frameworks, Integrated Development Frameworks and Spatial Development Plans provide relevant insights with regard to economic geography.

The need to embark upon an initiative to develop a Sustainable Regional Plan that contains the proposed regional development for the entire district that will help realize the districts' full potential in terms of inclusive economic growth, infrastructure development, tourism and protection of natural resources should be high on the agenda of all municipalities, districts, provincial and national spheres of government. A collaborative planning model is required where partnerships between citizens, stakeholders and government departments alike are strengthened and nurtured to create modality of a coordinated effort for integrated development.

4.6.5.3 Indicator: Strategic and Flexible Development Control

The current form of practice puts the onus and responsibility on a developer or applicant to prepare studies when putting forward a development proposal. These include, for example, studies to identify sensitive areas with environmental value, areas which have heritage status and / or resources which need to be preserved. Identifying and mapping the environmental and heritage resources across a region, through a plan-led approach,

must be the responsibility of government and not the private developer. Government's roles and responsibility should be more closely linked and focused on policy development and on providing guidance in terms of spatial representation as opposed to regulatory control and all the cumbersome processes associated therewith.

With rapid growth and technological advances, new green industries, innovative solutions, alternative energies and lifestyles, zoning controls need to be flexible to cater for this new era of development. Where land use segregation is necessary, this is, in the view of some, best done by policy. Policies should be flexible to allow people freedom of choice about where to live and work. Also, it is easier to change policies and keep up to date than to change zoning regulations if needs be (Grant, 2012). It must be noted however, that the other side of the coin is the view that land use management through "policies" that are "flexible" and "easier to change", disregards the crucial importance of the *playing-field* principle. This principle acknowledges the need for level playing-fields, namely certainty for the public about land-use rights, especially in their surroundings and also to protect the environment, and furthermore also highlights the undesirability of land-use rights being able to be changed lightly at the whim of authorities or, worse still, officials.

4.7 Summary

This chapter gave an overview of how sustainability can be brought into assessment frameworks (AFs). An overview was given of the history of AFs for integrated development plans. Assessment frameworks that are presently being used to assess IDPs were then explored and found wanting in terms of sustainability principles. A number of sustainability indicators, flowing from the literature, were then recommended and the Chapter to follow will explain how a scoring system can be used to rate IDPs.

CHAPTER 5: PROPOSED SUSTAINABILITY ASSESSMENT FRAMEWORK FOR METROPOLITAN AND DISTRICT IDPs

5.1 Introduction

According to Todes (2007) almost all of the questions around regional planning and development are linked to the spatial economy³² and more importantly, spatial equity³³. The South African government is now tasked with the responsibility to redress the socio-economic and spatially segregated landscapes resulting from development policies and practices of South Africa's past (Makoni *et al*, 2007). As motivated in Chapter 2 of this study, metropolitan and district Integrated Development Plans are mechanisms that South Africa can use to redress these spatial inequalities of the past. This chapter proposes a Sustainability Assessment that can assist metropolitan and district municipalities in the quest to create equitable and sustainable regions.

The purpose of this chapter is therefore to set out and motivate the proposed SAF and explain the rationale behind the development thereof. It also provides clarity on how the domain-based categories and indicators referred to in Chapter 4 are incorporated into an assessment framework, as well as the logic behind the construction of the evaluation framework and scorecard. The proposed combination framework and indicators depict and explain the relationship between the domain-based categories, the approach-based categories and the associated indicators. It is the basis from which the proposed SAF is developed. The result is a comprehensive Sustainability Assessment Framework that is linked to a scorecard and rating system.

5.2 Overview

The level of sustainability of an IDP document stems from various aspects contributing to meeting the five (5) pillars of SD. These stem from compliance to the requirements of the various national and provincial legislation, policies and plans as discussed in this study.

³² Nature and distribution of economic development over space.

³³ This can be attributed to the influences of regional policies under the apartheid regime.

Having cognizance of these pillars of SD and the multitude of constraints within the sustainability agenda, it is a difficult task to understand and recommend a rigid framework for the multi-dimensional aspect of sustainability. However, as a starting point, these pillars can be considered as 'domain-based categories' incorporating the principles of sustainability. An analysis of current IDPs shows that there may be a level of consistency in the approach to incorporating these five domains. However, the depth and extent to which sustainability principles have been integrated vary significantly.

Bearing the aforementioned in mind, the objective of the study relates to providing a Sustainability Assessment Framework for considering the overall sustainability index of IDPs, based on the five domain categories of SD.

5.3 Evaluation Framework

To evaluate the overall sustainability of IDPs, it is suggested by this study that the various elements informing regional sustainability be incorporated into the framework. Given the scale and multitude of factors influencing IDPs, a wide range of themes for sustainable regional development can be applied to inform decision-making pertaining to IDPs. Similarly, the indicators presented in the proposed framework can only be considered as potential indicators informing sustainability.

The number of indicators informing sustainability depends on the level of analysis being conducted (Hernandez-Moreno and Hoyos-Martinez, 2010: 52). The level of analysis is determined by the variables considered and the depth of the sustainability assessment framework. In terms of the IDP, it is suggested that the framework should at the very least have an approach that is based on resilience, complexity and systems thinking, transdisciplinary approach, and regional innovation systems. This investigation in particular focuses on evaluating the sustainability of IDPs on a district and metropolitan scale and incorporates the concepts of sustainable development put forward by the approaches mentioned above.

