

The challenges of achieving spatial transformation in practice: The Two Rivers Urban Park Local Spatial Development Framework, Cape Town

by

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Declaration

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Abstract

This research explored the challenges of achieving spatial transformation in South Africa, and if the planning processes or methods used by practitioners of different disciplines in the built environment, are adequate to respond to these challenges. A summary of the historical land use practices in the country illustrates why spatial transformation is so important, and how the legislative framework has changed over the past two decades to promote the development of a spatially just South Africa. Sadly, after more than 300 years of systematic and deliberate segregation of people and services based on race, a degrading natural environment and the impacts of climate change, there are a multitude of complex challenges associated with the post-apartheid city. These challenges include the unjust spatial legacy of the country, and the interconnected relationship of this spatial legacy with poverty and inequality; and the need to develop new forms of knowledge and practices which are effective against the embedded forms of knowledge and power. Because of this complexity, the diversity of values and perspectives which must be aligned in research and planning processes, the compilation of spatial- and development plans are overwhelming and difficult processes. These dynamics were explored in more detail in a case study using ethnographic research methods, applied to a planning project intended to develop a Local Spatial Development Framework for an area in Cape Town, known as the Two Rivers Urban Park. The case study explored, through embedded research methods, the methodology used by the multidisciplinary team to address the spatial injustices associated with Two Rivers Urban Park. This case study illustrates what the literature recommends, namely that a complex and multipronged approach is needed to ensure that a spatially just society become a reality in South Africa. Legislation and policy reform has made noteworthy progress however, a significant amount of work is still necessary. Knowledge development of local development epistemologies and supporting policies are pertinent; as well as research and planning methods which ease engagement, collaboration, reflexive learning and the co-creation of solutions amongst practitioners and the public. It is important that practitioners, from both the public and private sector, make use of more effective research and planning frameworks or methodologies. Such methodologies include transdisciplinary design principles which have been developed based on real-world experiences. In addition, practitioners must be held accountable for the research and planning methods to ensure that appropriate, well designed methodologies are used, and to ensure that practitioners execute projects in a transparent manner.

Opsomming

Hierdie navorsing het die uitdagings om ruimtelike transformasie in Suid-Afrika te behaal, ondersoek en of die metodes wat deur praktisyns van verskillende dissiplines gebruik word, voldoende is om op hierdie uitdagings te reageer. 'n Opsomming van die historiese grondgebruikspraktyke in die land illustreer waarom ruimtelike transformasie so belangrik is vir die land en hoe die wetgewende raamwerk die afgelope twee dekades getransformeer is om ruimtelike geregtigheid in Suid-Afrika te bevorder. Ongelukkig is daar menigte komplekse uitdagings wat geassosieer is met na-apartheid stede. Hierdie uitdagings sluit in die onregverdigde ruimtelike nalatenskap van die land, armoede en ongelukheid – voortspruitend uit meer as 300 jaar van sistematiese en doelbewuste segregasie van mense en dienste gebaseer op ras, 'n agteruitgaande natuurlike omgewing en die impak van klimaatsverandering, en die behoefte om nuwe vorme van kennis en praktyke te ontwikkel wat onder andere effektief is teen die ingebedde vorme van kennis en mag. As gevolg van hierdie kompleksiteit, en die diversiteit van waardes en perspektiewe, wat in lyn gebring moet word in navorsing en beplanningsprosesse, is die opstel van ruimtelike en ontwikkelingsplanne oorweldigende en moeilike prosesse. Hierdie dinamiek is in meer detail ondersoek in 'n gevallestudie in Kaapstad, bekend as die Twee Riviere Stedelike Park. Hierdie gevallestudie ondersoek, deur etnografiese navorsingsmetodes, die metodologie gebruik deur 'n multi-disiplinêre span om die ruimtelike ongeregtighede geassosieer met die Twee Riviere Stedelike Park aan te spreek. Die gevallestudie illustreer wat die literatuur aanbeveel, naamlik dat 'n komplekse en meervoudige benadering nodig is om te verseker dat 'n ruimtelik-geregtige gemeenskap in Suid-Afrika 'n realiteit word. Wetgewing en beleidshervorming het merkwaardige vordering gemaak, maar 'n beduidende hoeveelheid werk word nog benodig. Die ontwikkeling van kennis deur plaaslike ontwikkelings-epistemologieë en ondersteunende beleide is pertinent, so ook navorsings- en beplannings metodes wat betrokkenheid, samewerking, refleksiewe leer en die medeskepping van oplossings tussen praktisyns en die publiek kan fasiliteer. Dit is belangrik dat praktisyns van beide die openbare en private sektore gebruik maak van meer effektiewe navorsings- en beplanningsraamwerke of metodologieë soos transdissiplinêre ontwerpbeginsels, wat ontwikkel is op grond van werklike ervarings. Daarbenewens moet praktisyns aanspreeklik gehou word vir die navorsings- en beplanningsmetodes wat hulle gebruik, om te verseker dat toepaslike, goed ontwerpte metodologieë gebruik word en om te verseker dat praktisyns hierdie projekte deursigtig uitvoer.

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List of Acronyms and Abbreviations

CCT	City of Cape Town
COGTA	Cooperative Governance and Traditional Affairs
CoJ	City of Johannesburg
DEA	Department of Environmental Affairs
DoH	Department of Housing
DTPW	Department of Transport and Public Works
GCRO	Gauteng City-Region Observatory
HWC	Heritage Western Cape
IDP	Integrated Development Plan
LUPO	Land Use Planning Ordinance
NDP	National Development Plan
NPC	National Planning Commission
PRASA	Passenger Rail Agency of South Africa
SAAO	South Africa Astronomical Observatory
SACN	South African Cities Network
SAHO	South Africa History Online
SPLUMA	Spatial Planning and Land Use Management Act
ToR	Terms of Reference
TRUP	Two Rivers Urban Park
VOC	Verenigde Oos-Indische Companje / Dutch East India Company
WCG	Western Cape Government

1. Introduction

1.1. Introduction

Since 1994 significant transformation of the spatial and land use planning legislative and policy framework has taken place. With the establishment of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) (SPLUMA) and various supporting acts and policies, a single, unifying spatial and land use planning system is now in place (Barnes & Gerber 2016).

SPLUMA defines land use management systems as “*the system of regulating and managing land use and conferring land use rights through the use of schemes and land development procedures*” (Barnes & Gerber 2016:8). As such, the land use management system in South Africa is predominantly focused on spatial planning practices, of which land use planning and management forms a part of. This system entails the creation of a hierarchy of spatial development frameworks (SDFs), integrated development plans (IDPs), and zoning or land use schemes. Each of these aspects of spatial planning, land use planning and land development management is interconnected and greatly overlaps in practice (Van Wyk 2012a).

Land use management, on the other hand, refers to the alteration of land use and the employment of procedures which facilitate land development such as rezoning and removal of restrictions. Land development management is concerned with township layout and establishment, subdivision of land and the erection of buildings within the context of sustainable development (Van Wyk 2012a; Barnes & Gerber 2016).

The latest land use management system has been structured to bring about spatial transformation of the country. Transformation and spatial transformation are described in many policy documents and academic papers as a vital component of social change in South Africa (SACN 2016b). Transformation is realised through a process of change towards the vision of a non-racial, non-sexist, and democratic spatial order. This includes different forms of geographic space, socialised through, *inter alia*, a specific configuration of social relations and experiences of work, residence, recreation and cultural heritage (Williams 2000). This broad definition of transformation is tightly interwoven with the need for spatial transformation, and is used broadly to define the major urban change or restructuring which challenges the current status quo of cities (Turok 2016).

In South Africa, spatial injustices are deeply rooted in the social and physical infrastructure that has been formed through decades of uneven development processes (Bassett 2013; Turok 2016). Therefore, the development of just spaces requires the transformation of physical infrastructure which is inefficient and related to social exclusion, and inefficient and unequal resource consumption (Turok 2016).

The spatial injustices which characterise South Africa are similar to the inequality experienced in cities around the world. However, in South Africa this phenomenon has been exaggerated through the long history of racial segregation, the capitalist imperative of accumulation, slavery and the migrant labour system which provided cheap and controlled labour to colonialists and the elite (Soni 1998; Miraftab 2012). This has created an inextricable relationship between land, urban processes, economic productivity and the political dynamics of the country (Miraftab 2012).

Today, South African cities are some of the most unequal in the world in terms of income disparities, health care, education and crime. These cities are also highly inefficient in their use of energy and natural resources with low density sprawling development, traffic congestion, and excessive spending on transport by households and government (Pieterse 1998; Turok 2016). Environmental degradation and the impacts of climate change (Sachs 1990; CoJ 2011), gangsterism, crime and violence; degradation of the social fabric (Robins 2002; NPC 2011a 2011b 2011c), and corruption continue to undermine progress in the country, and threaten the stability of the economy, livelihoods and food security (NPC 2011c; Bhorat, Buthelezi, Chipkin, Duma, Mondi, Peter, Qobo, Swilling & Friedenstein 2017). The spatialisation of the interrelated concepts of justice, democracy, citizenship, community and inclusion, is therefore profoundly fitting (Dufaux, Gervais-Lambony, Buire & Desbois 2011) in the South African context.

Furthermore, the term 'justice' is a powerful mobilising metaphor towards equity, freedom and universal human rights (Dufaux, Gervais-Lambony, Buire & Desbois 2011). Spatial justice is where the economic and social conditions of diverse groups and the social allocation, division and production of space, come together as the 'geography of justice' (DESA 2009). Spatially just geographical representation is integral to, and is an interrelated aspect of spatial transformation, and the development of the just city and the inclusive city (DESA 2009; Bassette 2013; SACN 2016b; Turok 2016). It is also integral to the development of sustainable forms of development, with efficient resource use and the preservation of functioning ecosystems.

The development of the present land use management system in South Africa has been slow and cumbersome as the legislative framework evolved in a piecemeal fashion (Van Wyk 2012a 2012b). Although there are aspects which must still be refined, a system is finally in place which is based on normative-principles (Barnes & Gerber 2012), to guide spatial planning in the country in a manner which responds to the complex problems which face society, towards the realisation of spatial justice.

A legal framework alone, however, will not be enough to address the multiplicity of challenges facing South Africa. Better forms of knowledge management and decision making is required (Du Plessis 2016); institutional reform is required; managerial capacity must be increased; an enabling environment for the participation of all citizens must be created; and spatial planning practices must be embraced which adequately respond to the complexity of the challenges which face South Africa (Williams 2000, 2001, 2006; SACN 2016b, 2016d).

In addition, transdisciplinary research has come about because of the realisation of the complex adaptive nature of the world, and the multiplicity of crises which face the human race. It responds to the need to develop sustainable solutions to society's problems in a non-linear manner which embraces a wide range of perspectives and forms of knowledge (Lang, Wiek, Bergmann, Stauffacher, Martens, Moll, Swilling & Thomas 2012). Methodologies associated with transdisciplinary design principles, community-based participation, interactive or participatory research approaches are often recommended means of responding to these 'real-world problems' to enable the development of sustainable, inclusive and just societies (Lang et al. 2012).

This research falls in the realm of transdisciplinary research. It sheds light on the challenges of achieving spatial transformation in South Africa, and explores if the methods used by practitioners in the built environment, are adequate to respond to these challenges. It makes use of literature reviews and ethnographic research methods of embedded research and participant observation of a single case study to explore this topic.

1.2. Research rationale

Significant progress has been made in the transformation of legislation and policies over the past two decades (Barnes & Gerber 2016). Furthermore, the built environment industry is continuously adapting with skills development, knowledge management and relevant decision-making processes (CoJ 2011; Du Plessis 2016; Jacobs & Rumbelow 2016). Despite this progress, the country is still characterised by the fragmented settlement patterns of apartheid (Robins 2002; NPC 2011a, 2011b; SACN 2016b).

If spatial planning theory and practice is to develop in a manner that adequately addresses the current shortcomings experienced in practice, then it will need to be grounded in research which focuses on current practices, challenges and shortcomings. Studying theory alone will produce findings based on outdated knowledge, which is no longer relevant for the current conditions, practices and challenges (Watson 2003).

A paradigm shift is required which re-focuses on what is of current importance and should be studied and/or considered by future spatial and land use planning exercise. To achieve this research needs to return to empirical and case study research, which can more adequately inform future best practice and theory (Bignell 1998; Taboltt 2002; Watson 2003; Parpart & Veltemeyer 2011; Preiser et al. n.d.).

This research therefore makes use of a multidisciplinary team's experiences, as they carry out research and planning practices towards the realisation of a spatial plan and associated development plans for a portion of land in Cape Town, known as the Two Rivers Urban Park. These experiences highlight current, real-world experiences of research and planning practices, and the associated successes and failures thereof.

1.3. Problem statement

Contemporary spatial planning processes and methodologies do not empower practitioners in the built environment industry and the public to realise spatial transformation (Williams 2000, 2001; Watson 2003). These planning processes or methodologies do not respond to the complexity of problems facing the post-apartheid city. Nor are they able to adequately incorporate the diversity of worldviews and rationalities which should be considered in research and planning processes (Watson 2002, 2003, 2006; Massey 2013).

1.4. Research aim

The main aim of this research is to understand the challenges of achieving spatial transformation in South Africa, and to explore if the planning processes or methodologies used by practitioners from different disciplines are adequate to respond to these challenges.

1.5. Research objectives

To explore the aim of the research, the following objectives have been set:

1. Understand historical land use planning in South Africa, with reference to the laws and policies of the past, and their legacies.
2. Explore what spatial transformation means in the South African context, and what is needed to transform post-apartheid cities into spatially just and inclusive cities, in terms of spatial changes and inter- and transdisciplinary processes.
3. Review and critique the planning processes or methodologies used by practitioners that work in multidisciplinary teams to bring about spatial transformation, and document the successes and failures of these methods.
4. Based on the insights gained through this study, recommend further aspects to be researched and/or possible changes to planning approaches or policies.

1.6. Methodology and methods

1.6.1. Overview

This study is presented as a policy review, literature review, and a single case study making use of ethnographic research methods. The following steps present a high-level overview of the methodology and the various methods employed in this research:

1. *Policy review* - 'A brief history of land use in South Africa' describes the relationship between land and human development over centuries, and explains how the present day spatial injustice has come about. The focus of this chapter is on legislation and policy developments, and the legacy that has resulted from this.
2. *Literature review* – 'Achieving spatial transformation' describes the extent of spatial fragmentation in the country, and the complexity of the challenges facing practitioners working in this field. It also describes what a spatially just and inclusive society might be characterised by, and how this could be achieved in practice.
3. *Case study* – a single case study is researched using embedded research techniques of participant observation, active participation, and reflexive journaling. This case study is representative of current planning practices

employed by public and private practitioners from diverse disciplines, and the successes and failures thereof. It therefore gives real-world perspective of the current challenges which face practitioners.

4. *Conclusions and recommendations* – the findings and lessons learned from the literature review and case study are presented in the final chapter, with the intention to contribute to further research and the advancement of spatial planning practices leading to a spatially just South Africa.

1.6.2. Policy review

A review of the historical practices associated with land use planning and management provides perspective regarding the spatial legacy, and the consequences thereof, which is experienced today. 'A brief history of land use in South Africa' includes a brief and relatively broad review of informal practices, legislation, policies and programmes relevant to the legislative and policy framework related to land use planning and spatial planning in South Africa.

The chapter begins with some of the earliest records of human development, and continues through the historical periods of colonisation, to the establishment of a democratic South Africa. The chapter ends with current developments in spatial and land use planning practices.

This policy review illustrates the strong connection between people and land, but also a long history of unequal power which has shaped the country as we know it today. Post-1994, this long history of unequal power must be dismantled in all areas of policy, legislation, practice, knowledge, culture and infrastructural development.

1.6.3. Literature review

The literature review provides contexts and background with regards to the need for spatial transformation in South Africa, and the obstacles to achieving this transformation. Various shifts in ideologies or epistemologies in planning theory and practice are presented as a method for bringing about a more spatially inclusive and just South Africa.

This review covers a range of literature. Journal articles and books provide perspectives built on the research and critique, and experiences of many other researchers, while public documents and spatial planning policies provide relevant current thinking, shifts in practice and experiences of practitioners in attempting to bring about just and inclusive cities in South Africa. These discussions provide a broader understanding of the theory and 'real-world' context for the case study.

1.6.4. Case study

1.6.4.1. Selection of the case study

A single case study was selected rather than multiple case studies. When studying multiple cases, the commonality of general phenomena or occurrences across these cases is important, whereas the detail of every case becomes less important. When studying a single case, the researcher can experience and describe far more accurately the details of the particular case (Gerring 2007; Yin 2009; Bryman, Bell, Hirschsohn, dos Santos, du Toit, Masenge, Van Aardt & Wagner 2011a; 2011b; Van der Merwe 1996). Therefore, a single case study allowed the researcher to explore the case in far greater detail.

The Two Rivers Urban Park (TRUP) development project was selected as a typical representation of current planning processes taking place in Cape Town. The intention of this project was to contribute to the densification of the city, whilst making available housing and job opportunities to a range of income groups. As a spatial planning project, TRUP was also typical as it required multidisciplinary teams to investigate various aspects of the site itself, determine a spatial layout for the development, and plan its future use(s) – which has become a common practice in spatial and land use planning in South Africa.

This was also an influential project, with great public and political interest around the land and its development. TRUP featured in the media with formal statements and press releases from the City of Cape Town (CCT). In addition, the characteristics that make TRUP an ‘influential case study’ are also the factors that make it a typical case study for exploring differing or conflicting governmentalities (rationalities, practices and techniques of governance) and rationalities (worldviews and ways of knowing) (Massey 2013: 39) which often hinder the success of transdisciplinary research and planning projects, such as this. As such, this case study offered the opportunity to report on the current planning practices, and if these practices are adequate to respond to the diversity of rationalities experienced by the team, and the results thereof.

1.6.4.2. Community of interest

The multidisciplinary consulting team who were appointed through the procurement system, to carry out the various specialist studies and planning processes associated with this project, were the community of interest in the case study. Therefore, the case study focuses predominantly on the activities associated with this team, their views and decision making.

In addition, a host of government departments and organisations also feature in the case study with different roles and responsibilities. For example, the Department of Water and Sanitation, the Department of Transport and Public Works from WCG, the Department of Environmental Affairs and Development Planning from WCG, Environmental Resource Management from the CCT, CapeNature, Heritage Western Cape and even the South African Biodiversity Institute. These departments and organisations were considered to be key stakeholders during the project planning processes. These engagements influenced the case study and its outcomes. However, the focus of the research was primarily on the consulting team. Therefore, the case study is presented from the angle of the consulting team.

1.6.4.3. Situation of interest

The extent of this case study was restricted to the activities directly associated with the scope of work for which the consulting team was appointed to undertake. This includes the methods or approaches employed by the team, and the team engagements and associated team dynamics, and the rationale, ethics, value systems and decision making.

Specifically, the research primarily focuses on the research and planning processes or approach employed as an overarching methodology to integrate the various disciplines and stakeholders on the project, towards an appropriate sustainable solution for the development and/or ecological rehabilitation of TRUP. This research therefore, does not unpack the detail of all of the specialist findings and reports, and even the legislative requirements. It is focused on the overarching process, project programme, team engagements, and importantly – the outcomes of this.