The five (5) domain based-categories proposed are considered to be a suitable base for assessing the extent to which district IDPs incorporate sustainability principles. It covers the five (5) core dimensions or domains of sustainable development mentioned in section

1.1, namely, environmental, social, economic, built environment and technology, and institutional sustainability (Allen, 2001). The proposed sustainability assessment framework aims to relate the potential sustainability of an IDP to these five domain-based categories of sustainability.

The proposed framework further promotes the use of tangible evaluation by incorporating a means of measurement and the use of sustainability indicator weightings. This is achieved through the development of a sustainability rating scorecard. The 'Overall Sustainability Scorecard' is inserted below. It must be noted however, that these scores and weights have been developed as an example of what can be done, and in reality, any of these weights and scores should ideally be decided through a public process.

As mentioned above, this study has put forward a sustainability scorecard as a means of measuring the indicators. Although there is at present no tangible data with which to link the weighting, five different scoring categories have been proposed, with a brief description of the issues and principles to consider when measuring the degree to which sustainability principles have been addressed.

The framework thus represents a proposition for use as a means of evaluating the sustainability of Integrated Development Plans. In essence the framework presents a means of considering an IDP on regional and district scales in terms of legislation, policy, strategy, spatial, environmental, social, economic, built environment and technology, and governance and institutional dimensions. The framework, which allows for simple adaptation, further also serves as a means of evaluating local Integrated Development Plans in a local municipal context.

1	NONE (0 - >10%)	There is no reflection that the 'core sustainability consideration' (CSC) has been addressed; or it has been poorly dealt with. The CSC is therefore not promoting the domain-based category of sustainability.
2	LOW (+10% – 35%)	There is some reflection that the CSC has been addressed. The Sustainability consideration has been addressed but not adequately. While some sustainable strategies, programmes and projects have been developed to address the issue, additional and/or improved strategies, programmes and projects are required. While some alignment has been achieved with the domain-based category of sustainability, additional improvement is required.
3	MEDIUM (+35 – 65%)	The CSC has been considered. Sustainability and sustainable development practices have been adequately addressed in the IDP and strategies, programmes and projects have been developed to address the CSCs. Good alignment with the domain-based category of sustainability, has been achieved.
4	HIGH (+65 – 75%)	Sustainability issues, sustainability considerations and sustainable development practices have been adequately addressed in the IDP and strategies, programmes and projects have been developed to address the CSCs. Very good alignment and complementarity with domain-based category of sustainability has been achieved.
5	VERY HIGH (75% +)	Sustainability issues, sustainability considerations and sustainable development practices have been comprehensively addressed in the IDP and comprehensive strategies, programmes and projects have been developed to address the CSCs. Significant human and financial resources have been committed, while still maintaining the environmental integrity of the landscape. Excellent alignment and complementarity with the domain-based category of sustainability has been achieved.

Table 2: Sustainability Rating Scorecard (Source: Author)

5.4 Sustainability Indicators for Integrated Development Plans

Integrated Development Plan indicators informing planning, development and decision-making should be derived from current day issues, and based on applicable legislation and development experience. Chapter 4 reveals and discusses certain indicators that could potentially be used to evaluate the sustainability of IDPs.

The indicators identified in the framework are suggestions derived from the literature (Shove & Walker, 2007; Retief *et al*, 2007; Retief *et al*, 2011; Swilling & Annecke, 2011;

Jahn, 2008; Pohl, 2008), current assessment frameworks (Adam & Oranje, 2003; DEAT, 2004; DEAT, 2007; Hacking *et al*, 2008), and policies and legislation DEAD&P, 2013a-g). Owing to the scale at which district IDPs operate, they are by no means considered to be absolute or all-encompassing. It is evident that the domain-based categories are intrinsically linked to legislation, policies and frameworks, with the indicators chosen to ultimately be a means with which to measure the achievement of these goals of sustainable development.

5.5 Proposed Combination Framework and Indicators

An example of the overall combination framework for the Domain-based category – Institutional Sustainability with the associated approached-based category of Resilience and Resilient Governance is illustrated below. The descriptions of the activities, as numbered in the combination framework, are discussed below.

1	2	3	4	5	6
DOMAIN-BASED CATEGORY	APPROACH-BASED CATEGORY	INDICATORS	QUALITATIVE FINDINGS	EVALUATION	SUSTAINABILITY
INSTITUTIONAL SUSTAINABILITY	Resilience and Resilient Governance	<p><u>Adaptive governance:</u></p> <ul style="list-style-type: none"> • Monitoring and response • Network-building to deal with unexpected events • Social learning is institutionalized to understand system dynamics • Adaptation to environmental change • Policy viewed as hypotheses • Strategies to tackle uncertainty and complexity • Reduce vulnerability and strengthen capacity to respond and adapt to change • Signs of transformability • Institutional capacity sufficient to cope with changing environment • Transparency and accountability evident with decisions • Multilevel governance promoted 		<ul style="list-style-type: none"> • RATING • WEIGHTING • WEIGHTED SCORE 	SUSTAINABILITY OF IDP

Figure 13: Proposed Combination Framework (Source: Author).