1.6.5. Ethnography

Case study research allows the researcher to be submerged in the research (Yin 2009; Van der Merwe 1996). In this research, the case study was explored through ethnography.

Ethnography has been described as the “*art and science of describing a group or culture*” (Fetterman 1998, in Gunzok 2001:1). Traditionally, this methodology was a social science research method, rooted in the fields of anthropology and sociology. However, current applications of this method include a range of research fields that fall within the social, economic, political, situational, experiential, or even personal spheres (Gunzok 2001; Preiser et al. n.d.; Van der Merwe 1996; Snowden 1999; Whitehead 2005; Anderson 2009).

Qualitative research methods, such as storytelling or the presentation of narratives, are often criticised as not being factual because they cannot be measured or presented statistically (Yin 2009; Lager 2017). However, methods such as storytelling are as ancient as civilisation itself, and are method that generation after generation has used to pass on knowledge (Snowden 1999). Stories and the act of storytelling has a unique ability to help us make sense of the world around us, and often of what appears to be nonsensical (Lager 2017). Therefore, results are far richer, and offer a greater understanding of the ‘how’ and ‘why’ of events, problems and situations in ways that does not require control over those events or problems (Yin 2009). Armed with the insights of the embedded researcher, these re-told experiences have the potential to present powerful findings, which other forms of quantitative research would not be able to record.

Extensive research has already been undertaken within the field of spatial planning and land use planning law, policy or practice. However, this has mostly been done through the review and analysis of secondary data. If new insights in this field are to be determined then this will need to be based on current, practical application (Watson 2002, 2003).

Ethnography presents an opportunity for real-world current experiences to be documented, and shared. It is a powerful technique that offers the opportunity to uncover and document local practitioners’ perspectives, ideologies and current practices as they are applied in the real-world context, but also to develop an understanding of the consequences of these ideologies and practices for spatial transformation (Whitehead 2005; Preiser et al. n.d.). Furthermore, when applied within

a policy development context, the findings may allow widening of top-down views and the enrichment of inquiry process, as well as gaining new analytic insights by engaging in interactive teams (Preiser et al. n.d.).

1.6.5.1. Data collection

Field work, in an ethnographic sense, is a form of “*inquiry that requires a researcher to be immersed personally in the ongoing social activities of some individual or group*” (Whitehead 2005:3). This often requires total immersion of the researcher in the field-setting 24 hours per day, 7 days a week, throughout all seasons of the year – what is termed, ‘embedded research’. This allows the researcher to become familiar with the spatial dimensions of the research setting and its socio-cultural dynamics, and also the variations in those dimensions and dynamics (Whitehead 2005). However, this type of involvement is not always possible as a result of limited access and/or time constraints resulting in the use of other methods associated with tour based observations, for example.

For this particular research, full immersion was impossible because the community studied is a local multidisciplinary team working together on a particular planning project on an ongoing basis, but not full time. However, the researcher was able to conduct this research as an embedded researcher as one of the consultants on the team.

Fortunately, the researcher held more than one role on the project – acting as the sustainability specialist, support to the environmental assessment practitioner, and as the technical team’s project manager (which included the environmental team, engineering team, the floodline modeller, and watercourse specialist); and as a result, the researcher was privy to a range of specialist fields, meetings, workshops and discussions; rather than being limited to one speciality or perspective of the project. Therefore, the insights gained by the researcher were broad and comprehensive in terms of the team dynamics, processes, decision making, and the consequences.

In addition, the researcher actively took part in numerous research activities and planning processes. Therefore, the methods used include ‘action participation’ whereby the researcher actively engages, and has a stake in the outcomes of the case study (Whitehead 2005).

Usually informal and semi-structured interviews assist the ethnographer with clarifying various aspects of the research (Whitehead 2005). However, interviews (structured,

semi-structured or otherwise) were not undertaken. This is because the research followed the ideology of 'naturalism' in order to ensure that the community being studied continued to behave naturally (Genzuk 2001).

Throughout the project, field notes in the form of reflexive journal entries were made. These entries were based on the experiences and observations of the researcher. But also include summaries of communications with various team members, as well as summaries of meetings where no meeting minute were available, and other sources of information such as official documents, the terms of reference (ToR) for the appointed team (Steenkamp 2018). Taking note of the Natural Cultural Learning Process, the reflexive journal entries include evolving learning experiences throughout the duration of the field work (Genzuk 2001; Whitehead 2005).

It is acknowledged that this methodology relies heavily on the personal experience of the researcher, as is the case with ethnographic methods. As a result, the research method of embedded research and action participation (or participant observation, as described in some literature (Genzuk 2001; Whitehead 2005) is often criticised because of the potential for the researcher's worldviews to introduce bias into the research. However, I argue that this is the case with all research methodologies. The perspective and experiences of the researcher will always influence the framing of problems, the selection of research methodologies and methods, and the interpretation and presentation of findings - even when the researcher has the best of intentions (Cilliers 2000; Preiser et al. n.d.). Therefore, ethnographic methods are no more or less biased than any other methodology.

1.6.5.2. Data analysis

Framing of the problem is a critical step in research and planning practices. In the instances of research and planning practices intended to bring about spatial transformation, it is therefore critical to first determine the boundaries of existing spatial injustices. For this reason, a description of the spatial injustices provides an understanding of the characteristics of the site, as well as the challenges and the complexity of the spatial injustices associated with this space. Thus, the available information regarding TRUP was summarised using a framework of spatial injustices is presented as three categories (Bassette 2013):

- *Spatial claim* - the ability to live, work or experience space. 'Spatial claim' attempts to describe who the various users of this space are, how they make use of the land; and those who have been marginalised, how this has taken place and why.

- *Spatial links* - the ease of access and connection to and with other spaces. Spatial links are identified by the accessibility and spatial connectedness and/or the physical barriers, as well as the invisible barriers and the historic memory of the site.
- *Spatial power* - available opportunities to succeed in- and contribute to space. Or the exclusion of some groups or individual's ability to succeed in a particular space. Spatial power is strongly linked to issues presented in spatial claim and spatial links, which act to enable the use of space or prevent access and use of space and resources.

Please refer to the section in chapter 3 on 'Creating spatially just and inclusive cities' for more information on this method.

This understanding of the spatial injustices associated with TRUP, and its various characteristics, provides a comparative baseline for the project outcomes which arise from the case study. Furthermore, it provides context for the relevance of the interventions proposed for the site.

Thereafter, the outcomes of the project, namely the Local SDF and development proposals made by the consulting team, are described. This is compared against the described spatial injustices associated with TRUP to determine if the interventions or solutions take cognisance of the complexity of TRUP.

The project which the case study focuses on was intended to research and plan for the development of TRUP in a sustainable manner, which not only respected the ecological value and memorialised significant heritage, but also provided sustainable development. The ToR called for integration of a multidisciplinary team, government officials and the public, to develop this proposal. It can therefore be concluded that the project falls within the definition of transdisciplinarity. For this reason, the case study was assessed using a framework of transdisciplinary design principles.

Acknowledging and respecting the characteristics of complex adaptive systems is an important factor in determining how to interact within systems. In particular, our research and planning practices must be adapted to be closer to systems behaviour, to acknowledge the complex adaptive nature of society, social ecological systems, and even the teams which undertake spatial planning projects and make proposals for interventions within these systems (Cilliers 2000; Preiser et al. n.d.).

Transdisciplinary research and planning practices acknowledge the complexity of the world, and focus on the development of sustainable solutions for society within this

complexity (Lang et al. 2012). It is a scientific methodology which focuses on bringing diverse forms of knowledge from diverse groups together, to solve social problems (Lang et al. 2012; Brandt et al. 2013). There are a host of practices and methods associated with transdisciplinarity, such as community participation, design thinking and co-design (Land et al. 2012), which are intended to enable the co-creation of designs between practitioners from various fields and society.

The intention of using this framework was to determine if the approach employed by the community of interest was relevant and capable of managing the conflicting rationalities, governmentalities and power dynamics associated with the team to yield adequate project outcomes, and in particular spatial transformation in the study area.

Please refer to the section in chapter 3 on 'Research and planning processes for collaboration and reflexive learning' for more information on this planning process or method.

1.7. Limitations and assumptions of the study

A number of assumptions and limitations are associated with this research, and how its findings are presented:

- This research is not a critique of the spatial planning and land use management legislation, system, processes or structures. It therefore does not provide a discussion on these approaches or practices, or alternatives.
- Although a policy review is provided with a focus on the development of the country over time, the review is not necessarily exhaustive. Instead, this is provided as background to the study and to aid in understanding the past social injustices which have spatially defined Cape Town as we know it today.
- The ethnographic methods of embedded research and action participation, as employed in this research, provide an interesting way of exploring the experiences of planning practices, which empirical analysis would not be able to provide. However, this is limited by the experiences, observations and understanding of the researcher. This research, and in particular the case study, is therefore only one perspective of the research and planning practices associated with the case study. The researcher shaped this perspective around countless engagements with the consulting team in various settings; her experiences in the various roles she fulfilled; her observations and understanding of situations, the specialist studies, decisions made, etc throughout the duration of the project and this research. For this reason, it is an incomplete account, from her perspective only.

- The researcher had very distinct personal limitations. First, she is not a town and regional planner, urban planner or designer, although the content and focus of the research is on spatial- and land-use planning practices. Nor is the researcher a social scientist – and yet the research used ethnographic research methods that are common to social science or anthropology. However, the researcher's university degrees and work experience within the built environment industry, is multidisciplinary in nature and she has been practising in the field of environmental strategies, sustainable development, land-use planning, and the policy sphere for several years. The researcher also holds a postgraduate diploma in sustainable development, with a focus on the planning sphere. This experience provided her with a unique perspective on planning practices and multidisciplinary team dynamics.
- With regard to the case study, TRUP, the researcher was one of the appointed consultants on the consulting team. She was appointed as the 'sustainable development specialist' and support environmental scientist (reporting to the environmental assessment practitioner). In addition, she acted as the project manager on behalf of one of the larger sub-consultants on the team, and thus represented the roles associated with the various engineering services, the floodline modelling and the watercourse specialist. In addition, the researcher was affiliated with the Dutch Team which was appointed in an advisory role to the CCT. This provided the researcher with broad exposure to the various components of the project, affording her the opportunity to be actively involved in most of the specialist roles associated with the research and planning for TRUP. However, for the same reason, it is possible that her personal biases are reflected in this research.
- Referencing material associated with the observations made with regards to the case study are limited. The focus of the case study was on the consulting team, yet few official minutes of the consulting team's engagements were recorded. Furthermore, many of the observations were based on face-to-face engagements, telephonic conversations and e-mails between the team members only – which are far more reflective of the experiences of this project, than the formal minutes. These forms of information are not available to the public, and any records held by the researcher may not be distributed, in accordance with the ethical clearance requirements of this research.
- At the time that this research was completed the TRUP project was still ongoing. Therefore, the findings in the thesis only present the researchers experience up until November 2017.

1.8. Ethical considerations

Although the case study is that of a land use planning exercise, it required observation of a particular community (as described in the methodology). This community was not asked for consent to participate in this research. This was done for two main reasons: 1. to preserve the natural behaviour of the community (Genzuk 2001; Whitehead 2005); and, 2. to avoid exclusion of the researcher, as this would have compromised her position on the consulting team and the research findings.

However, the relevant officials, acting on behalf of the Western Cape Government (WCG) and City of Cape Town (CCT), as custodians of this project were asked for consent. This request for consent included the request to make use of information associated with the project. In addition, the government officials were reassured that the names of individuals and companies, as well as any personal and draft notes would not be published.

It is acknowledged that this approach strongly brings into focus two aspects: 1. Bias of the researcher; and, 2. Anonymity of the community being studied.

Firstly, no research, quantitative or qualitative in nature, is completely removed from bias. All research is influenced by the world views, culture, experience and education which shape the researcher's mind set, approach and interpretation of the data (Cilliers 2000; Preiser et al. n.d.). Therefore, this research is not unlike other methodologies, and instead of attempting to remove the bias, the researcher attempts to present the information in a holistic manner, but also to be open and frank about any of the researcher's biases which may aid the reader in their interpretation of this research.

Secondly, the focus of the research is about the challenges of achieving spatial transformation in land use planning 'practice', and not the community itself. Therefore, the anonymity of the community of interest can easily be maintained by not making reference to individuals' or company names, or other personal information. However, to be clear on various observations of planning practices broad reference must still be made to distinguish schools of thought or practices, or even some government departments.

Great care was taken in the presentation of the research to avoid misrepresentation of individuals, and to not make reference to individual names or company names. In addition to this, any material gathered (e.g. notes or voice recordings) during this research will not be made public.

1.9. Thesis structure

This research is presented in a 'traditional thesis' structure – with the intention of understanding the challenges associated with spatial- and land use planning practice; the need for spatial transformation; and, the challenges of achieving spatial transformation in Cape Town, South Africa. The structure of this thesis was therefore aligned with the research objectives, in the following manner:

- *Chapter 1: Introduction* – provides an overview of the intention of the research, the assumptions which have informed this research, the methodology and methods, the associated limitations and assumptions; and ethical considerations.
- *Chapter 2: A brief history of land use planning practices in South Africa* – the objective of this chapter is to provide context as to why land - its allocation, division and use, is central to many of the challenges facing the country. This chapter highlights more than 300 years of unjust land use; and, ends with an overview of the shifts in spatial planning practices which are intended to bring about spatial transformation in South Africa.
- *Chapter 3: Achieving spatial transformation* – the objective of this chapter is to describe the challenges which spatial planning and land use practitioners grapple with, as they attempt to bring about a more spatially just South Africa. This chapter also highlights what a spatially just and inclusive society is characterised by, and various methods which have been developed to assist practitioners with realising this change.
- *Chapter 4: The Two Rivers Urban Park* – the case study is presented through two lenses. A framework for identifying the spatial injustices associated with this site is used to establish an understanding of the complexity of the land, why spatial transformation is required in this space, and the challenges which the practitioners must consider and respond to with proposed interventions and development of the site. Transdisciplinary design principles are then used as a framework of reviewing the methodology used by the community of interest to bring about spatial transformation. The chapter ends with a discussion of the findings, and attempts to summarise the links between the shortcomings of the research and planning processes employed, and the outcomes of the project.
- *Chapter 5: Conclusion and recommendations* – this research concludes with reflexive consideration of the lessons learnt in the case study and the literature presented. Lastly, recommendations are made for future advances in spatial- and land use planning practices.

2. A brief history of land use in South Africa

2.1. Introduction

Land is central to our existence. From it we receive shelter, food, livelihoods and recreation. Our lives are played out across its plains, and when we die we return to the soil. However, we have forgotten our connection to the land and argue about 'your way' or 'mine'. We have forgotten what we have been fighting for – the land, our birth right; the land which is not ours; and the land which we belong to.

South Africans know about the legacy of apartheid, the spatial segregation and the alienation of people. Throughout South African history the system based on racial segregation has resulted in discrepancies and racial biases in the spatial planning and land use planning system. Today the news and social media are littered with the struggles of those who still fight for quality of life, a place in society, shelter, basic services, and equal opportunities. But we have forgotten our connection to the land. We have forgotten our heritage.

This chapter presents a brief history of land use practices in South Africa. It explores the stories of our ancestors from our earliest records, through our dark history of colonialism and apartheid, and our current struggles to learn from our past and build a better future. The intention of this chapter is to understand the extent and severity of the apartheid-based spatial legacy; and understand why land and the associated planning process is a central component of the healing of the country.

2.2. Pre-colonial history, pre-1652

South Africa has the oldest recorded historical sequence of human development. The story begins with two million years of hominid fossils in a wide region which we know today as the 'Cradle of Humankind' in the Gauteng Province (Huffman 2017; Maropeng 2017). Records span from the first human ancestors to walk upright, the *Australopithecine*, through to a very recent discovery of a new species, *Australopithecus sediba* – which has only been found in Africa. These human-development records continue throughout the Stone Age, roughly 2.6 million years ago, to the relationships between the San hunter-gatherers and the Khoikhoi pastoralists who first traded cattle with the Dutch in the Cape during the 17th Century, and through to modern-day existence (Huffman 2017). This chapter begins with the San and the Khoikhoi in Southern Africa.

It is estimated that the San and KhoiKhoi settled in the South Peninsula more than 2000 years ago. The early San and KhoiKhoi practiced rudimentary land-planning practices. These practices suited their nomadic pastoralist lifestyles which included easily dismantled dwellings and a loose order to their settlements. Their homesteads were situated near water and good soil, and they lived in semi-permanent structures comprising pole-and-daga (or wattle and daub) houses – with grain bins arranged around animal byres (Van Wyk 2012b; Huffman 2017).

Both the San and KhoiKhoi were settled in their nomadic lifestyles associated with the seasons and the needs of their cattle, when the first Bantu speaking farmers arrived in the Cape region from the northern regions. The Bantu-speaking people settled in villages, practising subsistence farming and tending to livestock during the 3rd and 4th centuries CE (Muller 2016). They brought skills related to the cultivation of sorghum and millets; herding cattle, sheep and goats; mining for minerals, and the manufacturing of iron tools and copper ornaments (Muller 2016; Huffman 2017).

Over time and with the various influences between the tribes, the way of life within the Cape region shifted away from nomadic practices to more sedentary lifestyles – with greater investments in dwellings and pastoral practices. The Bantu, San and KhoiKhoi were also skilled at trading and practised their own laws and systems of ownership (Van Wyk 2012a; Muller 2016; Huffman 2017).

However, these were not the only tribes across Southern Africa, and certainly not the only type of land uses and laws which were practiced. Throughout Southern Africa there were many other tribes – each displaying very different lifestyles and associated settlement patterns. By 1700, there were Tswana and Sotho villages in South Africa, larger and denser than Cape Town at the time. For example, in Molokwane – the area known today as Rustenburg in the North West Province – there was an estimated population of 33 000 people, compared to Cape Town's population of only 3 000. The capital of Mapungubwe Kingdom in the Limpopo River Valley was one of just a few Iron Age permanent settlements in South Africa. In the Zulu Royal Village at uMgungundlovo, even more permanent dwellings were found – urban planning was evident in the placing of dwellings, open spaces and rights of way (Van Wyk 2012b; Muller 2016; Huffman 2017).

This very brief pre-colonial history overview highlights the strong relationship between the various peoples living in Southern Africa, the deeply connected relationships and

ways of life between the people and the land, and the existence of order and structure through the use of laws, systems and agreements.

2.3. A legacy of unjust planning, 1652-1994

The Dutch East India Company (Verenigde Oos-Indische Companje (VOC) – a multinational company including the Dutch government – arrived at the shores of the Cape in 1652 in an area known as Table Bay – one of the areas used seasonally by the San and the Khoikhoi. Here they established a replenishing station for passing ships, called the ‘Cape of Good Hope’; and traded with the Khoikhoi (Huffman 2017).

Later, this station was upgraded to a permanent settlement. A number of young men from Europe signed five- to ten-year contracts with the VOC to work in various positions at the Cape of Good Hope. After these contracts expired, the men could return home or become ‘free burghers’ and farm the land for themselves (Muller 2016; SAHO 2017a).

However, the land did not belong to the Colonialists, and their practices conflicted with the grazing and pastoralist lifestyles of the KhoiKhoi, San and Bantu-speaking people. This resulted in a series of Khoi-Dutch wars, where the Dutch claimed the Cape under the ‘right of conquest’ and made a sovereign claim to the land they assumed to be *re nullius* or property belonging to no one. They made this claim despite the continued presence of the Khoi-San and their historical use of the land (Van Wyk 2012b; SAHO 2017a).