5.5.1. Domain-based category

The domain based categories of sustainability relate to the five (5) intertwining dimensions

of SD derived from literature and local, provincial and national legislation, policies and plans. They include the three pillars of sustainability, namely, environmental (Retief *et al*, 2007; Retief *et al*, 2011), social (Todes, 2004), and economic (Engel-Yan *et al*, 2005; Charman, 2012), as well as an additional two of built environment and technology, and institutional sustainability (Allen, 2001). The assessment of these five key pillars of sustainability provides the linkage with the subsequent set of goals and its resulting indicators.

5.5.2. Approach-based categories

These are derived from the new and innovative approaches to sustainable development in order to promote and ensure alignment and integration across domains, sectors, policies, plans and programmes. Each of these approaches have been considered as key sustainable development mechanisms that contribute to the overall sustainability of the domain-based categories. These are considered as methods with which to achieve the proposed domain-based categories.

It must be noted that the approach-based categories are not specific to only one domain-based category and can be found spanning all of these categories. The sub-set of the indicators will align the purpose of each indicator within the domain-based category.

5.5.3. Indicators

These indicators have been identified through the study as a means with which to gauge if sustainability principles have been included in IDPs. They need to be of such a nature that they can be understood in context and are relevant to each domain-based category. The indicators and their subsets will be scrutinized against the scorecard so that each subset is explored. This will in turn create a rating that each domain-based category can be weighed against.

The main purpose of these indicators is to enable the users to determine if the domain- and approach-based categories have been considered when compiling IDPs to achieve sustainable development across the five (5) domains. It is for this reason that the indicators proposed must be linked to priorities and objectives as determined in provincial and national policies and strategy objectives.

5.5.4 Qualitative findings

Regions and districts vary with regard to various external opportunities (for example, tourism opportunities, ports, airports, geographical and natural assets, resources) and threats (for example, lack of infrastructure provision, inadequate educational institutions, under-capacitated governmental departments), which determines where development should be prioritised. The strength of each municipality varies depending on a number of factors, and similarly so too the weaknesses. The column created for qualitative findings is a means for which to note and identify these findings.

5.5.5. Evaluation

The purpose of evaluating the indicators and their subsets based on the sustainability scorecard is to determine the extent to which the domain-based categories of sustainable development have been realised. While a quantitative means of measurement is used, there are qualitative aspects assimilated in the assessment. The evaluation is based on the scorecard mentioned above.

The methodology used is a palpable way of measuring each indicator proposed. Each indicator will have a number of subsets, and each subset will be evaluated. For example, 'Water' is an indicator of the domain-based category of 'Environmental Sustainability'. Similarly, 'Protection of scarce water resources' is a subset of the indicator 'Water'. If the IDP displays high levels of water protection, then it can receive a rating of 4 points. The indicator of 'Water' has 6 subsets. Therefore a total possible score of 30 points (maximum of 5 points for each subset) can be allocated for the indicator 'Water'. The overall score will then be the overall impact of the indicator on the goal- or domain-based category. This assures that a range of sustainability principles can be incorporated into the assessment framework.

5.5.6. Sustainability

Through using the indicators (and their subsets), the extent to which the domain-based categories of sustainability have been addressed, can be measured. The five (5) domain-based scores are totalled to give the overall IDP level of sustainability. The rating given after the assessment is therefore used to determine the extent to which the goal of

sustainable regional development has been achieved through the IDP.

The fact that the five (5) domain-based categories reflect the pillars of sustainability, and are based on policies, legislation, and strategic objectives, means the comparative performance of different IDPs based on sustainability principles can be quantitatively defined.

5.6 Summary

The planning approaches proposed in this chapter, are to some extent, all cyclical processes aimed at experimenting with new ideas, searching for solutions and a foundation for continual learning. This should, as suggested here, form the basis from which assessment frameworks originate and therefore AFs should be seen as an active and participative mechanism or vehicle from which the development paradigm can be focused on a sustainability trajectory. There is therefore a need to create a Sustainability Assessment Framework. The purpose of this Chapter was to introduce the new approaches to sustainable development which are proving to be more holistic mechanisms. The basis from which the proposed Sustainability Assessment Framework was developed, can be summarised in the following core elements from this chapter:

- Sustainability is not only based on the three spheres of economy, environment and social, but includes the physical dimension – built environment, infrastructure and technology, and the political dimension – of sustainability, which includes governance and institutional and participatory issues;
- Exploring the contested meanings of the term SD can lead to a deeper understanding;
- Rethinking sustainability and the philosophy and methodology with which interactions occur, could very well be the key to achieving sustainability on a regional scale;
- Strategic environmental assessments, transition management, complexity and systems thinking, resilience and transdisciplinary approaches can be regarded as new essential ways of promoting sustainability.

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1 Introduction

This chapter concludes and considers possible solutions to incorporate and mainstream sustainability into Metropolitan and District IDPs. This, as the study has motivated, can be done through the proposed Sustainability Assessment Framework. The purpose of this study was to explore ways in which sustainability can be achieved at a regional scale, through new sustainable development practices being incorporated into IDPs – based on the five domains of sustainability. Chapter 4 introduced ‘new approaches’ to sustainability and sustainable development and highlighted four approach-based categories. Using these four concepts as approach-based categories will ensure that a comprehensive approach to sustainable planning and development be achieved.