In 1657, the Dutch introduced a system of land registration which we still use today (Van Wyk 2012b). Under this system, free burghers were allocated surveyed farms in the form of ‘*erfbriewen*’ or erven – which is a form of freehold ownership. However, the VOC could not effectively control the issuing of land in the outlying districts, which led to a form of squatting on farms. These ‘squatting’ farmers, known as ‘*trekboere*’, grazed their cattle with no rights, although these rights were allocated at a later stage. In 1714, the ‘*leeningplaats*’ or loan place system, replaced the *erfbriewen*, and a nominal annual rental fee was charged by government for farms up to 3000 morgen in extent (2570 hectares). In addition, government retained the right to reclaim the land with one year’s notice. In 1732, the system was amended yet again, when the *erfpacht* was introduced, which was based on valuable agricultural land in the Western Cape for a period of 15 years, and was subject to an annual rental fee (Muller 2016).

Traditional communal systems of land ownership were ignored. Instead, the British introduced restrictive covenants to the registration of title deeds in favour of non-Europeans (Van Wyk 2012b; Muller 2016). Ordinance 50 of 1828 acknowledged the right of non-Europeans to own the land, and lesser rights in the form of grants were extended to Khoikhoi, missionaries and the Civil Commissioners of districts, where reserves were established for indigenous occupation. However, the titles issued were considered to be certificates of reservation, tickets of occupation and 'restricted' deeds of grants – all of which were revocable at the will of the Crown and with cancellation of the power to alienate (Muller 2016).

In this manner, the VOC established a number of towns such as Cape Town in 1652, Stellenbosch in 1679, Swellendam in 1746, and Graaff Reinet in 1786 – each of which functioned as decentralised government administrative centres. Simon's Town was established in 1690 as a harbour and naval station. Later, these four administrative districts were sub-divided into smaller districts and sub-districts. Additional towns were established – such as Tulbagh in 1795, George in 1800 and Uitenhage in 1804.

Between 1652 and 1825, town establishment was the responsibility of the government. From 1826 to 1900, the Dutch Reformed Church took this initiative. Towns were established, first with the initiation of a committee, which would select a new site. The assigned Governor would then grant permission to establish the town. Thereafter, the farm or land would be purchased and a land surveyor would lay out the town – similar to the contemporary function of a Town and Regional Planner. All towns were based on a gridiron layout, with a church as the main building in the centre of town (Muller 2016).

Over time, further discriminatory legislation was passed in the form of the 1879 Native Location Act which granted occupation rights but not ownership on a one-man-one-plot basis; and the 1894 Glen Grey Act, introduced by Cecil John Rhodes as Cape Prime Minister, which supported the replacement of communal tenure of land in the then 'African' Reserves with the afore-mentioned rights. In addition, anti-squatting legislation, a poll tax and pass laws all contributed to the Cape Colony's evolving action against traditional land owners who were deemed to be 'squatter-peasants' in the 1880s and 1890's. These laws deepened segregation, and social and cultural degradation, and forced black people into wage labour (Muller 2016).

The nineteenth century colonial period, saw radical urban development of Cape Town based on racial segregation and the oppression of people of colour. Two waves of capital investment largely enabled this.

The first wave of capital investment was in the 1840s following the abolition of slavery in the Cape Colony. The Crown gave Capital to slave holders to compensate for property loss. These transfers supplied disposable cash for Cape Town's real estate capital, with copious amounts of money spent on construction and upscaling of buildings within the city centre - which is known today as the city's historical core (Miraftab 2012).

Residential apartments were built on the city's outskirts, to appease the growing demand from the emerging class of wage labourers of former slaves. While accommodation for migrant labourers was mostly provided in the form of hostels, these were overcrowded and inadequate in terms of all services and economic investment (Miraftab 2012).

The second wave of capital investment, in the last two decades of the nineteenth century, followed the 1869 discovery of diamonds in Kimberley. Cape Town, with its harbour, benefited from the extracted riches and its exports to Europe. This incentivised the upgrade of the harbour and the railroad terminus connecting the Cape to the main road in Rhodesia, and the interior. This massive development of infrastructure facilitated Cape Town's geographical expansion and the increase of housing stock, while the property value and revenues soared (Miraftab 2012).

These capital injections furthered the unequal power dynamics in favour of the white population, particularly the colonial merchants. Cape Town became a thriving economic hub. It even attracted the headquarters of banks and insurance companies. Consequently, Cape Town became the commercial centre dominating the Western Cape (Miraftab 2012).

But, this also catalysed class conflicts over production and the control of space, resulting in uneven investment in the city centre and other elite areas; as well as, the marginalisation of people of colour to the outskirts where infrastructure and investment was inadequate, and neglected. This shaped the socio-spatial distribution of wealth, infrastructure, and economic opportunities (Miraftab 2012), and which was later built on by apartheid policies - which is still evident today.

During this time, the steady inflow of English Settlers, the abolition of slavery and the Sixth Frontier War of 1834/35 between the British and the Xhosa, resulted in the Great Trek (Van Wyk 2012b). The movement of thousands of Dutch settlers out of the Cape Colony saw discriminatory land-use practices spread to the new colonies, throughout South Africa.

Following further conflict, Natal was annexed as a British Colony in 1842. Several wars ensued, culminating in the South African War or Boer War of 1899-1902, after which all four colonies formed the Union of South Africa in 1910 (Van Wyk 2012b).

Following the Union, South Africa was subdivided into four provinces. Provincial powers were set out in the South Africa Act, 1909 (Act 9 of 1909) and the Financial Relations Act, 1913 (Act 10 of 1913), as amended in 1925. Under these acts, land use planning powers were not constitutionally guaranteed, but the Financial Relations Act gave provinces the power to legislate regarding township establishment and town planning (Muller 2016).

Before the adoption of land-use planning laws, health, housing and squatting legislation enabled the control and development of land in favour of non-Europeans, and also the management of slums (Miraftab 2012; Muller 2016). The 1900 and 1904 bubonic plague epidemics, the 1912 small pox outbreaks, and the 1918 flu epidemic were used as a motivation to move black people out of central neighbourhoods into segregated locations. The unhygienic conditions in the centre of Cape Town with open sewerage systems and poor waste management, coupled with the diseases brought in with travellers, were ignored as the true cause of these epidemics. The Public Health Act of 1919, the 1920 Housing Act and the Native Reserve Locations Act, 1902 (Act 40 of 1902), were all established to enforce further segregation. As a result, places like Ndabeni in Cape Town, and Brighton in Port Elizabeth were established (Miraftab 2012; Muller 2016).

The tenure systems of the Dutch and the British directly conflicted with the Khoi-San way of life, and the unregistered grazing and other rights of these people. This land policy, together with other discriminatory legislation and policies, eventually destroyed the Khoi-San way of life and led to their dispossession. Examples of discriminatory legislation and policies include: the 1809 Hottentot Proclamation which declared that 'Hottentots' must have a prescribed living area, and carry a pass. In addition, the 1812 Apprenticeship of Servants Act made it compulsory for apprenticeship of their children to farmers. Because of these practices, only a few Khoi kraals remained, but as

missionary institutions, such as Genadendal which was established in 1737 and Mamre in 1808. Genadendal and other missionary stations later became 'Coloured Rural Areas' in terms of the Cape of Good Hope Mission Stations and Communal Reserves Act, 1909 (Act 29 of 1909) (Muller 2016).

All of these discriminatory policies and practices laid the foundations for apartheid (Miraftab 2012). Apartheid furthered racial segregation, control and deliberate dispossession and socio-economic marginalisation of black people across the country. As a result, the settlement forms of cities and towns across the country reflect the racist planning frameworks of the white-controlled governments. These governments served the obligation to accumulated wealth and resources for the European homelands, and in later years when independence was granted, they served their own greed (Williams 2000; Miraftab 2012; SACN 2016b).

The Black Land Act 27 of 1913 marked the beginning of the legislative differentiation of land-use based on race. All these acts were responsible for the implementation of a land-use system based on the separation of people based on race. This was achieved through a focus on control, and not development on the land. The Acts gave way to a series of legislative enactments that perpetuated racially-based segregation – such as the Native Urban Areas Act of 1914, the Native Administration Act of 1927, the Slum Clearance Act of 1934, and the Development Trust and Land Act 18 of 1936 (McCarthy 1998; Van Wyk 2012a, 2012b; Muller 2016 SAHO 2017b).

The first municipal powers regarding subdivision were set out in the Cape Municipal Ordinance, 1912 (Ord 10 of 1912). At this stage, all applications for subdivision were regulated by section 268 of the Cape Municipal Ordinance, 1912. This ordinance stipulated that it was not legal for any land owner to subdivide any property for any reason – without the approval of a subdivision plan by the municipality (Muller 2016). In addition to this, the Cape Province later used the Township Ordinance 13 of 1927, which dealt with the subdivision and establishment of townships. This ordinance was later replaced by the more comprehensive Township Ordinance 33 of 1934. The first comprehensive Townships and Town Planning Ordinance in South Africa was the Transvaal Ordinance of 1931 (Muller 2016).

In 1942, a Social and Economic Planning Council was appointed – with the intention of bringing about integrated social-economic policy. In their fifth report on physical planning (1944), the chaos in peri-urban areas was highlighted, as was the need for public control of land, a balanced distribution of industries, and problems associated

with over-concentration in large centres. The report recommended a national department of physical planning and regional development. As a result, a National Housing and Planning Commission was established in 1944, in terms of the Housing Amendment Act of 1944, under the Department of Public Health, limiting the powers of Municipal Ordinances (Muller 2016).

In 1948, the National Party was voted into power by white South Africans, and brought the promise of apartheid (SAHO 2017b). This political regime was based on four basic principles: 1. Monopoly on state power to remain in the hands of whites; 2. Divide urban and rural land on the basis of race; 3. Place the supply of black labour under state control; and 4. Apply state power to maintain order and regulate all aspects of the lives of the black majority (Van Wyk 2012b).

Three legislative pieces, largely focused on land control and management, consolidated and gave effect to the above four principles. These were the Group Areas Act of 1950, and the homelands (bantustan) policy; the Promotion of Bantu Self-Government Act 46 of 1956; and the National States Constitution Act 21 of 1971. These acts had various associated supporting legislation. The result was that planning for black areas was complex because of a variety of applicable acts – but also because of the legislative pieces related to the various categories of black areas (McCarthy 1998; van Wyk 2012b; Muller 2016).

The above legislation enabled the establishment of 10 homelands in the 1960s and 1970s, of which four became independent (Ciskei, Transkei, Venda and Bophuthatswana) and six were self-governing. It is estimated that 3.5 million people were forcibly removed during the period of consolidating homelands. The average population density in these homelands was 151 people per km², compared to 19 people per km² in the remainder of the country (Muller 2016).

The National Resource Act of 1947 was the first national land-use planning act in South Africa, and made provision for the creation of controlled areas consisting of numerous local authorities. This was the first legal provision for regional planning, and the Free State goldfields were the first proclaimed controlled area. The Act also called for the establishment of the National Resource Development Council, which investigated 'optimal development and use of land', and coordinated planning in controlled areas (Muller 2016).

Under this regime, and the various enforcing Acts, black people were forcibly removed from urban land, and had no legal claim to land or property ownership rights outside of the homelands. These 'Homelands' or 'Bantustans' were far from cities, on less fertile lands. Although some temporary dormitory townships were made available within some cities to accommodate black labour (Cook 1998; Pirie 1998; Soni 1998; SACN 2016b; SAHO 2017b). These dormitory towns were still segregated as far as possible (SACN 2016b), and controlled through the design of space, with infrastructure as barriers, e.g. black residential areas were designed with only one point of entry and exit, to aid with the control of crowds should a riot break out (Pirie 1998). There was no real security of tenure within these residential areas, with inadequate housing and overcrowding a permanent feature, and a chronic lack of health care and other basic services (Cook 1998; Pirie 1998; Soni 1998; SACN 2016b; SAHO 2017b).

Labourers were allowed to access cities during working hours only. They were forced to commute over long distances in the morning and evening, in overcrowded buses or trains. To enable this, extensive transportation infrastructure networks had to be constructed, long before it would have been required by organic urban growth, thus making it difficult to fund. Despite this, government continued to invest in road infrastructure for private vehicles (Pirie 1998; SACN 2016b).

Transportation consisted of two trunk routes for black commuters – for long-distance journeys or 'inter-urban' travel between the city and Bantustan towns; and, for short-trips for those based in black dormitory townships in the cities. Long distance routes were between 20km and 45km in distance, and took between 90 minutes and two hours in one direction. While short distance trips, were made to be artificially long. More than half of this journey time was spent walking, with terminals situated on the edge of townships and the fringes of down town areas (Pirie 1998). Public transport was a palpable experience of apartheid for people of colour. As such, it acted as both an enabler of the geographical segregation, and had a gruelling and debilitating effect on the black population (Pirie 1998; SACN 2016b).

As the frustrations of the people of South Africa rose, the intensity of the struggle against apartheid increased. By 1960, the opposition parties - African National Congress and the Pan African Congress, were banned by the National Party. The international community responded by sanctioning and barring South Africa from numerous international platforms. Refusing to dismantle apartheid, the country left the Commonwealth and became a republic in 1961. The situation deteriorated to such an

extent that by 1980, South Africa was described as untenable (Van Wyk 2012b; Muller 2016).

In 1964, the first national Department of Planning was established. Its purpose was to improve coordination between economic, scientific and physical planning. This resulted in further legislation: the Physical Planning and Utilisation of Resources Act, 1967 (Act 88 of 1967) replaced the 1948 Act, and the National Research and Development Commission was disestablished. The new Act focused on the establishment of controlled areas, controlled zoning, and the subdivision and use of land for industrial purposes. The intention was also to implement influx control – discouraging black people from moving to the cities by limiting industrial development in certain areas. The concept of a controlled area included powers to protect agricultural and mineral resources. In 1975, the name of the Act was changed to the Environmental Planning Act and in 1981 to the Physical Planning Act – while the 1981 amendment to the Act also provided for the drafting and approval of guide plans.

In 1982, the Environmental Conservation Act, 1982 (Act 100 of 1982) was adopted. This was replaced by the Environmental Conservation Act, 1989 (Act 73 of 1989). This led to the first Environmental Impact Assessment regulations in 1997 (Muller 2016), which were voluntary prior to 1997. Compulsory activities, needing an environmental impact assessment to be undertaken, only came into effect under the Environmental Impact Assessment Regulations in September 1997.

With growing unrest in the 1980s as the struggle against apartheid reached its zenith, the National Party promulgated and affected a number of new acts. In 1984, the Black Communities Development Act (Act 4 of 1984) made provisions for subdivision in designated black development areas and the establishment of town planning schemes, accepting that urbanisation was unstoppable. In the Cape Province, the Land Use Planning Ordinance (Ord 15 of 1985) (LUPO) included a number of innovative ideas regarding separating zoning schemes which offered land-use rights from spatial planning in terms of structure plans. In addition, all unutilised zonings would lapse after a period of time and not be perpetual, as they had been in the past. Some of the goals of LUPO were to devolve the land-use powers to municipalities, and to rationalise procedures. In 1987, in terms of the new Constitution that created the concept of 'Own Affairs' for various racial groups, the Cape Land Use Ordinance was separated into two separate Ordinances, but in 1991, this second Own Affairs Ordinance was repealed and LUPO became one Ordinance again (Muller 2016).

In 1987, the pass laws and influx control were repealed. Legislation for the first time allowed black people in urban areas to own property, but only through 99-year leaseholds. The unpopular bantu administration boards were disbanded, and the functions of housing and development and squatter management, in terms of the Black Community Development Act of 1984, became a provincial function (Muller 2016).

With the growing responsibilities of the Cape Province and a lack of staff and resources to fulfil these responsibilities, some planning functions were delegated to municipalities through the use of structure plans. This led to the drafting of the General Structure Plan to guide the delegation process. In 1988, two years after LUPO was implemented, most zoning, departure and subdivision applications were delegated to municipalities. However, the appeals power of LUPO meant that most applications were still processed by the province for appeal and approval (Muller 2016).

As a result of multiple pressures, in 1990 FW de Klerk unbanned the liberation movements – in particular the African National Congress – and released political prisoners, including Nelson Mandela (Van Wyk 2012b; Muller 2016). The remaining discriminatory laws were repealed by the Abolition of Racially Based Land Measures Act of 1991. These included the Group Areas Act, the Black Communities Development Act, the Rural Coloured Areas Act, and the Land Act of 1913 (Muller 2016).

2.4. The democratic era, post- 1994

Post-1994, the intention was to transform the social alienation, injustice and inequality which were inherited from a long history of colonisation and apartheid. Centuries of inequality and discrimination needed to be dismantled. Deep divisions and inequalities between the homelands and 'white South Africa' required redress in the process of restructuring (McCarthy 1998). This was to be realised through interventions like the housing programme and provision of adequate public transport – as well as investments in health, education and social services. The quality of life of the victims of apartheid was to be improved, and a better life for all was promised by the new political regime (Van Wyk 2012a; Williams 2006; SACN 2016b).

This began in 1992, when the Convention for a Democratic South Africa and multiparty negotiations were initiated with a mandate of constitutional development. This saw the adoption of the Interim Constitution in 1993. A year later the first democratic elections

were held, and by 1996 the official new Constitution of South Africa was embraced (Van Wyk 2012b; Muller 2016).

The 1996 Constitution of South Africa, promises a better future in which all South Africans have equal rights. This Constitution includes a Bill of Rights, and entrenches and affirms the democratic values of human dignity, equality and freedom. It specifically prohibits discriminatory practices based on race, gender, pregnancy, marital status, ethnic or social background, colour, sexual orientation, age, disability, religion, conscience, belief, culture, language and birth (Williams 2006).

The Constitution emphasises cooperative governance, the promotion of social and economic rights, public participation, and accountability for decision-making. All of these aspects have had a profound effect on how the new land-use planning system has been shaped (Van Wyk 2012b; Barnes & Gerber 2016). As such, the Constitution has laid the foundation for societal transition and for a new policy, legislative, administrative and service-delivery regime (Barnes & Gerber 2016).

This was a significant step in the history of South Africa, and the abolition of discriminatory practices. The 1910, 1961 and 1983 national Constitutions did not include a Bill of Rights. Furthermore, the concept of parliamentary sovereignty meant that parliament could adopt any law – irrespective of how discriminatory or onerous it was on any group of people.

The first Bill of Rights in South Africa materialised in the form of the 1955 Freedom Charter, which was adopted by the Congress of the People during the time the establishment of a republic was being debated. However, even this Charter did not recognise the equal rights of all race groups in South Africa. In 1983, the Republic of South Africa Constitution Act, 1983 (Act 110 of 1983) was adopted. However, this 'Own Affairs' Constitution gave more power to the State President, and further enabled discriminatory practices (Muller 2016).

Following the adoption of the 1996 Constitution, the Reconstruction and Development Programme (RDP) was the anchor policy document of the post-apartheid government (Williams 2006; Ngamlana & Eglin 2015). It had stood as the political manifesto of the African National Congress during the election campaign for the first democratic elections on 27 April 1994. This plan was intended to act as an overall planning framework for the transition to a post-apartheid South Africa. The Reconstruction and Development Programme stresses the importance of nation building through improved

standards of living and quality of life for all South Africans – and by implication the increasing significance of local government and development planning at grassroots level (Williams 2006).