6.2 Outcomes of the Research

To conclude the study a brief response to the initial aims and objectives are given below:

Table 3: Aims and objectives of the study versus the outcomes achieved

AIMS AND OBJECTIVES	OUTCOMES
To review the current literature on sustainability, sustainable development and regional planning in the context of Integrated Development Plans, focussing on themes such as systems and complexity thinking.	This was done extensively and was successful in bringing out the key principles of systems and complexity thinking applicable to sustainable regional planning.
To explore the challenges facing regional planning in South Africa.	This was explored and the pertinent issues facing the region discussed and highlighted.

<p>To determine how the approach to regional planning must change to promote sustainability.</p>	<p>Four key approaches were proposed which can bring about a fundamental change to developmental thinking.</p>
<p>To explore the South African legislative framework with regard to sustainability and integrated development planning.</p>	<p>This was done extensively and the relevance to the study as well as implication for the proposed SAF was given.</p>
<p>To review current metropolitan and district Assessment Frameworks of Integrated Development Plans and then develop an alternative Sustainability Assessment Framework which can be used to assess the sustainability of IDPs.</p>	<p>As was expected, these in-depth reviews of qualitatively analysing the documents revealed that the underlying principle of SD and sustainability were not incorporated into the current assessment frameworks and that an alternative framework specifically addressing sustainability was required. A new framework based on a sustainability scorecard was developed with which IDPs can be rated and scored.</p>
<p>To develop a Sustainability Assessment Framework which can be used to assess (and grade through a scoring system) the extent to which metropolitan and district IDPs address current approaches to SD and sustainability principles. The SAF will be scored by using a Scorecard, which will be developed in conjunction with the SAF.</p>	<p>A new framework based on a sustainability scorecard was developed with which IDPs can be rated and scored.</p>

6.3 The elusive goal

In order to create a comprehensive sustainability assessment framework, certain areas of focus or indicators were identified. This study explored many new concepts and notions associated with sustainability. For an IDP to be regarded as a document that promotes sustainability, it needs to be weighed against appropriate sustainable indicators (and their subsets). These indicators are however a subject for further research and not part of this study.

The principles and approaches to sustainability and sustainable development as proposed in this study are not considered to be the final answer to developmental problems. It is however aimed at widening the scope of present developmental approaches so as to assist in the pursuit of sustainable solutions. The purpose of the study was to introduce the reader to the evolving approaches that see the environment holistically, in terms of all its components, as well as the relationships between the components and intertwined webs of interactions.

6.4 A stepping stone in the right direction

The proposed SAF will help to ensure sustainable development, and is certainly an approach which attempts to take a more holistic view on development in the regional arena, where sustainability has the potential to be mainstreamed. The study is the basis from which further research can be conducted. The study provides clear evidence that only considering the 3 pillars of sustainable development (environment, economy and social), is not enough and that the physical dimension, which includes the built environment, infrastructure and technology, and the political dimension of sustainability, which includes governance, institutional and participatory issues, are also pertinent issues to consider. Furthermore, new ways of thinking have been proposed. Considering networks, systems, relationships, interactions and the systems in their entirety, as well as creating mechanisms with which to deal with uncertainty, unpredictability, fragmentation, and wicked problems, are key to embracing this new developmental agenda, and brings with it many opportunities to create more balanced, equitable and sustainable societies.

6.5 Recommendation

In South Africa, the regional sphere of government has not adequately been recognised as a potential area to promote the sustainability agenda. Similarly, the provincial government has not taken up its rightful role as a regional planning authority which can provide support to municipalities. It is therefore recommended that the PGWC play a monitoring and regulating role through the production of Assessment Frameworks and particularly Sustainability Assessment Frameworks for IDPs. The assessments will help to ensure alignment and integration as an integral part of achieving a shared vision across the three spheres of government. It is therefore recommended that the SAF be used as a means to integrate, align and unify sustainable developmental visions and objectives

Furthermore it is recommended that those Departments involved with developing SAFs for Integrated Development Plans should be mindful of the complex web of interactions between actors and role players. The four approaches to development in the SAF are practical examples of how these interactions can be mainstreamed into a sustainable approach to development.

In South Africa sustainability assessments are being done *ex post facto* which does not create the opportunity for an active participatory process. Lessons from the UK and EU have demonstrated the need to conduct these assessments earlier on in the process. Therefore it is recommended that SEAs are made a requirement before the finalisation of a Spatial Development Framework and not *ex post facto* as is now the case in South Africa. This challenge however, is subject to further research.

The proposed SAF could also be more influential if introduced earlier on in the developmental process. The use of the proposed SAF, while compiling and reviewing IDPs, is recommended as being a constructive means with which to ensure that sustainability will be mainstreamed into the IDP process in the future.

6.6 Areas for future research

As an exploratory study, it opens up the opportunity for further sustainability frameworks to be developed, concerning pertinent issues promoted through IDPs. It was the intention of

this study to highlight the need for sustainability to guide the IDP process and also to aid in the knowledge of how to achieve this. The focus of the paper was however only on District and Metropolitan IDPs. The sustainability assessment framework can be adapted to address issues on a local level as the principles with which it was aligned, have provincial and national significance.

Furthermore, it is proposed that a complimentary study be undertaken in order to identify how Sustainability Assessment Frameworks can be incorporated into the IDP drafting process and not *post facto* as is the current case. Their impact, influence and applicability will have far more weight if sustainability issues can be addressed sooner in the process.

6.7 Conclusion

This study explored current Assessment Frameworks used to assess IDPs and came to the conclusion that they do not adequately address sustainability issues. An alternative Sustainability Assessment Framework was therefore proposed which was used to view sustainability from different approaches. These approaches are considered to be an appropriate means with which to incorporate sustainability principles into IDPs. The aim of the study was also to demonstrate how approaches to sustainability need to change so that more holistic and cross-disciplinary approaches can be explored in future.

IDPs are implementing tools and incorporating sustainability into the process is considered essential for safer and more equitable environments to be pursued. The regional domain and associated governmental sphere hold great potential when addressing sustainable development. The study has therefore demonstrated how SAF for these IDPs can assist in improving levels of sustainability.

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Appendix A

Overview of IDP Assessment Frameworks used in the Western Cape

Ref	Name of document	Year released	Document produced by	Areas of focus
1	High level assessment of Interim Integrated Development Plans	2001	<u>National Government:</u> Department of Provincial and Local Government	<ul style="list-style-type: none"> ▪ <i>The quality of the submissions;</i> ▪ <i>Whether the IDPs achieved the identified objectives;</i> ▪ <i>How useful they have been; and</i> ▪ <i>Their applicability as a development tool</i>
2	Principles of Integrated Development Planning and Assessment of the Process 2001/2002	2001-2002	<u>National Government:</u> The Decentralised Development Planning Task Team (compiled and summarised by Dr Theo Rauch, GTZ)	<ul style="list-style-type: none"> ▪ <i>Municipality-owned</i> ▪ <i>Consultative process</i> ▪ <i>Strategic process</i> ▪ <i>Implementation-orientated process</i> ▪ <i>Intergovernmental planning relations</i> ▪ <i>IDP support system</i>
3	IDP Assessment: Report on Engagement with District Municipalities and Metropolitan Municipalities (Adams, A. &Oranje, M. 2002)	2002/ 2003	<u>National Government:</u> Department of Provincial and Local Government	<ul style="list-style-type: none"> ▪ <i>The status of the IDPs</i> ▪ <i>The process followed in preparing the IDPs</i> ▪ <i>Structures set up</i> ▪ <i>Priority issues and needs confronted</i> ▪ <i>Development strategies formulated</i> ▪ <i>Ways intended to implement IDPs</i>

Ref	Name of document	Year released	Document produced by	Areas of focus
				<ul style="list-style-type: none"> ▪ <i>Institutional and administrative context in which IDPs were formulated</i> ▪ <i>Extent to which IDPs promoted integration, were strategic and participatory in nature and could be implemented</i> ▪ <i>Whether intended developmental impacts of IDPs were clear to all role players</i>
4	Development of a Core Set of Environmental Performance Indicators to be integrated into IDP, EIP/EMP and SoE Reporting Processes	March 2004	<u>National Government:</u> Department of Environmental Affairs and Tourism Provincial	<ul style="list-style-type: none"> ▪ <i>Environmental planning and management</i>
5	Western Cape (WC) Credible IDP indicators	2006 - 2007	Department of Local Government Provincial	<ul style="list-style-type: none"> ▪ <i>A long term strategy (Analysis of Socio-economic trends, clear development strategy > 10 years,</i> ▪ <i>Clear investment targeting (targeted , basic service and infrastructure investment and key non-infrastructure/basic service interventions identified and funded)</i> ▪ <i>Community involvement in planning and delivery;</i> ▪ <i>Institutional delivery capacity and</i>

Ref	Name of document	Year released	Document produced by	Areas of focus
				<ul style="list-style-type: none"> ▪ <i>Alignments and integration with national/provincial programmes</i>
6	IDP Engagements (Referred to in the 2008 DPLGIDP Format Guide document)	2006-2007	National	<ul style="list-style-type: none"> ▪ <i>Spatial Analysis and Rationale</i> ▪ <i>Basic Service Delivery</i> ▪ <i>Local Economic Development</i> ▪ <i>Municipal Transformation and Organisational Development</i> ▪ <i>Municipal Financial Viability and Management</i> ▪ <i>Good Governance and Public Participation</i>
7	A Credible IDP Evaluation Framework	2009	National Department: Provincial and Local Government(DPLG)	<ul style="list-style-type: none"> ▪ <i>Spatial Development Framework</i> ▪ <i>Service Delivery and infrastructure spending</i> ▪ <i>Sustainable Economic Growth and Development and LED</i> ▪ <i>Financial Viability</i> ▪ <i>Institutional Arrangements</i> ▪ <i>Governance and Organisational Development</i>
8	Credible IDP Evaluation Framework	2010	Department: Cooperative Governance and Traditional Affairs National	<ul style="list-style-type: none"> ▪ <i>Spatial Development Framework</i> ▪ <i>Service Delivery and infrastructure spending</i> ▪ <i>Sustainable Economic Growth and Development and LED</i> ▪ <i>Financial Viability Institutional Arrangements</i> ▪ <i>Governance and Organisational Development</i>
9	Proposed guidelines for	2010	Department: Cooperative Governance	<ul style="list-style-type: none"> ▪ <i>Analyze the quality,</i>