An Urban Development Framework was released in 1997 by the Department of Housing. It was intended as an interpretation and expression of the mandate outlined in the Reconstruction and Development Plan (Ngamlana & Eglin 2015). The Urban Development Framework provides a 25-year urban vision in the face of ongoing urbanisation which often reinforces the spatial injustices of the past. This vision calls for cities to be transformed by 2020. These cities should be (DoH 1997):

- spatially and socio-economically integrated;
- free of racial and gender discrimination and segregation, so enabling people to make residential and employment choices to pursue their ideals;
- leaders of a robust national economy, and economically competitive internationally;
- centres of economic and social opportunity where people can live and work in safety and peace;
- centres of vibrant urban governance, which are managed by democratic, efficient, sustainable and accountable metropolitan and local governments in close cooperation with civil society, and are geared towards innovative community-led development;
- environmentally sustainable, and marked by a balance between consumption needs and renewable and non-renewable resources;
- planned for in a highly participative fashion that promotes the integration and sustainability of urban environments;
- characterised by good housing, infrastructure and effective services for households and businesses – as the bases for an equitable standard of living;
- integrated industrial, commercial, residential, information and educational centres, which provide easy access to a range of urban resources; and
- financed by government subsidies and by mobilising additional resources through partnerships, with more forceful tapping of capital markets and via off-budget methods.

Recently, the 2016 Integrated Urban Development Framework replaced this framework. The latest framework sketches an urban vision and policy for South Africa, and presents practical interventions (referred to as levers) for implementing the National Development Plan (COGTA 2016). This urban vision promotes the development of liveable, safe, resource-efficient cities and towns which are socially

integrated, economically inclusive and globally inclusive. Furthermore, these residents must be able to actively participate in urban life. The strategic goals of this framework are to ensure spatial integration, inclusion and access, thereby enabling the realisation of the urban vision (COGTA 2016).

A host of other land-use planning-related pieces of legislation have been drafted since 1994, and continue to be revised, in the pursuit of realising this 'urban vision'. These include:

- Green Paper on Development and Planning, published in 1995, which was followed by the Wise Land Use White Paper on spatial planning, land use management and land development (1999). The White Paper provided a new land-use system, with practical measures to transform the apartheid city. These measures include, among others, redefining both the procedural and substantive aspects of development and planning, commensurate with the basic right of freedom of movement and equal access to places of residence, work and recreation in post-apartheid South Africa. In so doing it redefined land-use planning principles and regulators – to be based on integrated development planning, a uniform set of procedures for land development approvals and national SDFs (Dewar 1998; Mabin 1998; Van Wyk 2012a; Williams 2000).
- 1997 White Paper on South African land policy, which stressed the need for a land-development policy to provide a framework and procedures to facilitate the speedy release of suitable land for development (Van Wyk 2012a).
- 'Growth, Employment and Redistribution' (GEAR) policy, which was launched in 1996, and promised accelerated growth, growing employment and redistribution of wealth – but it was sadly highly ineffective (Van Wyk 2012a).
- National Spatial Development Perspective, accepted in 2003 as policy - this included a spatial narrative, a set of analytical maps and a strategic response based on setting priorities, principles and visions. Its shortcoming was however, that its focus was more on economic development than on development planning (Van Wyk 2012a).
- Local Government: Municipal Systems Act 32 of 2000, which dictates that each local municipality must adopt an IDP, which must include a SDF and several other progressive laws, policies and programmes, including the National Environmental Management Act 107 of 1998, the National Water Act 36 of 1998, the National Water Services Act 108 of 1997, and the Housing Act 107 of 1997 (Van Wyk 2012a; Barnes & Gerber 2016).

- Planning and Land Use Management Bill 2011¹ resulting from the Development Facilitation Act 67 of 1995, builds on the Local Government: Municipal Systems Act 32 of 2000.
- Green Paper on Land Reform of 2011, also by the Department of Rural Development and Land Reform, which focuses on land reform, and includes a vision for land reform through effective planning and a regulatory system that promotes optimal land utilisation in all areas and sectors (Watson 2002; Van Wyk 2012a).
- National Development Plan 2030 (2012), which refers to certain principles that are critical for achieving spatial transformation. These principles are meant to inform and guide interventions in the built environment, the economy and the development of spaces in South Africa (Van Wyk 2012a; SACN 2016b).
- Strategic Plan 2010–2013, by the Department of Rural Development and Land Reform, which is another inadequate policy document that simply lists land planning and information legislation without providing direction for future legislative development.
- Spatial Planning Land Use Management Act 16 of 2013 (SPLUMA), which governs all formal and informal land use planning practices in the country (Van Wyk 2012a; Barnes & Gerber 2016), but still requires all provinces to adopt provincial planning laws and all municipalities to adopt planning by-laws. Some provincial governments have already approved their own Land Use Planning Acts, such as the Western Cape Land Use Planning Act 3 of 2014, which gives effect to planning within the guidelines of SPLUMA (Ogle 2016).

The process of dismantling 300 years of unjust spatial- and land use legislation, policy and practices has been cumbersome. Progress has been slow, and as a result the planning legislative framework of the country has evolved in a piecemeal fashion (Van Wyk 2012a, 2012b). There have been discrepancies between the various legislative tools. While laws and policies promote certain goals and principles, other policies or funding arrangements have contradicted these goals. One example of this is the concept of compact cities and the prevention of sprawl which was promoted in the Development Facilitation Act of 1995 and the Western Cape Provincial SDF. The housing policy, however, led to the expansion of low-cost housing on cheap land on the outskirts of cities and towns, contradicting the goal of a compact city (Pieterse 1998; Watson 2002; 2009). As a result, the current spatial form of cities continues to enable the oppression of the majority – while poverty, joblessness and inequality continue to grow, as does violence and related gang activity experienced by poor

¹ Notice 280 of 2011 Government Gazette 34270 (6 May 2011).

communities (Robins 2002; Watson 2009; Munck 2011; Massey, 2013; Joseph, Bickford & Magni 2016).

However, for the first time in post-apartheid history of South Africa, fundamental shifts in land-use planning have taken place. A single, unifying spatial and land use planning system is now in place, based on normative or principle-based land use planning (Barnes & Gerber 2016). This has been brought about by two main documents – the National Development Plan and SPLUMA.

The National Development Plan is described as one of the most important post-1994 policy documents. It creates an overarching national perspective for development and binds all spheres of government, all organs of state, and all of society in the realisation of the plan. It calls for integration and alignment of vital aspects of planning – including budgeting, implementation of projects and plans, and the review of developmental progress. It emphasises the role of land-use planning in realising a transformation in South Africa, and also recognises the (Barnes & Gerber 2016:12-13):

- impact that appropriate land-use planning can have on settlement efficiency and effectiveness, and also the associated lowering of living costs and improving living standards;
- impact that appropriate land-use planning can have in placing municipalities and service delivery-focused departments in other spheres of government on a much more financially sustainable path;
- role that land-use planning can play in energy planning;
- role that land-use planning can play in constructing a more just society, by bringing work and other amenity opportunities closer to where people live; and,
- role that land-use planning must play in aligning the various government infrastructure investments for improved societal impact and long-term financial sustainability.

SPLUMA, as promulgated in 2016, solidifies the policy shift outlined in the National Development Plan (Barnes & Gerber 2016). It provides the framework for delivering the integrated, efficient spatial planning system which the National Development Plan calls for. It also provides the principles and norms required to guide political and administrative decision-makers through the process of establishing municipal SDFs in conjunction with the IDP process that is legislated in terms of the Municipal Systems Act.

It is however, acknowledged that SPLUMA requires refinement. Refinement which will no doubt take place over the coming years, through the lessons learnt of the

implementation of this policy framework. As part of this refinement, it requires a range of supporting legislation and policies to guide provincial and municipal implementation and alignment with this act (Barnes & Gerber 2016).

2.5. Conclusion

This chapter highlights more than 300 years of discriminatory land use planning and related practices in South Africa. Racially discrimination and the segregation of people has shaped the spatial form of the country through uneven urbanisation, wealth, power and politics (Van Wyk 2012b; Miraftab 2012; SACN 2016b; SAHO 2017b).

The resulting spatial pattern that we experience today is deeply rooted in a complex history of oppression, which should not be oversimplified or generalised (Miraftab 2012). Understanding the colonial practices of land-use planning, and how they have shaped the contemporary city, is imperative for understanding the current socio-spatial dynamic of the country (Miraftab 2012).

Furthermore, understanding the extent of ‘the problem’ is integral to understanding what mechanisms that are needed to respond to this injustice. The systemic need for coordinated change throughout all sectors of South African society has resulted in a range of legislative measures and policy initiatives, to expedite the elimination of the structural effects of colonial and apartheid planning – effectively, to unravel and realign the social relations of power which gave rise to the patterns of uneven development in South Africa (Williams 2000).

After two decades of democracy, it is clear to see that progress towards an inclusive, just and sustainable South Africa has been slow and cumbersome. As a result, the legislative framework of the country has evolved in a piecemeal fashion (Van Wyk 2012a, 2012b), with many discrepancies and contradictions. Because of this the current spatial form of cities continues to enable the oppression of the majority. Poverty, joblessness and inequality continue to grow, as does violence and related gang activity experienced by poor communities (Robins 2002; Watson 2009; Munck 2011; Massey, 2013; Joseph, Bickford & Magni 2016).

Finally, a unified and comprehensive spatial and land use planning system has finally been put in place under the SPLUMA, as published in 2016 (Barnes & Gerber 2016). This planning system is intended to guide development in a more integrated and inclusive manner. SPLUMA needs a range of supporting legislation and policies to be effective - which are not yet in place. However, this is still a significant step towards

alignment of spatial planning practices, and coordinating efforts towards transformation of the country (Barnes & Gerber 2016). Only time will tell if this planning system will be the 'silver bullet' to the spatial injustices that plague South Africa.

Despite the focus of this chapter, it must be noted that legislation alone is not sufficient to create the better world which the Constitution promises the people of South Africa. The institutional, administrative and cultural aspects of the country must also be transformed if this system is to be successful (Williams 2000; Barnes & Gerber 2016; SACN 2016b). It is only once all aspects of the country are transformed, that we will truly be an inclusive and just society.

3. Achieving spatial transformation

3.1. Introduction

It is clear from the history of South Africa that space can be both liberating and oppressive. Through decades of uneven development processes, colonialism and apartheid has shaped settlements and land uses across the country – forming structures to elevate elite communities at the expense of others, and to leverage the use of space, land, resources and infrastructure as a means for economic advancement or as a tool for exclusion. This spatial legacy is still rooted in the social and physical infrastructure, and is a huge obstacle to the progress of the majority of citizens (Dufaux, Gervais-Lambony, Buire & Desbois 2011; Bassett 2013; SACN 2016b; Turok 2016).

Considering the deep roots of our discriminatory past and the devastation to society that these practices have caused, shifts in legislation and policy alone will be insufficient to heal South Africa. At a fundamental level, meaningful transformation will require: a change in power imbalances; the restructuring of space to achieve increased efficiency, spatial justice and equity; institutional transformation; development of organisational and managerial capacity; and a focused vision, plan and dedication to achieve a transformative goal (Williams 2000; SACN 2016b).

Sadly, current planning practices fall short of achieving transformation, because they do not consider the depth and extent of the conflict of rationalities and governmentalities, and the associated power dynamics, which are also the legacy of the country. This is especially relevant to the lives and livelihoods of households and communities affected by such planning processes, processes which leave critical questions such as what should be done, for whom and by whom, and with what benefits or losses, poorly explored (Marks & Bezzoli 2001; Watson 2003 2009; Avelino 2011).

A paradigm shift is required which includes the formation of a new development epistemology, dealing with the nature, scope and origin of development knowledge, and what this knowledge should include in the future. This arena of transformation is both experiential and experimental – as it requires incisive questioning, learning and reshaping of ideologies and rationalities (Williams 2000; Kane 2010; SACN 2016d), which in turn will be translated in practice, and the development of a new South Africa.

In line with this understanding of the need for a paradigm shift, this chapter explores what spatial transformation means in the South African context, and what is required to transform apartheid cities into spaces that are spatially just, inclusive and sustainable.

3.2. Social and physical infrastructure related challenges

As a microcosm of society, cities reflect to a greater or lesser degree the dominant socio-economic and political practices (ECLAC, UN-HABITAT, ESCAP & Urban Design Lab 2011). In South Africa, the concept of the 'apartheid city' has been inextricably linked to the segregationist policies of former exclusionary governments (Williams 2000). Today, cities still reflect spatial injustice and inequality in the accumulation of infrastructure, resources and wealth within the urban environment; and the poorly serviced and displaced majority on the outskirts (DoH 1997; Williams 2000; Robins 2002; Miraftab 2012; SACN 2016b).

The legacy of spatial injustice in South Africa is similar to the inequality experienced elsewhere in the world. However, in South Africa this phenomenon has been exaggerated by a long history of racial segregation, the capitalist imperative of accumulation, the Nationalist party's desire to control the migrant labour system to provide cheap labour, and various spatial planning models of exclusionary zonings and policies which supported unequal infrastructure development, the development of group areas, buffer areas and homelands (Smith 1998; Soni 1998; Mabin 1998; Miraftab 2012); thereby creating an inextricably connected relationship between land, urban processes, capital, economic productivity and the distinctive political dynamics of the country (Miraftab 2012).

Since 1994, South Africa's largest cities have experienced substantial growth, as more residents settle in cities in search of employment opportunities, services and particular lifestyles. Consequently, urbanisation has taken place at a phenomenal rate (DoH 1997; Hertzog 2012; SACN 2016b, 2016c) – with roughly 2.3 million households accommodated under the South African national government's subsidized housing delivery programme, between 1994 and 2012 (Hertzog 2012). The current trends suggest that by 2030 South Africa will be 71% urbanised, and by 2050, 80% urbanised (WCG 2017c). The delivery of services and associated infrastructure, such as electricity, water, transportation, education and housing has taken place at a remarkable rate across the country (DEA 2012; Hertzog 2012; SACN 2016a). Housing was provided at a rate far greater than experienced anywhere else in the world - more

than three million new housing opportunities were recorded by 2012 (Hertzog 2012; SACN 2016b).

Sadly, these investments have not resulted in more equitable, inclusive and integrated cities. In 2011, the National Development Plan and associated Diagnostic Report showed that the legacy of apartheid is still evident across the country. This legacy is clear in the settlement patterns, poverty and inequality, unevenness of public services and failing public health systems, poor education levels, high levels of unemployment, crumbling infrastructure and inefficient resource use (NPC n.d., 2011a, 2011b; CoJ 2011).

The fragmented urban form means that households, particularly poorer households, spend more time and money on transport (Turok 2016; SACN 2016b). Despite racial integration in the middle- to higher income urban suburbs (SACN 2016b), most poor black households continue to live in poorly located areas with insufficient access to opportunities and resources. They are still forced to suffer long, expensive commutes to areas of employment (Watson 2009; SACN 2016a, 2016b, 2016c). The focus on quick, affordable provision of services has resulted in a lack of consideration of other requirements like the accessibility of markets, education and health services, and job opportunities. As a result, state funded housing projects have continued to marginalise the poor (Watson 2009; Hertzog 2012; Sorenson 2015; Barnes & Gerber 2016; SACN 2016a 2016b). Growth in periphery of cities has also continued in the form of private developments, gated housing estates, cluster housing complexes and eco-estates. These closed communities take up vast tracts of open space and encourage the use of private vehicles. Disconnected from the existing city fabric, these new developments further entrench spatial and social exclusion, segregation and inequality based on class/income (Robins 2002; SACN 2016b). Furthermore, despite the recent unprecedented levels of spending on public transport systems, these services have not necessarily made transport for the majority more affordable or effective. As a result, the public transport infrastructure and services investments made by government have yielded minimal impacts across the entire transport network (SACN 2016b).

As an example of the fragmented settlement form, Figure 1 illustrates the spatial shifts which have taken place in Cape Town. The red areas represent development arising between 1990 and 2013. The grey areas are the urbanised areas which have been in existence post-1990. These new areas are predominantly found on the outskirts, furthering urban sprawl and the spatial legacy of the past regime (SACN 2016b). The scale and coarseness of the data makes it difficult to distinguish infilling within the grey

areas. However, many publications and reports on development support the claim of city sprawl, and furthering of the spatialised apartheid legacy (Robins 2002; SACN 2016a, 2016b, 2016c). This suggests that the post-apartheid spatial vision is far from being realised.

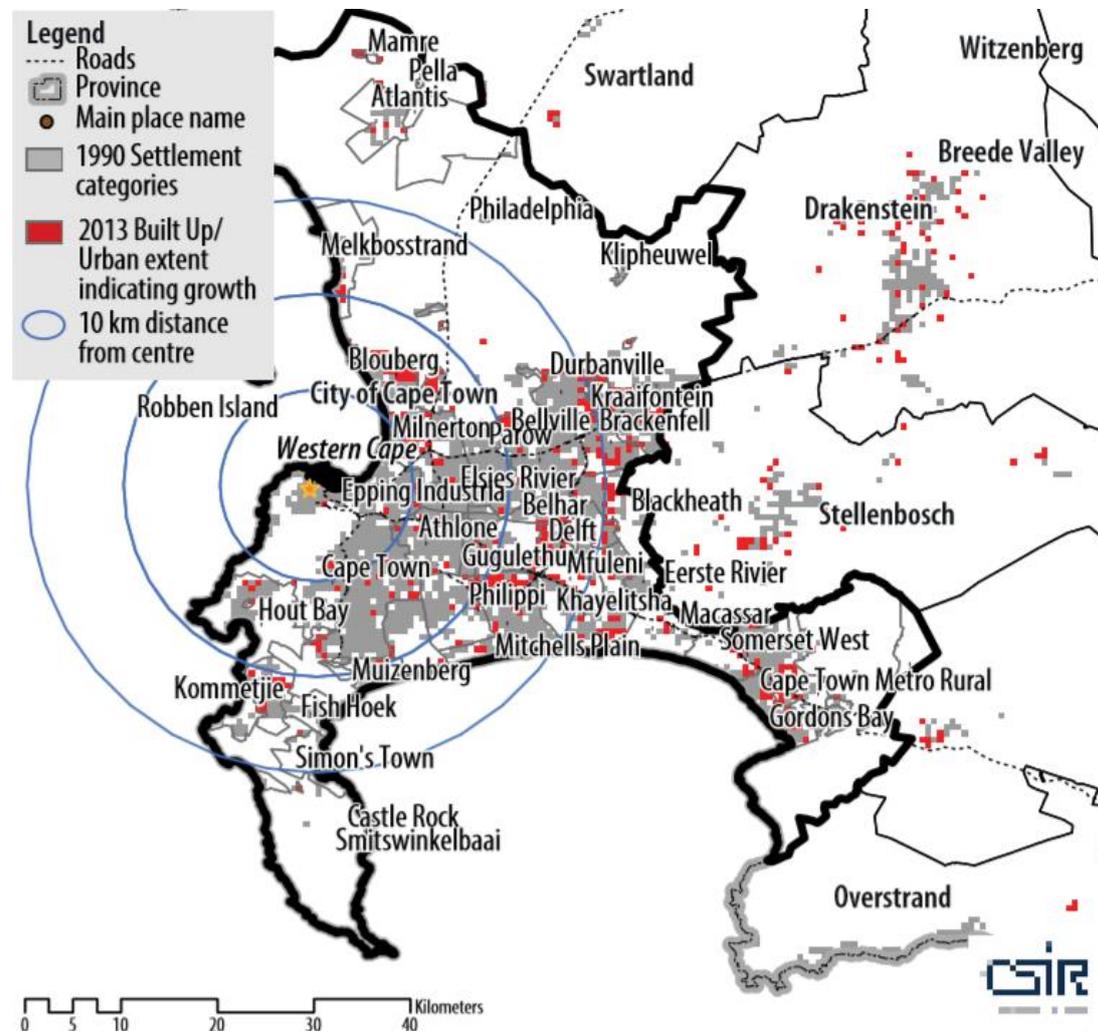


Figure 1: Change in the urban footprint between 1990 and 2013 (SACN 2016b:54)

In recognising the error of the development models pursued over the last two decades, cities are now under significant pressure to contain urban sprawl and to provide services sustainably (Barnes & Gerber 2016a; SACN 2016b 2016d). Not only do integrated communities need to be created, with the poor brought into areas of greater development. But infrastructure, services and economic opportunities are also required in impoverished areas, which for decades have not seen adequate investment. In addition to this, the fragmentation of society must be bridged through increased ease of mobility, brought about by improved infrastructure networks and

public transport services, and the removal of physical barriers (SACN 2016b; Turok 2016).

However, it is not only development trends which threaten South African cities. Climate change is driving widespread shifts in the global weather system, including increases in scale, frequency and intensity of extreme weather events (CoJ 2011). The extreme weather events experienced in 2017 are a reminder of this reality – the devastating fire in Knysna, the drought experienced across the country but most severely in the Western Cape, and the flash floods experienced in Johannesburg and Durban (Wilson & Pereira 2017; News24 2017a, 2017b, 2017c, 2017d). These disasters had widespread impacts resulting in the loss of life, biodiversity, crops and cattle, and damage to infrastructure. The responses to climate change have implications for financial, planning, policy and even the future shape and form of cities, with massive investments required in technology and infrastructure as a means of adaptation, mitigation and disaster risk management. It is, however, not only the impacts on South Africa which are of concern. Because of globalisation, the economic impacts felt around the world as a result of the impact of climate change and associated knock-on effects, impacts markets around the world (CoJ 2011).

The historical legacy which was inherited by the democratic state, and the development dynamics which have worsened this legacy, has placed a heavy burden on cities (SACN 2016b). A burden which extends across infrastructure needs and maintenance requirements for crumbling infrastructure, and affects the provision of services, and the availability of resources such as food, water and energy, as the impacts of climate change are felt. This is a burden which far outweighs the financial benefit from property tax (SACN 2016b). While corruption continues to undermine progress in the country (NPC 2011c; Bhorat, Buthelezi, Chipkin, Duma, Mondli, Peter, Qobo, Swilling & Friedenstien 2017), it also disrupted the economy, with long lasting impacts that will be felt for generations to come (Bhorat et al. 2017).

3.3. A common spatial vision

The National Development Plan has provided South Africa with a vision for 2030. This vision focuses on the eradication of poverty and the reduction of inequality to ensure transformation of the country. Without addressing these two aspects, the people of the country will continue to be consumed with daily struggles for survival. Furthermore, the poverty and inequality are linked to many of the other challenges experienced in the country. Therefore, by focusing on poverty and inequality a multipronged approach will

be required which creates an enabling environment, of which spatial transformation plays a significant role (NPC 2011a, 2011b, 2011c; SACN 2016b).

The seemingly simplistic nature of this vision, considers the complexity of the dynamics in each city. Despite the commonalities of the history of racially biased land use planning laws and policies, each city in South Africa has its own history, configurations, challenges and even opportunities. For example, cities have a mix of incomes, education levels, skills, world views, economic opportunities and will therefore most likely continue to reflect such diversity in the future. This is influenced by the legacy of capitalist fundamentals upon which our socio-economic activities are based; and the inherited realities of the city, e.g. those with higher incomes and standard of living can access additional benefits from the city, that those with less money would not ordinarily be able to experience (SACN 2016b). Furthermore, the natural dynamics of social behaviour dictates that there is always likely to be competition and hierarchy in society. The result of this is manifest in economic and political positions of power hierarchy; and the complexity of these social economic systems (Cilliers 2000, 2016). Yet, how these dynamics are manifest, where and in what form, will vary among cities, and even settlements.

What is fundamentally important is that development and transformation efforts should not be at the expense of equitable access for all. Development cannot take place at the expense of groups of society (DESA 2009; SACN 2016b). It is therefore important for cities to prioritise the public good, for example by investing in infrastructure for public and pedestrian transport for the majority, instead of private vehicles for only a few, or ensuring that well-located land and associated land uses benefit all, not just those who live within an accessible distance (SACN 2016b).

The challenge is bringing about this transformation in a world of ever increasing complexities, and how to operationalise the concepts through mobilisation of all actors in society at the national, regional, local and even at the community level. This requires a paradigm shift to recognise the dignity, value and importance of the diversity of life, not only as an ethical norm and moral imperative; but also as a legal principle, societal goal, and in all forms of policy and practice (Preiser et al. n.d.; DESA 2009; Williams 2000; Cilliers 2016).

Post-1994, the Constitution is the guiding document of the country. As a result, the past two decades has seen significant shifts in spatial and land use planning. Much of

this has centred on the interpretation of the Constitution, and how to give effect to this realisation (Barnes & Gerber 2016; Rebel 2016; Robertson 2016).

This has required a re-organisation of government and the legal framework, from the hierarchical and vertical tiers of government system to more horizontal, interrelated and interdependent three spheres of government – local, provincial and national, each with its own planning powers (Williams 2000, 2006; Van Wyk 2012a, 2012b; Barnes & Gerber 2016).

Prior to 1994, government was highly centralised, deeply authoritarian and secretive. It was focused on principles of efficiency for elite groups and not equity, which ensured that fundamental public services were not accessible to black people (Van Wyk 2012a, 2012b; Williams 2000, 2006). Therefore, the restructuring of government to take up this new role was critical. Although this has taken significant time, trial and error, and effort to shift away from this mode of operation (Mabin 1998; Dewar 1998; Ngamlana & Eglin 2015).

3.4. Integrated spatial planning

The recent alignment of spatial and land use planning legislation and policy has created an enabling legislative environment within which government can fulfil its mandate, and allow for clearer guidance for the private sectors' participation in the development of an inclusive, sustainable South Africa for the benefit of all. This approach to integrated spatial planning, coupled with the realisation of co-operative governance, as stipulated in Chapter 3 of the South African Constitution, has created a structured approach to land use planning, with clearer planning objectives, roles and responsibilities (Barnes & Gerber 2016).

Under the specifications of the Municipal Systems Act (Act 32 of 2000), the IDP is the key planning tools for delivering strategic and cross-sectoral planning in government. Each IDP must contain a long-term vision, a situational analysis, development priorities, a SDF, and a three-year financial plans and budgets. Furthermore, the Municipal Systems Act (Act 32 of 2000) mandates municipalities to provide IDPs with five-year cycles, in line with the longer term spatial vision of the region. Each plan is reviewed annually, taking into account any changes in the global, national or local ecological-social-economic environment, as well as new opportunities that may have emerged and lessons learned from the implementation of projects (Ngamlana & Eglin 2015). With these development principles and its spatial representation, government

fulfills the role of creating a vision for spatial transformation and growth of the country. A spatial vision within which both the public and private sectors must execute development projects.

The National Development Plan 2030 vision provides an overarching perspective on the equitable and progressive development of the country. These principles have however not yet been interpreted in a national SDF (SACN 2016b). Each province develops future plans in the form of a provincial SDF, with an associated strategic plan or development strategy which gives effect to this framework with identified development projects over five-year cycles. This is refined at a Local SDF level, by Metropolitan and District Governments, and even local municipalities. The development of Regional SDFs is another requirement under SPLUMA. This ensures long term spatial visions, which considers opportunities and constraints across local municipal boundaries (WCG 2017d), e.g. freight routes, water systems, mineral deposits of interest, etc. As such, SPLUMA, provincial planning acts and municipal by-laws give context and guidance to these spatial development plans (SACN 2015; Barbes & Gerber 2016). Therefore, these plans contain the politically endorsed development objectives, targets and budgets for development, which can be used to guide both public and private investments, and used as a measure over time (Barnes & Gerber 2016).

Examples of typical objectives and targets of these plans include: the creation of a compact city, so that sustainability and efficiency can be established; addressing rapid urbanisation and mainstream poorer citizens into the urban economy – bringing people closer to urban opportunities; making more efficient use of under-performing publicly owned urban land; addressing the housing demand by creating high density, socially mixed income and mixed use developments, including affordable housing; conserving and protect river corridors and open space systems at the scale of the city and making them accessible to citizens and tourists alike; enhancing natural systems to improve their economic, infrastructural and social role; ensuring resilience against the challenges of climate change (sea level rise, rising temperatures and water scarcity); demonstrating alternative ways of infrastructure provision (energy, waste, water etc.); promoting public transport and non-motorised transport, in terms of transit orientated development policy; and, reducing reliance on cars by reinforcing urban corridors and stations by increasing the density of urban development (WCG 2017c).

Guidance on how these objectives can be realised is provided by National Treasury such as the guidelines for creating 'Integrated Zones' and the 'Guidance Note for the

Built Environment Performance Plan', against which plans put forward by municipalities are measured when applying for funding (National Treasury 2015, 2017). This creates a system of constant checks and evaluation against the desired long term vision, and shorter term objectives and targets, thus allowing for adjustments and re-alignment, with each development proposal.

Conceptually this is a useful framework around which more responsive, integrated and strategic development planning and implementation can be achieved. However, it should not be assumed that good planning principles and processes will automatically result in the desired spatial transformation. The need for all planning to converge at the level of the IDP has resulted in a complex planning framework, which has resulted in many challenges associated with alignment and coordination (Ngamlana & Eglin 2015).

The following seven points summarise the reasons for the lack of alignment and coordination (Williams 2000; Ngamlana & Eglin 2015; SACN 2015, 2016b):

1. Spatial outcomes and principles contained in planning policy and legislation are open for interpretation. They are generic and provide little guidance for place-specific strategies, programmes, projects and investments. In addition, spatial and sector plans lack spatial trend analysis.
2. Alignment takes place in specific functional sectors (e.g. human settlements, water and sanitation) where development priorities and targets are supported by investment frameworks, and institutional and financial instruments, with strong vertical alignment of national, provincial and local sector department plans and strategies. However, spatial priorities are driven by sector targets and catalytic projects – each with its own spatial investment logic rather than an integrated spatial strategy programme; thus, resulting in disconnect between these catalytic projects and the IDP objectives.
3. Long-term visions and growth scenarios are not interpreted at the site or erf level. The potential impact of interventions by different functional sectors or neighbouring municipalities, and private sector developments, is not evaluated. Furthermore, reference is not made to intergovernmental or public-private sector service-level agreements which are already in place or need to be put in place.
4. Strategic spatial plans of different spheres of government are poorly aligned. Joint regional and national discourses on the resource and investment constraints and opportunities affecting development planning, are therefore a huge requirement.
5. SDFs are focused on managing expected land-use change, driven by the private sector. However, they should focus more widely on coordinating intergovernmental investments, spatial prioritisation and integrated spatial

development strategies – or influencing the spatial investment logic of different sector strategies.

6. Most plans and instruments focus strongly on service delivery, but do not take note of the investment plans of the private sector, other government agencies or civil society. As a result, the many economic instruments and incentives aimed at stimulating development are predominantly implemented as standalone programmes.
7. Collaboration in developing integrated development strategies and aligning projects exists at municipal or city and district level. However, municipal spatial priorities do not appear to guide the national and provincial functional sectors, or even the municipal sector departments.

The spheres of government must move away from acting as autonomous spheres if integrated, cooperative governance is to be achieved (Ngamlana & Eglin 2015). This will need to be enabled through various institutional and administrative functions, including: improved communication; greater alignment of capital spending and political priorities; effective leadership; and meaningful engagement with citizens through all phases of planning, implementation, monitoring and evaluation (Williams 2000; Ngamlana & Eglin 2015).

Within an environment dominated by sector targets, collaboratively developing and implementing explicit spatial strategies is challenging and requires strong local, regional and national leadership. The current national plans and policies address critical issues, e.g. energy and water shortages. However, there is a lack of integrated national spatial development analysis, modelling of potential growth implications and strategic guidance for the future development of highly diverse regions (SACN 2016b).

The current lack of leadership, spatial guidance and strategic direction could potentially be addressed through the completion of the National SDF, which should build on the 2006 and 2011 initiatives to develop a national spatial vision (called the National Spatial Perspective) (Ngamlana & Eglin 2015; SACN 2016b). However, this will need to be done with great caution to still allow provincial and local government flexibility to govern their regions, and the diversity of opportunities and challenges that exist in these regions. This will require significant integration, coordination and cooperation between all spheres of government, and is likely to provide high level spatial perspectives.

3.5. Creating spatially just and inclusive cities

Inclusive cities and just spaces provide a high quality of life to the society's that inhabit them. Residents benefit from what the city offers, and contribute towards making and shaping the city. Therefore, the right to the city is considered not only as the constitutional right to gain access to the city, but also the right to influence how cities develop over time. This approach is established on the ethos of a caring and sharing society (Sen 1999; SACN 2016c) – a vision which most cities in South Africa are embracing, at least in principle if not in practice (Williams 2000; SACN 2016b). Inclusive cities are broadly characterised by the following (Sen 1999; DESA 2009; Williams 2000, 2001 2006; SACN 2016b):

- *Respect*: A common respect for all human rights, freedoms, and the rule of law, at national and international level, is fundamental. Every member of society must be treated equally. Any violation of human rights must be brought to justice. Furthermore, the judiciary, which serves to protect just societies, must be impartial, accountable and inclusive to giving weight to the opinions of those who defend the inclusiveness of society.
- *Participation*: Close-knit and socially engaged communities tend to be more active in governance structures. Achieving this type of urban space requires the state to manage the public realm in partnership with communities, individuals and the private sector. Public policy can enhance these capabilities, and effective public or community participation can influence the direction of public policy, and development projects and programmes. This implies developing the full potential of citizens through access to the necessary resources, and also allowing citizens' voices to be heard in the re-shaping of spaces. A society that feels they are playing a part in the decision-making processes that influence their basic needs and livelihoods, is a society that will foster principles of inclusiveness. Active participants hold the state and institutions accountable, and have the confidence to engage and interact with each other and build mutual trust while acknowledging differences.
- *Education*: The opportunity to learn the history and culture of various communities, cultivates the understanding and appreciation of other cultures, religions and societies. Education provides the opportunity to inspire values of respect and appreciation for diversity. It is also a fundamental means of empowering those who are marginalised or excluded from participating in discussions and decision-making. Education or re-education of decision-makers and policy-makers is also vital for influencing values, choices and judgements, which ultimately have consequences for society.
- *Effective leadership*: When leadership is not representative of the society, a disconnection will eventually arise between the people and their leaders. The most common way of addressing this critical element – at all levels of

government but particularly the local level – is by engaging in open dialogue between communities and the state on issues such as budgets and enhancing the free and timely flow of information to citizens and other stakeholders. Transparency and accountability by all decision-makers and stakeholders is a fundamental requirement.

- *Accessibility*: Integrating the disparate parts of the city and land uses increases efficiency, quality and productivity, and recognises the interconnectedness of formal and informal trade. Residents can easily and affordably access different parts of the city and different services. To further enable accessibility of the city, public transportation is essential – along with universal and equitable access to public infrastructure such as community centres, recreational facilities, public libraries, resource centres, schools, clinics, and services like water and sanitation. These are basic services which create, partly or fully, the conditions for people to have a sense of belonging, and not being excluded because of affordability. Equal access to public information is just as important as accessibility to the city, its opportunities and services, and infrastructure. Easily accessible information and open, transparent civil society creates a well informed and enabled society.
- *Quality public spaces*: Public spaces are a necessity, and not a luxury. They consist of all spaces used by the public (from large elaborate squares, to roads and pavements, public transport interchanges, parks, libraries and even government buildings) – and should be safe, clean and accessible. This is an important element in social connectivity, and the expression of an urban identity, diversity and vibrancy. Public open spaces and associated facilities should be easily accessible to all, and offer spaces where social connection can naturally take place. In cities where these shared spaces are appreciated, residents are more likely to be open to denser and more compact living environments, and to forego privately owned open space and transport options.
- *Mix of land uses and incomes*: This mix contributes to increased access, diversity and safety, facilitates social mobility, and changes the fabric of city life for the better. This, along with aspects of public open space and facilities, and also accessibility of the city and its services, allows for social integration and the feeling of an inclusive society.
- *Safety*: Improving the perception of safety across the city, but particularly in public spaces, is critical. When citizens do not feel safe they often isolate themselves from the broader community. This intensifies inequality, deprives access to public space in cities, and erodes the potential for social cohesion. More active spaces and involved urban residents lead to better security – as does designing cities to optimise the safety of all. This covers road safety, emergency management, safety standards and building regulations, and also educating residents and government officials.

- *Innovative urban design*: Urban design can contribute to a safe, accessible and vibrant mixed environment, and can improve the everyday life of poor communities where informal living and trade are a reality.

Cities are being tasked with driving the spatial transformation of South Africa (SACN 2015) – to develop cities which offer residents the quality of life as described in section ‘3.5 Creating spatially just and inclusive cities’. The objective is to develop inclusive mobility and access to economic development that drives local and national growth prospects, and transform space in a manner that is socially and environmentally sustainable (SACN 2015). Through the implementation of SPLUMA in particular, the substantial responsibility on cities to prevent further urban sprawl and social segregation is being realised. This requires cities, and in particular local government, to plan and develop efficient, compact and well-connected cities (SACN 2015).

An example of this is the Cape Town Municipal SDF which commits the CCT to the development of a more inclusive, integrated and vibrant city. The intention is to address the legacies of apartheid by rectifying the existing imbalances in the distribution of residential development and other infrastructure associated with service delivery. This plan regards public transport as a key driver for connection of society, and therefore there is a significant focus on densification and the development of transit orientated development (CCT 2017a).

The development of integration nodes and zone is a particular strategy for bringing about densification and transit orientated developments (National Treasury 2017). These nodes and zones are established through the use of transit orientated development which is characterised by: rapid and frequent transit service, high accessibility to the transit stations with medium to high density residential development within 800m of stations, high quality public spaces and streets which are pedestrian and cyclist friendly (National Treasury 2017).

These integrated developments include housing opportunities to households from a variety of income brackets (including social, affordable and market housing opportunities), within a mixed-use environment (National Treasury 2017). This provides housing and public transport networks within walking distance from services and economic opportunities such as healthcare, education facilities, businesses and job opportunities, and even markets (Joseph & Karuri-Sebina 2014; National Treasury 2017). This is great for residents and businesses as it allows for a vibrant and diverse mix of opportunities (Joseph & Karuri-Sebina 2014), located within walking distances (Joseph & Karuri-Sebina 2014).