Ref	Name of document	Year released	Document produced by	Areas of focus
	the preparation of the Provincial IDP Analysis Reports for 2010/11 <i>2010 IDP Analysis Process</i>		and Traditional Affairs National	<ul style="list-style-type: none"> ▪ <i>Enhance intergovernmental dialogue</i> ▪ <i>Promote legal compliance,</i> ▪ <i>Ensure municipalities provide inputs into their plans</i> ▪ <i>Mobilize sectors in terms of alignment</i>
10	Development Facilitation Unit's review on all IDPs in WC.	2010	<u>Provincial Government:</u> Department of Environmental Affairs and Development Planning	<ul style="list-style-type: none"> ▪ <i>Identify sectoral priorities</i> ▪ <i>Identification of key priorities and programmes</i> ▪ <i>Pollution & Waste management</i> ▪ <i>Air quality</i> ▪ <i>Energy & Climate change</i> ▪ <i>Sustainability</i>
11	IDP Assessment Framework	2011	Department of Environmental Affairs National	<ul style="list-style-type: none"> ▪ <i>Analysis of Natural Environment</i> ▪ <i>Environmental Governance</i> ▪ <i>Policy and other Legislative requirements</i> ▪ <i>Provincial & Local Government Interventions</i> ▪ <i>General</i>
12	The Western Cape Intergovernmental Planning and Budget Framework 2011 – 2016 First Draft	June 2011	Department of Local Government Provincial	<ul style="list-style-type: none"> ▪ <i>A discussion document to improve Intergovernmental Planning and Budget Framework: A case for a joint and synchronized Intergovernmental Planning and Budget System</i>
13	Western Cape Environmental Sector IDP	2011	Department of Environmental Affairs and Development Planning	<ul style="list-style-type: none"> ▪ <i>Environmental and sustainability considerations</i> ▪ <i>Spatial Planning</i>

Ref	Name of document	Year released	Document produced by	Areas of focus
	Credibility & Analysis Framework 2011		Provincial	<ul style="list-style-type: none"> ▪ <i>Waste Management</i> ▪ <i>Air Quality Management</i> ▪ <i>Coastal Management</i> ▪ <i>Biodiversity</i> ▪ <i>Energy, Climate Change and Sustainability</i> ▪ <i>General Environmental & Heritage Considerations</i> ▪ <i>EIA</i> ▪ <i>Environmental Governance and IGR</i> ▪ <i>General</i>
14	WC IDP Assessments 2012: Example of <u>Local Municipality</u>	2012	<u>National and Provincial Government:</u> Department of Cooperative Governance	<ul style="list-style-type: none"> ▪ <i>Legislative and procedural compliance</i> ▪ <i>Urban resilience perspectives analysis</i> ▪ <i>Spatial development analysis and rationale</i> ▪ <i>Service delivery and infrastructure development</i> ▪ <i>Local economic development</i> ▪ <i>Good governance</i> ▪ <i>Financial viability</i> ▪ <i>Institutional arrangements</i> ▪ <i>Human Settlements</i> ▪ <i>Social, Health, Education, Safety and Security, Cultural Affairs and Sports Services</i> ▪ <i>Disaster Management</i>
15	WC IDP Assessments	2012	<u>National and Provincial Government:</u>	<ul style="list-style-type: none"> ▪ <i>Legislative and procedural compliance</i>

Ref	Name of document	Year released	Document produced by	Areas of focus
	2012: Example of <u>Metropolitan Municipality</u>		Department of Cooperative Governance	<ul style="list-style-type: none"> ▪ <i>Urban resilience perspectives analysis</i> ▪ <i>Spatial development analysis and rationale</i> ▪ <i>Service delivery and infrastructure development</i> ▪ <i>Local economic development</i> ▪ <i>Good governance</i> ▪ <i>Financial viability</i> ▪ <i>Institutional arrangements</i> ▪ <i>Human Settlements</i> ▪ <i>Social, Health, Education, Safety and Security, Cultural Affairs and Sports Services</i> ▪ <i>Disaster Management</i>
16	WC IDP Assessments 2012: Example of <u>District Municipality</u>	2012	<u>National and Provincial Government:</u> Department of Cooperative Governance National	<ul style="list-style-type: none"> ▪ <i>Spatial development analysis and rationale</i> ▪ <i>Service delivery and infrastructure development</i> ▪ <i>Local economic development</i> ▪ <i>Good governance</i> ▪ <i>Financial viability</i> ▪ <i>Institutional arrangements</i> ▪ <i>Human Settlements</i> ▪ <i>Social, Health, Education, Safety and Security, Cultural Affairs and Sports Services</i> ▪ <i>Disaster Management</i>
17	WC IDP and Budget Analysis Tool	2013	<u>Provincial Department of Local Government and Provincial Treasury</u>	<ul style="list-style-type: none"> ▪ <i>Budgetary analysis</i> ▪ <i>Previous LGMTEC/IDP Analysis findings</i>

Ref	Name of document	Year released	Document produced by	Areas of focus
			Provincial	<ul style="list-style-type: none"> ▪ <i>Legislative Compliance / Conformance</i> ▪ <i>IDP Analysis against National Key Performance Areas</i> ▪ <i>Spatial Development Analysis</i> ▪ <i>Responsiveness and Alignment</i> ▪ <i>The Key Findings of the Budget Assessment</i> ▪ <i>Credibility and Sustainability</i>

(Source: Author; The original table was drafted by the author in Microsoft Excel and then copied into this study.)