The integration nodes are areas which must either be developed or invested in, to provide medium-high density, mixed developments. The integration zones are longitudinal areas which link these nodes together – sometimes called activity corridors. Together these nodes and zones develop an urban network, supported by mass transit spines, enable a city-wide transit orientated network (National Treasury 2017). Furthermore, the high density of people and activities enables functioning and financially feasible public transport networks, thereby supporting responsible and efficient investment and resource use by government (National Treasury 2017). In this way, transit orientated development may bring about not only spatial transformation, but (re)integration of society and renewal of the local economy.

However, understanding the characteristics of what a transformed South Africa may look like is only one perspective. Understanding what must be transformed and the challenges in achieving transformation is an important informant. Recognition and framing of spatial injustices although seemingly easy, is an important step in understanding the ‘problem’, and thereafter in the formation of appropriate interventions (Bassette 2013).

A particular method of categorising injustices has been researched in the Netherlands, with regards to spatial justice policy and its implementation. This method categorises injustices as: spatial claim (the ability to live, work, or experience space), spatial power (available opportunities to succeed in and contribute to space), and spatial link (the ability to access and connect to and with other spaces) (Bassette 2013) (see Table 1, below).

This method enables a particular understanding of the space concerned, and the power dynamics which have shaped the space (Bassette 2013). Rather than assuming a neutral space, the spatial and temporal context can be established within a range of variables that may be social, economic or environmental. This process therefore allows for the acknowledgement of the complexity of space, within a larger social ecological system, and how power in various forms is present in this space (Bassette 2013). It is therefore more likely to give rise to appropriate, meaningful interventions for spatial transformation.

Table 1: Method for identifying and categorising spatial injustice (Bassette 2013:5)

	Description	Examples	Identifying questions
Spatial Claim	Lacking the ability to live, work or experience space	Sovereign struggles; Squatters' rights; autonomous zones; forced removals.	<ul style="list-style-type: none"> • Who uses the place, who does not, and why? • How is the space used? • What is unique about the history and culture of the area?
Spatial Power	The removal of opportunities to succeed in and contribute to space	How a place creates the conditions that allow or deny chances to succeed – e.g. access to local markets, schools, and transport	<ul style="list-style-type: none"> • What qualities would you use to describe the place? • How are people able to practice, contribute and create here? • What messages and behaviour does the space suggest? • What prevents anyone from full participation in personal or public life?
Spatial Links	The inability to access and connect to and with other spaces	Spaces which do not have multiple and/or direct access routes	<ul style="list-style-type: none"> • What barriers exist in the physical environment? • What invisible, historical or social barriers divide people? • What historic memory exists in the place and the people here? • What connects this place to other places?

In adopting a spatial planning approach for future development of the country, South Africa has acknowledged the powerful historical legacy which must be addressed. The recognition of the need to reconnect settlements and to create compact developments with multiple uses and opportunities for all of society is further recognition of this.

Spatial analysis is often reduced to statistics and spatial representation thereof at a rather high level – provincial, regional or local municipal levels. This is invaluable, and strides are being made in understanding how to use this spatialized information as a key to informed decision making, and more importantly relevant decision making (Jacobs & Rumbelow 2016).

In more detailed planning of sites however, it is important that the historical injustices are understood, so that they may be responded to appropriately. Otherwise these exercises run the risk of approaching all site or precinct level spatial and land use planning from the same uniform perspective which will yield development proposals with similar outcomes, without recognising the value of each site.

3.6. Developing effective citizens

The creation of an enabling environment is a crucial step to ensure the transformation, and socio-economic growth of South Africa. This is an environment which is conducive for private developers, entrepreneurs, service providers and general society to engage over the future of South Africa, and to invest in its growth in a manner which benefits all citizens (NPC 2011a; SACN 2016d).

In establishing such an environment, the responsibility is shared by all citizens to actively and positively contribute to the development of the country. Government alone cannot bring about a transformed country. Furthermore, the perspective of service delivery provided by government is one of standard form and structure. This places a heavy burden on government to provide basic services, housing, job opportunities and a thriving economy (NPC 2011a; Jaglin 2014; SACN 2016d).

This approach, of uniform service delivery provided by government alone, also hinders local markets and innovation. With government performing as the main service provider, there is little incentive for the market to provide alternatives, except in the cases where government is failing to adequately provide services for communities. In these instances, innovative and often more sustainable forms of service delivery may be provided by the local market and even public benefit organisations – thus sparking sustainable technology and local economic opportunities (NPC 2011a; Jaglin 2014).

Currently, there is a lack of mechanisms to facilitate the shared responsibility of implementation and monitoring. The main vehicle for citizen participation is via the ward committee system in the development of IDPs and the public participation processes associated with standalone development projects. However, this system has failed to empower citizens and to facilitate meaningful engagement (Williams 2000; Ngamlana & Eglin 2015). Empowerment could be addressed through the creation of spaces for citizen's stories, experiences and knowledge to allow government to co-create with the public (Ngamlana & Eglin 2015). However, the various elements that disempower the public from partaking in co-creation must also

be addressed. The economic circumstance of the majority reduces social agency or willingness and also capacity to act (DESA 2009; Williams 2000; SACN 2016b, 2016d). Poverty limits the ability of communities, families or individuals to access basic needs such as food and shelter (DESA 2009; NPC 2011 n.d.; NPC 2011a, 2011b, 2011c; SACN 2016b). An example of this is the correlation between the level of poverty and crime. Even though some studies suggest there is no direct causal relationship between poverty and violent conflict, the poverty associated with a high degree of inequality and marginalisation can be a major contributing factor to higher crime rates, social tensions and social disintegration – and as a result, violent conflict (DESA 2009). Poverty reduction is therefore pertinent to social inclusion, and not only for those that are marginalised by society as a whole.

Employment – whether full employment, self-employment or adequate remuneration for work – is an effective method of combating poverty and promoting social integration and inclusion. Employment is far more effective than the provision of handouts or social grants, because it ensures that individuals automatically become stakeholders in the economy (DESA 2009). In South Africa research has shown that households that receive grants still struggle to put food on the table, and frequently skip meals. This includes households that practice subsistence farming and seek out informal job opportunities (GCRO 2015). Engagement in and access to the labour market is therefore the first step in participation in the various process that make up society. It also provides a source of identity and gives access to a social network (DESA 2009; GCRO 2015).

Typically, vulnerable and disadvantaged groups have fewer opportunities to participate in the formal sector, with lower education levels, a lack of skills, training, information, and a social network. Often the only value such people have to offer the formal economy is the provision of unskilled or semi-skilled labour. This makes them particularly vulnerable to unemployment with limited opportunities. It is therefore pertinent to not only make education and skills development accessible (DESA 2009; GCRO 2015), but also to recognise the informal economy and to ensure the accessibility of local markets (DESA 2009). Therefore, the entire educational system must be geared towards addressing the patterns of exclusion, the promotion of pluralism, and respect for diversity and open dialogue. This is needed because exclusionary behaviour is often deeply embedded in society through the use of educational curricula (DESA 2009).

3.7. Local development epistemology

In the early 1990s, as South Africa began the transition to democracy there was much hope for the future. But there was also uncertainty as to how transformation would be brought about (Barnes & Gerber 2016). There were debates about political leadership, restructuring of government, and the political transition to democracy (McCarthy 1998; Robinson 2016; Smith 1998).

Despite the urgency and pressure to bring about a better quality of life for all South Africans, there have been gaps in knowledge and understanding to provide adequate solutions to the complex challenges, and insufficient funding. Adequate alternatives to the spatial and land use planning laws and policies, inherited from our colonial and apartheid past, have been slow to develop (Van Wyk 2012a; Watson 2002, 2003, 2009; Mirafteb 2012; Andrew & Bawa 2014; Sorenson 2015). As a result, the transition has been slow and cumbersome, with a focus on mass service delivery, instead of developing inclusive societies (Van Wyk 2012a, 2012b; Williams 2000, 2006; Barnes & Gerber 2016).

The first land use planning course at a South African University was a part-time diploma course at the University of the Witwatersrand in 1954 (during apartheid), which eventually became a Bachelor's degree. It was a decade later before other planning schools were established at Potchefstroom, Pretoria, Cape Town and Stellenbosch Universities. The South African Town Planning Institute was also founded in 1954. Prior to that, there was a Town and Country Planning Association at Wits in 1945, as well as a branch of the Royal Town Planning Institute which operated in South Africa, but disbanded in 1959 (Muller 2016). These educational institutions shaped the mind-sets of numerous practitioners - some of what was taught included discriminatory land use planning practices which contributed to spatial injustice, such as exclusionary zonings (Williams 2000, 2001).

While many courses at local universities contributed to major shifts in thinking, planning and prioritisation (Williams 2000), shifts in planning and practices, and even spending were not immediately evident (Kane 2010). This is because practitioners already in the industry were not immediately re-educated as 'post-apartheid planners' (Kane 2010).

Instead knowledge, skill and capacity required for developing an inclusive and just South Africa has been developed, with ongoing training to ensure institutional and managerial capacity which is in line with the spatial vision for South Africa (Williams

2000; Kane 2010; Du Plessis 2016; Jacobs & Rumbelow 2016; Robertson 2016; SACN 2016d). Yet there are still those individuals who resist change – some wilfully and others unknowingly or unintentionally (Williams 2000).

Undoing the deeply entrenched legacy of colonialism and apartheid is an ongoing experiment. As a result, the way that many projects are carried out, in a silo'ed and linear fashion, are unable to understand and adequately respond to the complexity of the historical legacies of the country. There is a conflict of rationalities and governmentalities, and even power (Watson 2003; Avelino 2011; Massey 2013) which makes it difficult for role-players not only to understand each other, but to consistently work towards common outcomes. This often leaves questions, such as what should be done, for whom and by whom, and with what benefits or losses, poorly explored (Marks & Bezzoli 2001; Watson 2003; Rogers 2010; Schrecker 2011). Projects must be executed in a manner that allows for facilitated engagement of project teams and stakeholders, to ensure collaboration, reflexive learning, co-creation of knowledge and solutions. Such project research and planning approaches allow for conflicting rationalities and governmentalities to be addressed as part of the project executions, thus avoiding these challenges hindering the success of the project, and its outcomes.

Improved education and knowledge sharing may improve the skills capacity of those with the best of intentions (DESA 2009). However, there are still gaps in the literature on how the power dynamic of wilful resistance might be overcome, for the benefit of society (Williams 2000, 2001; Avelino 2011). Through research and experimental practice, academia and practitioners are improving our understanding of how decisions which were made pre- and post-1994, have had an impact on the country. But also, what better, more informed and relevant decisions and implementation plans might look like (Du Plessis 2016; Jacobs & Rumbelow 2016; Robertson 2016). As a result, the required knowledge, institutional capacity and supporting frameworks for spatial transformation are still being developed and refined (Williams 2000, 2001; SACN 2016d).

When considering the history of urban development and governance strategies employed in Cape Town during the British colonial era (mid to turn of the nineteenth century) and, the neoliberal post-apartheid era (early twenty-first century), it becomes evident that there are strong similarities between urban development strategies, resulting in inequality within Cape Town during both eras. In the twentieth century this evidence and related critical discourse is vital for changing patterns of exclusionary spatial planning practices, especially those that claim to provide innovation in urban

management but are nothing more than repackaged strategies of an unjust past, such as the development of improvement districts (Miraftab 2012).

An example of this can be seen with the contemporary urban strategy known as 'Business Improvement Districts' for the affluent, and the old colonial practices of 'location creation' for the 'native'. In Cape Town these Business Improvement Districts are often also referred to as the creation of Improvement Districts, or by the legal name of 'Special Rate Areas' (Didier, Peyroux & Morange 2012; Miraftab 2012). The only difference between the urban strategies employed in the two eras, is the justification for the imposed plans. In the 1880's fear of disease as a result of poor sanitation practices gave the landowners and government leverage to segregate 'natives' to their own area on the outskirts of the Cape Town, while in the post-apartheid era, safety has become the new means of justifying the need to create areas for the elite and the promotion of tourism. However, the Business Improvement Districts and Special Rate Areas strategies are more or less the same. Both focus on some sort of development strategy or plan which is developed by- and agreed to by landowners only. Additional levies or taxes by these landowners ensure additional services and preferential treatment. Both planning approaches create elite areas and the exclusion of others by forcing them into residential areas on the outskirts of the city where there are fewer services available, longer travel times and greater travel costs (Didier, Peyroux & Morange 2012; Miraftab 2012).

The implementation of the CCT Water Demand Management Strategy to the detriment of the poor over the past eight years, is another example. In 2010, the stepped tariff ratings were amended, resulting in high usage households paying less than the 2009/10 rates. It was only by 2016/17 that households using more than 50 kilolitres of water per month would pay the equivalent of the 2009/2010 tariffs. While households using less than 10 kilolitres of water per month were charged 260% more than 2009/10 tariffs, during the same timeframe. In addition to this, in 2010 water management devices were installed in impoverished areas, which significantly reduced the flow of water supply once a certain volume was consumed – thus forcefully limiting poor households access to water. In 2017, free basic water supply to indigent households was also stopped, unless these households were registered on the CCT database. With many deserving households not registered, this loss of free basic supply and high tariffs left many households vulnerable during the drought. On the other hand, high income households have been allowed to consume copious volumes of water, with

restrictions only being implemented after the metro was declared a disaster risk area in 2017 (Wilson & Pereira 2017).

From these examples it is clear that appropriate planning processes and theory need to be developed and implemented that facilitates learning and decision-making. A process or processes which embrace the complex nature, not only of cities and the communities that inhabit them, but also the differences of perspectives, value systems and even multi-culturalism and the gaps in knowledge (Marks & Bezzoli 2001; Cilliers 2000; Watson 2003; Preiser et al. n.d.).

The transformation of the mind-sets and rationalities of people is a critical enabler of a transformed South Africa, as it challenges the unequal power relations at all scales (Williams 2000; DESA 2009). This shifting paradigm is about creating solidarity and the realisation that although there are differences, we are all human beings. It is about acceptance of others and the interrelations of groups who may not share affinity, common values, and empathy towards one another (DESA 2009). It is about re-connection, embracing diversity of knowledge and culture; and, it is about finding new ways of knowing and being through this diversity (Bignell 1998; Tabolt 2002). It is therefore crucial that mainstream society embraces those who have previously been excluded. But it is also important that mainstream education systems and practices push the boundaries of what the new South Africa might look like, and how this might be achieved (DESA 2009; Williams 2000, 2001).

Alternative ways of providing development must be explored, in terms of policies and practices as well as alternative technologies and typologies (Munck 2011). It is about creating enabling environments that overcome the current circumstances of continually deepening instability - an environment which nurtures a functional, competitive society, that is not shackled by poverty. Society and its needs must be placed at the centre of a 'moral economic model' (Rogers 2010; Munck 2011; Schrecker 2011). This requires a re-imagining of development epistemologies, and a heterogeneous approach to its delivery and a dexterous approach to the use of supporting policies and frameworks (Mahadea & Simson, 2010; Veltemeyer 2011; Miraftab 2012; Swilling & Annecke 2014).

This paradigm shift is currently taking place through a variety of movements in academics and practice, across numerous disciplines. It includes the acknowledgement of the complexity of the world; inclusion of indigenous forms of knowledge and culture; and, shifts in spatial planning practices to be closer to systems

thinking, to incorporate diversity of knowledge, culture, perspectives and even needs (Cilliers 2000; Chu, Strand & Fjelland 2003; Max-Neef 2005; Cilliers 2016; Preiser et al. n.d.).

As South Africa begins to acknowledge indigenous forms of knowledge, culture and achievement which were previously suppressed and disregarded, a sense of an 'African Renaissance' is established. This is not just an epistemological acknowledgement in terms of the diversity of methods, scope and justified beliefs. It is recognition of African origins of being, and human progress through space and time, as opposed to Western centred notions of progress, advancement and development, only (Williams 2000).

This (re)introduction into the planning process enhances the diversity of knowledge and value systems, language, culture, and perspective. It provides the necessary knowledge, flexibility and resilience for a new development path. This is especially true when including the people affected by such plans (Andrew & Bawa 2014; Kunzmann 2004).

The goal is not to replace all Western centred practices. Instead the intention is to accentuate the co-existence in the African origins of being, of human progress. It is this realisation of co-existence which should impact on current policy formation, implementation and social change in the realisation of a more democratic dispensation in South Africa (Williams 2000). Through this acknowledgement we begin to develop our own epistemology of development based on ideologies, knowledge, culture and diversity that are our own or are representative of a developing country (Williams 2000; Munck 2011).

The epistemological dimension of development and spatial transformation is both experiential and experimental, as it requires incisive questioning, learning and reshaping of ideologies and rationalities. Learning how to transform South Africa into a socially integrated, equitable, and democratic country takes time, and a significant amount of trial and error (Williams 2000; Kane 2010). It also requires critical analysis of theory and other existing forms of knowledge (Williams 2000). It requires listening to society, instead of assuming we understand their needs and what is best for them. It requires building the capacity of all of society. It requires rebuilding of a nation, in terms of its citizen participation, its development practices, and its expectation of norms and standards within land use planning.

3.8. Research and planning processes for collaboration and reflexive learning

Practitioners working in the spatial- and land use planning field are confronted with many challenges, conflicts and opportunities which have been highlighted in this chapter. Practitioners have the great task of reconciling these challenges into spatial plans and development proposals which must realise a better future for South Africans. This is an arduous task with many variables that need to be quantified, analysed and packaged for specific sites.

When navigating such research and planning processes it has become common practice for the team to be comprised of a variety of role-players or actors. These actors may include scientists and other professionals from a range of disciplines, backgrounds and schools of thought, institutions, and even include members of the public (Max-Neef 2005; Lang et al. 2012). This diversity of role players is important to respond to the multitude of problems facing society (Max-Neef 2005); to contribute to knowledge sharing, and ensure co-creation of further knowledge; and the development of appropriate development proposals (Lang et al. 2012).

The conventional methods that are employed by practitioners are however, insufficient to adequately respond to the diversity of knowledge, world views and value systems, power dynamics and even methods which are associated with such diverse teams (Watson 2002). This diversity of world views is often referred to as conflicting rationalities and governmentalities (Watson 2002, 2003; Massey 2013).

As a result of conflicting rationalities, practitioners experience a host of challenges which often hinders the success of projects. These challenges and shortcomings can be summarised as: a lack of problem awareness or insufficient problem framing (Lang et al. 2012; Brandt, Ernst, Gralla, Luederitz, Lang, Reinert, Abson & Von Wehrden 2013); unbalanced problem ownership between actors, with one body often approaching others to assist, rather than full ownership by all actors; an insufficient number of team members who have a legitimate stake in the process – for example those affected by the problem (Lang et al. 2012), or practitioners who are neither affected or are responsible for the problem; conflicting methodological standards which arise as a result of the multiple disciplines and parties holding different expectations and backgrounds (Audouin & De Wet 2012; Lang et al. 2012); a lack of integration across knowledge types, organisational structures, communication styles or even technical aspects (Lang et al. 2012; Brandt et al. 2013); difficulty in securing long term

participation, which hinders the reflexive learning processes; vagueness and ambiguity of results; the 'fear to fail' results in some teams avoiding community engagement where the rationale of solutions or options might lead to endless collaborative research and postpone the project; and lastly, because case-specific solutions and lessons learnt are often generalised in publications, the detail of lessons learnt by the team are difficult to transfer (Audouin & De Wet 2012; Lang et al. 2012). As a result, the practices or methods used are linear and do not adequately enable the team to find adequate or appropriate solutions to complex social problems.