Appendix B

Proposed Sustainability Assessment Framework

<p style="text-align: center;">SUSTAINABILITY ASSESSMENT FRAMEWORK MUNICIPALITY'S DISTRICT IDP</p>						
<p>Domain-based category: ENVIRONMENTAL SUSTAINABILITY</p>						
<p><i>Approach-based sub categories including: Resilience and Resilient Governance Transdisciplinary Approach Complexity and systems thinking Regional Innovation Systems</i></p>						
INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
Regional resource Planning	Protection of non-renewable resources		/35	/135		
	Promotion of renewable energy sources					
	Private sector investment in renewable energy promoted					
	Alignment with Integrated Electricity Resources Plan (IRP)					
	Diversity of energy supply promoted – not just from the grid					
	Balance between local and imported energy					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	Participation in regional networks					
Growth Management and Land Use	Reducing rural migration by encouraging / promoting rural economic development		/25			
	Updated land capability maps					
	Use of Geographical Information Systems					
	Land cover information included in plans					
	Simulations and projections of land use growth patterns					
Water	Promote safe and secure water supply to rural areas		/30			
	Protection of scarce water resources					
	Water Services Development Plans including projections, strategies and targets been aligned to DWA plans					
	Alignment with NWRS					
	Water Conservation and Water Demand Management practices in place					
	Sufficient data available to give status quo of people without water.					
Minerals	Operational issues and constraints of mining addressed					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	Sustainable practices in place for closure of mines		/30			
	Sustainable Development Strategy informing IDP					
	Alignment of social and labour plans with IDP, SDF and LED plans					
	Processing of minerals ensuring that it is a minimal consumption industry					
	Manufacturing sector promoted to assist job creation					
Biosphere & Biodiversity Planning	District biodiversity plans that are fully aligned with National Biodiversity Act?		/45			
	Biodiversity Strategy actively promoted					
	Alignment of biodiversity plans with EIPs, EMPs and IDP.					
	Acknowledgment of conflicting relationships between poverty, inequitable access to resources, and the protection of biodiversity 'hotspots'					
	Balance evident between socio-economic issues and biodiversity conservation					
	Stewardship programmes on privately owned land rich in					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	biodiversity					
	Fiscal incentives to support conservation of these private lands					
	Stringent urban edges protecting ecologically sensitive habitats					
	Value attributed to ecosystems and their role with regard to counteracting the impacts of climate change					

SUSTAINABILITY ASSESSMENT FRAMEWORK
MUNICIPALITY'S DISTRICT IDP

Domain-based category: SOCIAL SUSTAINABILITY

*Approach-based sub categories including: Resilience and Resilient Governance
 Transdisciplinary Approach
 Complexity and systems thinking
 Regional Innovation Systems*

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
Regional Social Planning	Evidence of promoting social cohesion through building networks		/65	/110		
	Intricate webs of relationships being built over time					
	Promotion of civic responsibility					
	Retention of people in rural areas promoted					
	High level of participatory processes and cohesive planning evident					
	Inclusive participation evident					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	Relationships developed between communities, public organisations and local government to promote civic engagements					
	Networks created to facilitate coordination and cooperation for mutual benefit					
	Equal access to opportunities and resources evident					
	Promotion of educational opportunities for the poor and previously disadvantaged					
	Social value of land captured / established / addressed					
	Trans- and multidisciplinary approaches addressing cross-cutting issues					
	Gated communities and private, segregated development completely excluded from development frameworks					
Human rights	Visions to eradicate extreme poverty and inequalities		/15			
	People given the 'right to the city' and assist and are included with the design					
	Human rights, leading to sustainable livelihoods taking cognisance of power relations, institutions and politics					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
Equity	Intra- and intergenerational equity been addressed		/25			
	Upliftment and empowerment of the poor and marginalised					
	An agreed vision and principles to promote equity and sustainability					
	A clear sense of spatial equity has been fostered, redressing the spatial disjuncture's cause by apartheid					
	A strong collaboration between human equity and the environment					

**SUSTAINABILITY ASSESSMENT FRAMEWORK
MUNICIPALITY'S DISTRICT IDP**

Domain-based category: ECONOMIC SUSTAINABILITY

*Approach-based sub categories including: Resilience and Resilient Governance
Transdisciplinary Approach
Complexity and systems thinking
Regional Innovation Systems*

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
Public and private investment	Cross-sector collaboration		/35	/135		
	Informal sector maintained and strengthened through financing from private-public partnerships					
	Support for existing business sector and plans for new or emerging sectors					
	Rural tourism and leisure developments supported that respect the character of the environment.					
	Tourism sector promoted					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
Mapping Spatial Economics and economic geography	Reducing rural migration by encouraging / promoting rural economic development		/65			
	Computer modelling – GIS, virtuous trajectories, new economic geography, spatial economy used to inform plans.					
	Businesses with similar interest located close together					
	Competitiveness, information flows, knowledge transfer promoted through spatial economics					
	Regional clusters promoted through district economic strategies					
	Regional economic s networks established through cross-sectoral collaboration					
	Spatial planning elements such as corridors, nodes and nodal development used as a means to create economic regional networks					
	Existing plans are flexible enough to accommodate needs not anticipated, allowing for rapid response to changes in economic circumstances.					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	District is planning positively for the location, promotion and expansion of clusters or networks of knowledge driven, creative or high technology industries.					
	Expenditure patterns across systems and sectors graphically represented and analysed.					
	Development strategies that value social capital and local and indigenous knowledge where human rights and ethics play a significant role to promote sustainable human settlements apparent.					
	The IDP promotes the development and diversification of agricultural and other land-based rural businesses.					
	A study on the economic potential of towns has been done.					