Governance is shaped through the use of devices or tools and even structures which are used in an attempt to shape, fashion and mobilise the choices, wishes, ambitions, aspirations and wants of individuals and the entire population. This includes a complex array of formal and informal techniques, programmes, processes, procedures, strategies and tactics - that are employed by government, non-government organisations, and even society and individuals in terms of the choices that they make. Research in this field focuses on how we govern in reality as opposed to how we should govern. Governmentality research therefore draws attention to the 'how' and 'why' of governing by analysing the techniques, programmes, processes, procedures, strategies and tactics which are used (Massey 2013).

The ethics, value systems, world views and/or rationalisation used by people to interpret the world directly informs the tools or methods which they choose to use to govern. Individuals are influenced by a variety of aspects, such as culture, religion, education, or even career or personal interests. It is the diversity of rationalities of these groups and individuals that results in differing practices and decision making (Woermann & Cilliers 2012; Massey 2013; Cilliers 2016; Preiser et al. n.d.).

Rationalities and governmentalities therefore form part of complexity of social ecological systems. Rationalities, governmentalities and power are interrelated, and give rise to further complexities (Woermann & Cilliers 2012; Cilliers 2016; Preiser et al. n.d.). It is therefore difficult to separate these concepts (Avelino 2011). Furthermore, rationalities, governmentalities and power are embedded within- and are interconnected within complex adaptive systems. Therefore, complexity theory is an appropriate basis for governance (Avelino 2011), and has a powerful role to play in influencing how spatial transformation might be realised through more informed spatial planning practices.

Conventional planning theories and practices do not acknowledge society or multidisciplinary teams as complex systems (Cilliers 2000; Poli 2013; Cilliers 2016; Preiser et al. n.d.). It is believed that various practices and technologies are used for diverse means and can have different meanings, in these diverse contexts (Valverde 1996). The relationship between governmentalities and rationalities, and how this translates into spatial-, land use- and development plans, is often overlooked.

The role that the human agent plays through interpretation of data and knowledge, and how this influences decision making has an ethical basis. Even social dynamics such as power influence the interpretation of information, the ethics used in decision making, and even the agency given to particular governmentalities (Woermann & Cilliers 2012; Cilliers 2016). For example, how the data is collected and analysed and interpreted, and what is included or excluded from this process, all influence the project outcomes – whether this is done intentionally or unintentionally (Woermann & Cilliers 2012; Cilliers 2016; Preiser et al. n.d.). By overlooking the influence of power and the ethical nature of decision making, we fail to address the power dynamics which have brought about spatial injustice and inequality, and those which continue to keep these injustices in place. Project methodologies must acknowledge the team as a complex social ecological system, as well as the complexity of the identified problem and the society within which the project takes place.

Complexity theory does not provide a definitive solution to address the challenges experienced within complex systems (Avelino 2011; Cilliers 2016; Preiser et al. n.d.). However, it challenges the belief that perceived ‘problems’ can be reduced to a technical, linear set of solutions. Instead, we must be critical and reflexive of our understanding, and how this knowledge informs how we govern (Avelino 2011; Cilliers 2016; Preiser et al. n.d.). The insights provided by this paradigm are enabling improved insights into the feasibility of directing or shifting the state of a system from one form to another, and how this might be achieved (Avelino 2011). Therefore, this shift in knowledge and practices is important for understanding how we engage in spatial- and land use planning practices, and make proposals for interventions within geographical spaces for the benefit of society.

These practices should be based on a fundamental shifted away from attempting to control or govern the system, to understanding what the role of various aspects (including society, planning practitioners, and government) is in that system, and how those interactions affect the system (Avelino 2011). Observations and reflexive learning experiences, which inform adjustments in practices in a closer feedback loop

is required (Preiser et al. n.d.). This should translate to research and planning practices, and the resulting development interventions, being closer to that of systems behaviour (Cilliers 2016; Preiser et al. n.d.).

This requires research methods that expose and elucidate the complexity of social ecological systems (Preiser et al. n.d.), and the rationalities, governmentalities and power dynamics within these systems. Examples include the identification of spatial injustices as spatial power, spatial links and spatial claim (Bassette 2013). Identification of spatial injustices allows for a deeper understanding of the complexity of the site, and frames the problem within the realm of space and power.

In addition to this method, transdisciplinarity or transdisciplinary research provides a host of research and planning methods and methodologies that respond to the need for planning practices and processes to acknowledge and align the diversity of rationalities, governmentalities. It is a structured method or approach to research and planning practices which focuses on research which is relevant to society, and is intended to enable mutual learning amongst all actors (e.g. public, academia, government), and intends to create knowledge that is solution-orientated and socially robust (Lang et al. 2012). Furthermore, transdisciplinarity can be described as “*a reflexive, integrative, method-driven scientific principle aimed at the solution or transition of societal problems by differentiating and integrating knowledge from various scientific and societal bodies of knowledge*” (Lang et al. 2012:26).

Some of the methods associated with this methodology include co-design, co-creation, community participation and design thinking (Lang et al. 2012; Brandt et al. 2013). Each of these methods allow for problem solving processes to be undertaken with a range of stakeholders – professionals, public, government officials, in a facilitated manner to ensure a holistic understanding of the site and the community’s needs; and to enable co-creation of interventions, solutions or even long term spatial visions (Naidoo 2015).

Although transdisciplinary literature has been growing, it generally lacks guidance on what can be learnt from the different methods or approaches, and what needs to be considered when planning and carrying out transdisciplinary sustainability research (Lang et al. 2012; Brandt et al. 2013). To address this shortcoming, Lang et al. (2012) have defined transdisciplinary design principles as a framework for project execution, which can guide multidisciplinary teams through purposeful collaboration (Lang et al. 2012). This method acknowledges the team as a complex adaptive system, and by

acknowledging these characteristics it provides an enabling framework for diverse role players, which conventional methods fail to do. It is also based on a synthesis of experience from a host of case studies and various strands of literature and practical experiences on how to undertake such research and planning practices (Lang et al. 2012).

Transdisciplinary design principles are largely dependent on the understanding that purposeful design of projects to ensure engagement of the multidisciplinary teams is fundamental (Lang et al. 2012). This engagement must ensure that trust, openness and transparency are the foundation of the team's interactions, to ensure that this does not hamper sharing and reflexive learning (Harris & Lyon 2013). This is essential to ensure integration of knowledge and the co-creation of knowledge and solutions by multidisciplinary teams. Although the model (as presented in Table 2) may appear to present linear processes, individual phases and the overall sequence often have to be performed in an iterative or recursive cycle (Lang et al. 2012).

Methods such as co-creation, co-design or even design thinking compliment the transdisciplinary design principles, and may be used when deliberate facilitation is required. Typically, design thinking as an approach is implemented as an iterative or cyclical process. This is usually through brainstorming of a variety of design ideas, interventions or proposals. This is followed by grouping of these thoughts into similar concepts that seem to naturally converge. This divergent brainstorming followed by convergent designs is then repeated. As such, this methodology has great potential to allow multidisciplinary teams to come together around a problem, and creatively solve problems as a team. However, this does require some sort of base knowledge or common understanding of what the shape and form of 'the problem' (dynamics associated with the site, and the needs of the community, for example). This can be established through sharing baseline information and engaging over the information to ensure that the team as a whole maintains a common understanding (Naidoo 2015).

Co-creation or co-design is a similar method, which is often used in a facilitative setting to enable design based practices to include a variety of stakeholders. As a method it can be described as the active flow of information and ideas among the sectors of society, in a manner which allows for participation, engagement and empowerment in, developing policy, creating programs, improving services and tackling systemic change with each dimension of society represented from the beginning (Leading Cities 2012; Duarte, Lulham & Kaldor 2011). Design thinking and even co-design are tools or methods which are excellent at enabling teams (Naidoo 2015) (see Table 2).

Table 2: Framework of transdisciplinary design principles for research and planning practices (Lang et al. 2012)

Phase A: Design principles for problem framing and building a collaborative research team	General Design Principles (cutting across the three phases)
<p>1. Build a collaborative research team:</p> <p>Identify relevant stakeholders who have expertise, experience or any other relevant stake in the pre-identified problem. Apply transparent criteria and justifications for this selection.</p> <p>Facilitate explicit team-building processes.</p> <p>Establish an organisational structure within which responsibilities, competencies, and decision rules are clearly defined. This should be balanced across all levels, towards joint leadership.</p> <p>Develop a common language through building of capacity. This is important to facilitate common understanding and avoid misunderstanding and roadblocks for collaboration.</p>	<p>1. Facilitate continuous formative evaluation:</p> <p>Through an extended peer group, formulate continuous evaluation which allows for reviewing of the progress and reshaping the subsequent project steps and phases if necessary.</p> <p>2. Mitigate conflict constellations:</p>
<p>2. Create a joint understanding and definition of the problem:</p> <p>Define the sustainability problem as a societally relevant problem which implies and triggers further research questions.</p> <p>Ensure all role players are involved in defining the problem, in an integrated and balanced manner.</p>	<p>In order to avoid conflicts, reflexive meetings, open discussion forums, explicit and mediated negotiations, and adaptation of agreements should be allowed for. This requires the transdisciplinary project to be carefully designed and followed.</p>
<p>3. Define the research boundaries and focus:</p> <p>Collaboratively define the boundary of the research and research objectives, as well as specific research questions and success criteria. This requires accounting for all the different actors' interests.</p> <p>Set specific research questions within the boundaries of the project, and research objectives.</p>	<p>3. Enhance capabilities for- and interest in participation:</p> <p>Select locations that are easily accessible for stakeholders.</p>
<p>4. Design a methodological framework:</p> <p>Agree on methods to be applied in Phase B, including evidence based templates for collaboration and common orientation for all team members from the beginning. The method(s) should enable knowledge production and integration, and co-creation.</p>	<p>Schedule meeting times that allow maximum participation;</p> <p>Facilitate discussions in several languages, if necessary;</p>

<p>Phase B: Design principles for co-creation of solution-oriented and transferable knowledge</p>	<p>Allow participants not only to articulate their perspectives but also to engage in meaningful discussions, deliberation and negotiations, and to incorporate visual aids or representations.</p>
<p>1. Appropriate roles and responsibilities for all parties:</p> <p>Assign appropriate roles and responsibilities, accounting for reluctance and structural obstacles.</p> <p>Ensure facilitation that allows compliance with the assigned roles and responsibilities.</p> <p>Leadership for team coordination, information exchange, procedural matters and conflict resolution.</p>	
<p>2. Apply and adjust integrative research methods for knowledge generation and integration:</p> <p>Use tools to support team work and collaboration, and inter- and transdisciplinary quality control.</p>	
<p>Phase C: Design principles for (re-)integrating and applying the created knowledge</p>	
<p>1. Realise two-dimensional integration:</p> <p>Review and revise the outcomes generated in Phase B, separately and within as a collaborative review process. Different criteria may be required to facilitate this such as quality criteria or practical applicability.</p>	
<p>2. Generate targeted ‘products’ for all parties:</p> <p>Provide all actors or parties with appropriate products that present and translate the results of the project in a way that they can make use of the information.</p>	
<p>3. Evaluate scientific and societal impact:</p> <p>Evaluate the project at different stages after completion of the project to demonstrate the impact and generate lessons learned for future project design.</p>	

3.9. Conclusion

A multitude of problems define the post-1994 South Africa. The historical legacy has devastated the social structures; it still taints the institutions and historical records; and it has resulted in the inadequate and crumbling infrastructure, the fragmented and disconnected settlement forms; the social disconnect, unemployment, inequality and poverty; and the failing public services and education system (Williams 2000; SACN 2016b; NPC 2011a, 2011b, 2011c). In addition to this, city sprawl and slow investment in previously defined black areas has reinforced the marginalisation of the poor, deepened inequality, and resulted in inefficient and costly infrastructure and services (Williams 2000; Robins 2002; NPC 2011a, 2011b; Ngamlana & Eglin 2015; Turok 2012; SACN 2016b). Globalisation, climate change, rapid urbanisation, poverty and inequality, inadequate policy and legal frameworks, a lack of human agency and institutional capacity, and path dependency with regards to infrastructure, technology and policies have created a complex and multidimensional problem which is difficult to solve (CoJ 2011; Swilling & Annecke 2014; SACN 2016b, 2016d).

To achieve spatial transformation, post-apartheid South Africa must dismantle the apartheid city and the knowledge, worldviews, culture and policies (rationalities and governmentalities) which enabled its development (SACN 2016b). Significant work has been done in the past 20 years in the way of understanding the depth of the problem. This has informed legislative and policy reform, infrastructure investment, and how to govern in this complex space (CoJ 2011; NPC 2011b; Barnes & Gerber 2016; Du Plessis 2016; SACN 2016b).

The principles of inclusive and spatially just cities are reflected in the latest legislation and spatial plans of the country, and the ongoing efforts to realise these commitments in practice (NPC 2011a, 2011b, 2011c; WCG 2013; SACN 2016b; CCT 2017b). These plans intend not only to bring about spatial transformation, but to create an enabling environment for citizens through access to adequate transport networks and opportunities such as housing, education, healthcare and local economic opportunities. However, aspects such as conflicting rationalities and governmentalities arising from remnant policies and practices, and even cultural practices and value systems present obstacles to change (Watson 2002, 2003, 2009; Gunder 2010; Veltemeyer 2010, 2011; CoJ 2011; Munck 2011; NPC 2011b; Miraftab 2012; Van Wyk 2012a; Massey 2013; Barnes & Gerber 2016; SACN 2016b, 2016d). Because of these

complexities, South African cities are far from being able to provide a high quality of life for all that inhabit them.

Spatial transformation is both experiential and experimental, as it requires incisive questioning, learning and reshaping of ideologies and rationalities (Williams 2000; Kane 2010; SACN 2016d). In this manner, numerous shifts in theory and practice are already underway. This includes an 'African centred' development epistemology, which embraces a diversity of knowledge forms and a more holistic understanding of the South African history. The understanding of the world as a complex adaptive system, is also informing various aspects of research, planning practice and the development of interventions to be more in line with systems behaviour (Heylighen, Cilliers, Gershenson 2007; Lang et al. 2012; Brandt et al. 2012; Preiser et al. n.d.).

The power dynamics and resistance to change which is reflected in the conflicting rationalities and governmentalities evident in spatial planning practices must be overcome if significant change is going to be realised in South Africa (Avelino 2011; Massey 2013). It is therefore recommended that research and planning techniques be implemented that elucidate the spatial injustices, the complexity of systems, and the power dynamics within society and the professional planning teams undertaking the research and planning processes (Basette 2013; Preiser et al. n.d.). Furthermore, these research and planning practices must include careful and deliberate design of engagement to ensure collaboration of multiple actors in all processes, which enable reflexive learning and co-creation of solutions (Lang et al. 2012).

4. The Two Rivers Urban Park

4.1. Introduction

TRUP is one of the largest undeveloped spaces left in the CCT. It comprises approximately 300 ha of land, just 5 km from the city centre; with unparalleled historical significance, as the location where colonisation began in South Africa. But it is also an important natural ecosystem, at the confluence of the Liesbeek and Black Rivers, offering critical habitats for local biodiversity, public open spaces and flood buffer areas for local communities. As a result, it is closely guarded by the surrounding communities, who are working towards the rehabilitation of riparian areas, and the development of an urban park.

Late in the year 2015, a large multidisciplinary team was appointed by the WCG and CCT, to undertake several specialist studies and develop proposals for the future of TRUP. According to CCT (2016:1), the vision for TRUP was “*primarily aimed at overcoming the legacy of apartheid spatial planning... envisaged as a mixed-use, transit-orientated development (a mix of residential and commercial opportunities within a connected landscape) for sustainable living*”. In addition, the desired outcomes include enhancing “*the area’s natural and cultural resources*” (DTPW 2015:58). These are important objectives for the spatial transformation of Cape Town, but also for the preservation of public spaces and the ecological goods and services offered by the natural environment, and memorialising the cultural heritage of the country.

In line with these objectives, the multidisciplinary team was tasked with undertaking a variety of specialist studies – heritage, aquatic, biodiversity and water quality assessments, as well as floodline modelling and investigations regarding the existing service capacities for traffic, stormwater, potable water, sanitation and electricity. These specialist studies were to inform an integrated planning process towards the development of a Local SDF for TRUP, with detailed precinct and site plans.

This research and planning project would therefore be in line with systems thinking and focus strongly on informed decision making, integration of knowledge and the development of sustainable designs for the future of TRUP. Sadly, this is not how the project was executed. A ‘design-led’ approach was executed by the consulting team, whereby design was undertaken prior to the specialist studies. Once the specialist studies were complete, the various design proposals for the site were merely tested against the findings of the specialist studies. This approach was built on the premise

that the design team (Town and Regional Planner, Landscape Architect and Urban Designer) would integrate the various specialist studies into a comprehensive, sustainable Local SDF for TRUP; while the various specialists and stakeholders were merely informants into the design process.

This case study critiques the research and planning processes employed by the consulting team. Ethnographic research methods of embedded research and action participation, were used to document the methodology used by the team, the various team dynamics, and the team's successes and failures during the research and planning project. These are powerful techniques which have allowed the researcher to uncover and document insights into local practitioners' perspectives, ideologies and current practices, and also to make inferences regarding the consequences thereof. The findings of the ethnographic research were compared against a framework of Transdisciplinary Design Principles - principles that have been determined to be an appropriate research and planning method or approach, and are therefore a reasonable comparison.

Furthermore, to contextualise this project and the associated dynamics, a framework is used to identify the spatial injustices associated with TRUP. This includes a description of the site from different spatial perspectives of: claim (who are the space users, and who is not); power (how is space used to enable uses, and to exclude other uses and users); links (how is this site linked to other areas of the Cape Town and other communities, and what historical memories exist which offers a temporal link). This description of the site provides a high-level understanding of the complexity of the site, and the challenges which needed to be reconciled in the research and planning processes, to develop sustainable development proposals for TRUP.

The study found that the approach or methodology used was not adequate to address the conflicting value systems of the key stakeholders and the consulting team. Nor did it adequately acknowledge the complexity of the site and the existing spatial injustices. As a result, the experiences of the project team can be summarised as: poor communication and co-ordination, a chronic lack of integration of knowledge, strained relationships, and growing tensions. Thus, dominant misconceptions and silo thinking, lead the design process with little room for meaningful contribution of the specialists and public into the development proposals. There were several delays in the project timeframe, with many shortcomings in the proposed interventions; and, in the end the team was not able to complete this project.

4.2. Description of TRUP

4.2.1. Introduction

TRUP is a phenomenal site, with historical, ecological and recreational value. But, TRUP is also associated with a long history of spatial injustices, and strained infrastructure services which limits the ability to develop the site. Therefore, whilst introducing the various characteristics of the site, the characteristics of spatial injustices are teased out using three categories (Bassette 2013):

1. *Spatial claim* describes who the various users of this space are, how they make use of the land; and those who have been marginalised, how this has taken place and why.
2. *Spatial links* refer to the accessibility and spatial connectedness and/or the physical barriers, as well as the invisible barriers and the historic memory of the site.
3. *Spatial power* is linked to the issues presented in spatial claim and spatial links, which act to enable the use of space or prevent access and use of space and resources.