SUSTAINABILITY ASSESSMENT FRAMEWORK
MUNICIPALITY'S DISTRICT IDP

Domain-based category: BUILT ENVIRONMENT AND TECHNOLOGY SUSTAINABILITY

*Approach-based sub categories including: Resilience and Resilient Governance
 Transdisciplinary Approach
 Complexity and systems thinking
 Regional Innovation Systems*

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
Regional Infrastructure Planning	Integration of services and systems to maximise impact evident		/30	/135		
	Water provided to all settlements across the district					
	Electricity services provided to all settlements across the district					
	Sewage disposal services provided to all settlements across the district					
	Roads linking previously segregated settlements					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	Backlogs identified					
Green infrastructure	Green buildings made requirement of new developments		/35			
	Settlement patterns are designed using green technology					
	Promoting green industries for innovative solutions evident.					
	Transportation sustainably orientation – development of functional public systems					
	Private sector buy-in to towards new green infrastructure movement					
	Aligning investment with ‘green’ orientated development					
	High quality communication infrastructure and networks been provided					
Waste Management	High levels of reusing and recycling promoted through IDP		/20			
	New systems to reduce waste and promoting the concept of wastes to energy evident					
	Waste Management Plan intrinsically included in the development of the IDP					
	The toolbox of environmental management tools used to explore					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	new mechanisms to reduce wastes across the region					
Transport	Safe and efficient means of public transport promoted.		/30			
	Public transportation provided to segregated communities.					
	Roads maintenance included in budget / financial plan					
	Alignment of transport plans with housing plan and other sector plans					
	Smarter technologies are being used to reduce the need to travel. i.e. giving people greater choice about how they will travel.					
	Integrated Transport Plans aligned with visions of and objectives of IDP					
Sustainable Human Settlements	Social infrastructure provided – clinics, road-shows		/35			
	Community facilities developed in low-income areas					
	Housing settlements provided close to economic opportunities					
	Built infrastructure provided in accordance with sustainability principles					
	Water treatment important aspect of sustainable settlement					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	Economic infrastructure for jobs and opportunities					
	Land for future housing projects located where it will enhance or maintain the vitality of rural communities identified.					

SUSTAINABILITY ASSESSMENT FRAMEWORK
MUNICIPALITY'S DISTRICT IDP

Domain-based category: INSTITUTIONAL SUSTAINABILITY

*Approach-based sub categories including: Resilience and Resilient Governance
 Transdisciplinary Approach
 Complexity and systems thinking
 Regional Innovation Systems*

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
Adaptive Governance	High level of monitoring and response to current changes addressed in IDP		/85	/140		
	Social learning is institutionalized to understand system dynamics					
	Institutions are designed for adaptation to environmental change – risk management					
	Policy viewed as hypotheses and management as experiments from which to learn					
	Strategies to tackle uncertainty and complexity are a fundamental					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	aim					
	Emphasis on solutions to reduce vulnerability and strengthen capacity to respond and adapt to change					
	Governance shows signs of transformability and adaptability					
	Institutional capacity sufficient to cope with changing environment					
	Transparency and accountability evident with decisions					
	Multilevel governance promoted to secure local ecological knowledge, reduce vulnerability, and strengthen capacity					
	Public participation and citizenry actively promoted / evident					
	Capacity and ability of the municipality to adapt to new SD paradigm					
	Institutional diversity encouraged to promote innovation and reduce vulnerability					
	Systems in place to nudge development on a sustainability trajectory					
	Research institutions established					

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	Education and skills development institutions provided.					
	Support from national and provincial government in terms of capacitating district municipalities					
Strategic and flexible control	Zoning controls flexible to cater for technological advances, new green industries and innovative solutions		/40			
	Policies flexible to allow people freedom of choice about where to live and work					
	High level of regulating, monitoring and support from other spheres.					
	A high level of interaction between different sphere of government					
	Joint programme initiatives and objectives evident					
	Models in collaborative processes identified as important to understand behaviour of ecosystems and to identify critical thresholds					
	Cross-sectoral collaboration (local systems with greater region)					
	Interdisciplinary dialogue					
	Plan-led approach and planning tools	High level of integration across sectors and plans				

INDICATOR	CORE SUSTAINABILITY CONSIDERATION	EVALUATION RATING			QUANTITATIVE FINDINGS	ACTIONS REQUIRED TO IMPROVE SUSTAINABILITY RATING
		RATING AS PER SCORECARD	WEIGHTING	WEIGHTED SCORE		
	Integrated development and policy implementation uniformity evident		/15			
	Local plans developed reflecting the visions and aspirations of local communities					

(Source: Author; The original table was drafted by the author in Microsoft Excel and then copied into this study.)