This description of TRUP presents the challenges and opportunities associated with the site, and the complexity of the spatial injustices associated with this space. This provides some perspective of the complexity of the problem which the practitioners were tasked with addressing when researching and planning for this site.

4.2.2. Site location

TRUP is situated less than 5km from the Cape Town central business district. There is approximately 300 ha of land within the boundaries of TRUP - which is owned by multiple parties and has numerous prospective developers (see Figure 3) (CCT 2015; WCG 2017a, 2017c). It is located within close proximity to public transport networks, the University of Cape Town, hospitals and other academic institutions and businesses. It is therefore well located for development opportunities (CCT 2015; WCG 2017a) (see Figure 2). Yet, it is one of the largest undeveloped spaces remaining in the city.

4.2.3. Development precincts and current land uses

TRUP, and its various land uses, can be identified using the following precincts: Alexandra, Ndabeni Triangle, Maitland Garden Village, Oude Molen, Valkenberg, Hartlevalle Sports Complex, SAAO or the Observatory, Malta Road and the river corridors (see Figure 3). The existing infrastructure defines these precincts, and how these spaces are used (WCG 2017a). TRUP is predominantly used by local residents, living within the boundaries of the site and its immediate surrounds, such as the communities of Observatory, Maitland and Oude Molen. Residential areas, with few supporting services in the form of education and community services, are therefore clustered in low densities. While the larger open spaces are used for recreational purposes, and as public open space or as an urban park. Associated activities include golf, birdwatching, walking of dogs, the use of various sports fields, walks or hikes, and picnics (WCG 2017a). There are also a number of people who access the site for educational, employment, and recreational opportunities. This includes the various businesses associated with Hartleyvale Sports Precinct, the surrounding schools, SAAO, Valkenberg and Alexandra Hospitals, and the River Club, among others.

The SAAO precinct is located at the confluence of the rivers and includes the SAAO itself, as well as the Raapenberg Bird Sanctuary – with the Raapenberg wetland and bird hide accessible from the SAAO (WCG 2017a), and the River Club.

Valkenberg West precinct largely comprises the Valkenberg Psychiatric Hospital. The hospital was recently revitalised and upgraded. At the precinct's South Western edge are three non-hospital related developments, including: the Protea Hotel, the Wild Fig Restaurant, the Cape Town Chinese Community Centre, and the Church of Jesus Christ of Latter Day Saints. The Western edge is used for passive recreation – including cycling, jogging and dog walking (WCG 2017a).

Alexandra precinct, like Valkenberg, is largely comprised of the Alexandra Hospital, which shares a secure perimeter with three other facilities. Each of these three facilities is for special-needs children and adults – Molenbeek Special Needs School, Friends Day Care Centre for intellectually and physically disabled children, and the Open Circle Facility for adults with intellectual disabilities and violent tendencies (WCG 2017a).

Only the Alexandra Provincial Office Precinct is not within the secure boundary which houses the Metro Central Education District Offices. The Nieuwe Molen is situated in the centre of this Precinct, and is not in use (WCG 2017a).

Maitland Garden Village is south of Alexandra Psychiatric Hospital. This area is largely comprised of semi-detached, single-storey residential units. The precinct includes a primary school, community centre, three places of worship, and the Garden Village Muslim Association. There is also a park and community field (WCG 2017a).

The Oude Molen precinct is south of Maitland Garden Village. This precinct comprises distinct parts: the Valkenberg Psychiatric Hospital Forensic Unit, which is currently being relocated to Valkenberg West; the Life Healthcare Group's Vincent Pallotti Hospital and the St. Vincent Pallotti Convent and two office blocks; Oude Molen Village (between Maitland Garden Village and the office blocks), where there is a mix of land uses – including residential, commercial, light industrial, agricultural, educational and healthcare; an area of roughly 9ha of land within Oude Molen which is used exclusively for horse grazing and riding; on the eastern edge of Oude Molen two small areas are reserved for aquaponics gardening; the Gaia Waldorf School and a Montessori school are the educational component. Recreation, gardening and residential uses are scattered across the entire precinct (WCG 2017a).

Ndabeni Triangle precinct is zoned as a light industrial area, and as such includes large warehousing, small offices and manufacturing businesses, depots and offices for several CCT departments. The CCT depot is largely underutilised, and the future of this space and its facilities is unclear (WCG 2017a).

There are also several potential investors that hope to be located on the site, such as the Cape Health Technology Park, the Square Kilometre Array offices, and the River Club developers (WCG 2017a).

The needs of the local communities are varied, and include the need for local markets, public transport and easier access, education facilities and job opportunities. However, the large investment required in terms of service related infrastructure is a challenge for government and private developers. The lack of development has however allowed the site to remain as public open space, and for clusters of ecologically sensitive habitats to survive.



Figure 2: Location of TRUP in relation to ecological networks (image on left), and public transport networks and economic opportunities (image on right) (WCG 2017c:5)

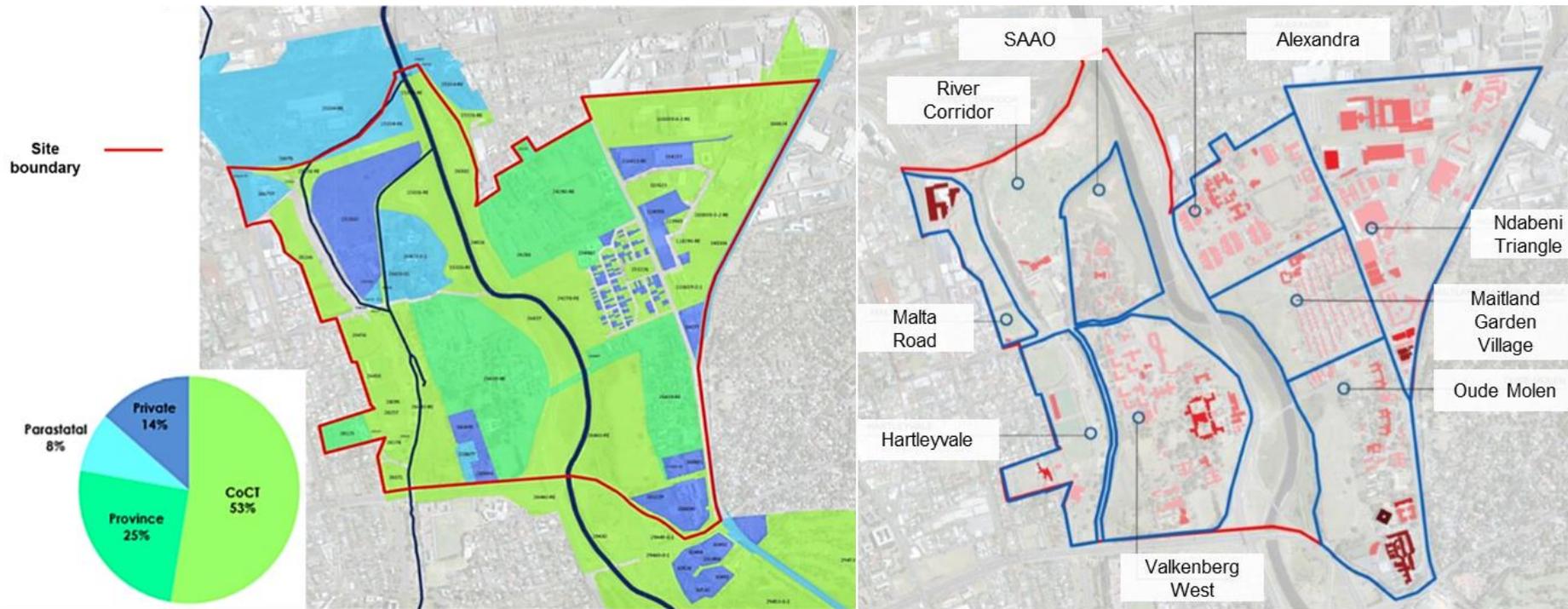


Figure 3: Land ownership within the boundaries of TRUP (image on left) (amended from WCG 2017c:7), and various precincts and land marks (image on right) (WCG 2017a)

4.2.4. Urban park

TRUP has great potential to be a thriving urban park for the benefit of the greater population of Cape Town. Coupled with the strong cultural heritage value of this land, it could even be described as having national heritage value (HWC 2017). However, TRUP is currently fragmented and degraded. This needs to be addressed by improving accessibility to the site and mobility within TRUP; but, also by improving connectivity of the natural habitats and rehabilitation to ensure enhanced ecological functioning and flourishing biodiversity.

Some areas of TRUP are easily accessible and rather open in character – thus making TRUP more accessible to passive recreational and park usage. This includes the grassed, open areas along the Liesbeek River and the associated wetlands.

The western edge of TRUP is considered to be a formal sporting zone. The various sports fields along Liesbeek Parkway serve for training and events for local and metropolitan teams. The fields at the Hartleyvale stadium have limited or restricted access, while the fields north of Station Road along Fir Street are open to the general public for dog walking, games, as well as club use. In addition, the eastern bank of the Black River is used for the Peninsula Driving Range and equestrian activities associated with the Oude Molen Village – and both activities have restricted access (WCG 2017a).

Other areas tend to be more isolated and neglected, which creates a sense that the areas is not safe. Such areas include the Liesbeek River bank behind (or downstream of) the River Club, as well as the banks of the Black River, particularly around the bridges.

Other characteristics of the site include:

- The Liesbeek and the Black River run through the length of the site. This site contains the only portions of rivers which have not been canalised within the entire Salt River Catchment, and only a small portion of the Liesbeek has been canalised (Belcher 2016).
- Large parts of TRUP flood annually and more extensively during the 1:50 year interval and 1:100-year interval. As such, TRUP serves an important flood-attenuation function for the catchment (Belcher 2016; De Groen 2017).
- The site is, however, largely transformed; with vast portions of the land as grassed area; and, the site is mostly populated with alien species (Helme 2016).
- The rivers are heavily polluted from a number of sources throughout the catchment, and there are even historical heavy-metal pollutants embedded in the river bed. The water is therefore not safe for drinking or recreational purposes (Belcher 2016; WCG 2017a).

- Several wetlands are found on the site: some are fed by the rivers, others by stormwater flows, while groundwater potentially feeds others. This mix of natural and constructed wetlands are all negatively impacted on by the transformed and degraded nature of the site, and the heavily polluted water sources (Belcher 2016; Belcher, personal communication 2016; WCG 2017a).
- Despite the transformed and polluted nature of the site, it is still a valuable ecosystem for a diversity of species. A wide array of birds use the site – some as permanent residents and many more for occasional foraging. This includes the last known nesting and breeding sites in the Cape Town area of the Kingfisher, and a duck breeding area in the Raapenberg Bird Sanctuary wetlands (CityParks, personal communication 2016). There are also numerous small mammals, including the Cape Otter, and the site is the nesting and breeding location of frog species, including the endangered Western Leopard Toad (Helme 2016; WCG 2017a).

Annexure B is a map which illustrates some of the ecological value of the site, as recorded by South African National Biodiversity Institute and CCT (2016).

The Liesbeek and the Black Rivers are important ecological corridors for biodiversity. TRUP is one of the few open spaces within the Metro, and is therefore an important ecological stepping stone. Other large open spaces include the Kirstenbosch Botanical Gardens, Rondebosch Common, Table Mountain National Park, Milnerton Vlei, the West Coast Nature Reserve and the Tygerberg Nature Reserve. This is in addition to a host of green corridors and residential parks. The biggest obstacle is, however, the highly fragmented landscape with excessive infrastructural boundaries and fences separating these green spaces (Belcher 2016; Helme 2016; WCG 2017a).

The open spaces, which can be identified on the map found in Annexure B as the green and undeveloped spaces, form part of the conservation boundary. This land is owned by the CCT, and managed by CityParks. At the time of writing this research, CityParks was in the process of establishing a formal protection boundary.

Considering the ecological significance of the site the local community negotiated with CCT to have the Raapenberg Bird Sanctuary to be protected in perpetuity. This land is owned by the CCT – with the local community as its custodians. As a result of this protection, the wetlands have been allowed to flourish, and now hold the greatest biodiversity and ecological significance on the site, but are also the most sensitive habitats. As a result, the Raapenberg Bird Sanctuary forms the core of the conservation areas associated with TRUP.

A bird hide was constructed on the banks of the river to allow bird watchers to look across the arm of the Liesbeek River onto the Raapenberg wetlands. This vantage point has enabled the development of an extensive and detailed bird sighting list.

4.2.5. Historic memory

“The history of the landscape is ancient and tragic” (WCG 2016d:47). The site marks the beginning of the end for the Khoikhoi culture and way of life. It also symbolises colonial globalisation, and how the indigenous inhabitants of Africa, the New World, Asia and Australia/New Zealand were all dominated (WCG 2016d).

Although there are no tangible remnants of the actual places of conflict, forts or outposts, or even graves – the topography has survived despite the transformed nature because of more recent development of the site and its surrounds (WCG 2016d). As a result, the site has a long and multi-layered cultural heritage, through the pre-colonial, colonial and post-colonial eras (WCG 2017a 2017b). It therefore holds great significance at a local, regional and even a national level.

In summary, some of the key historical and cultural aspects of the site include:

- This region forms part of the heritage of the KhoiKhoi, San and the Khoi-San. The wetlands associated with the Black River, Salt River and Liesbeek River were important grazing land, which supported thousands of cattle. Records also suggest that this is where the KhoiKhoi camped seasonally (WCG 2016d).
- Table Bay, which TRUP forms part of, has been identified as the region where the first Dutch ships arrived in the Cape. However, because the Salt River mouth meandered across the coastline before the rivers were canalised, it is difficult to determine an exact location (WCG 2016d; SAHO 2017a).
- The Dutch used this fertile valley as prime agricultural land, which led to conflict with the KhoiKhoi, mostly within the Liesbeek Valley (WCG 2016d).
- The Dutch erected a fence – the first recorded fence in the region – presumably to safeguard their cattle. The free burgers were also encouraged to erect barriers, which was usually done using thorn bushes, hedges and palisades (WCG 2016d).
- The TRUP site forms part of the first frontier between the Dutch colonists and the Peninsula Khoikhoi. This confrontation landscape extends from the Salt River mouth and follows the eastern side of the Liesbeek River, through Observatory, Mowbray, and Rondebosch – up to the Bishopcourt area (WCG 2016d, 2017).
- It is the location of the SAAO, the first observatory in the Southern Hemisphere. This observatory is still used today (WCG 2017b).
- Some of the first photographs ever taken in South Africa are from the TRUP, from the year 1917 (WCG 2016d, 2017b).
- It is the location of the Valkenberg Hospital and the Alexandra Hospital – two institutions historically used to house and treat the mentally ill (WCG 2017a, 2017b).

- The eighteenth-century Alexandra Mill is a symbol of agriculture and early industry in the region. Together with Mostert's Mill it is one of only two remaining windmills in Cape Town (WCG 2017b).
- There are no remnants of the numerous forts which were established. However, there is a possibility that these may still be discovered in time (WCG 2016d).
- Ndabeni currently does not have any heritage landmarks and conservation-worthy buildings; however, it is of historical and social significance as the area where the first forced removals took place after the 1901 bubonic plague epidemic. Black residents were forcibly moved from Cape Town and District 6 to hastily-built basic accommodation in Ndabeni. This site therefore has historical memory and significance in regard to the segregation in Cape Town (WCG 2017b).
- Ndabeni and Pinelands (found to the east of Ndabeni, and outside of the TRUP boundary) originally formed part of the Uitvlugt pine plantations, which were planted by prisoners from Robben Island in the 1880s. One of these prisoners was Chief Langibalele. Therefore, the Ndabeni site has cultural heritage significance for the Nguni people (WCG 2017b).
- TRUP also has historical/archaeological significance as the site of large farms and Anglo-Boer War encampment - unfortunately, now demolished (WCG 2017b).

Annexure A contains a map of the known locations of some of these sites. However, some of the information has an embargo by the Heritage Western Cape, and is therefore not represented on this map.

4.2.6. Visual connections

Views and vista from various locations within TRUP allow for a connection between the natural and constructed landscape. The eastern banks of the Liesbeek and Black Rivers offer views of the river in the foreground, and Devils Peak or Lions Head in the background. On the eastern bank of the Black River, in front of Oude Molen, there are views of the harbour (WCG 2017a). From the M5, there are spectacular views across substantial portions of the site. This includes the Raapenberg wetlands, the open plains of the River Club, the SAAO, the Black River and towards Oude Molen Village (WCG 2017a). Malta Road provides views of the site over the River Club towards Nieuwe Molen near Alexandra Hospital, and of the SAAO. Observatory Road connects the space between the Black and Liesbeek River corridors – with views across the east and west sections of the site (WCG 2017a).

Despite the amazing views most of the buildings face away from the Liesbeek and Black Rivers. The only building which intentionally faces the river and the mountain is the M5 Business Park; however, the M5 still separates the property edge and the river. The River Club faces away from the Liesbeek River, creating an isolated and neglected space along this

section of the river bank. The Valkenberg Hospital and the South African Astronomical Observatory (SAAO) look inwards, so also neglecting the river edges and open spaces. This lack of surveillance adds to the sense of vulnerability and the fragmented nature of the site (WCG 2017a).

4.2.7. Accessibility

There are numerous physical barriers which make the site difficult to access with limited access points. East-west routes across the site are also absent with many fences which make the site impossible to move across on foot or by car.

The Liesbeek and Black Rivers act as natural barriers. Historically, this site was chosen for the location of the Valkenberg Hospital because of this feature, so that these barriers might make it difficult for patients to escape (WCG 2017b). Today, the accessibility of the site over the rivers and the N2 and M5 is a major challenge with regards to accessibility, and ease of mobility of people across the site. This is a challenge which is not easily rectified because the span of both the M5 and the Black River will require very large bridges with footprints in the wetlands and river – bridges that are likely to obstruct the various views across the site.

Although there is exciting potential for public transport networks in the area, with multiple train stations along the boundary of TRUP, these stations are not easily accessible because of the many fences which block pedestrian movement. There is also a lack of supporting networks and public transport services associated with these stations.

There is a secure perimeter around the Valkenberg Hospital. Considering the nature of the hospital and its patients who are mentally ill, it is understood that this is necessary. However, the high electric fencing alienates it from the Black River corridor (WCG 2017a).

There is, however, a pedestrian bridge over the Black River – which connects the west and east wings of the hospital. Access across the bridge is controlled and is associated with the sensitive nature of the hospital. Some locals have verbally reported that the security guard allows access to commuters traversing the site. However, this was not verified.

Both the Valkenberg Hospital and the SAAO are hidden from public view – on top of the ridge between the rivers, and hidden behind fences and vegetation. This adds to the feeling of alienation and exclusion (WCG 2017a).

4.2.8. Service infrastructure capacity

Basic infrastructure for electricity, sewerage, stormwater and bulk-water supply are limited and act as a major constraint to further development of the site. The large investment costs required for these upgrades have thus far hindered development of the site (WCG 2017a).

4.2.1. Stakeholders

4.2.1.1. Land owners and potential developers

As shown in Figure 3, the current division of land ownership of TRUP is: CCT 53%, WCG 25%, Parastatals 8%, and private owners 14% (CCT 2015; WCG 2017a, 2017c). There are also numerous private developers interested in this site.

4.2.1.2. Traditional groups

The history of TRUP and its cultural heritage is discussed under the heading 'Historic memory'. In this section, centuries of land struggles, the suppression of native people, and the colonisation of South Africa is described. From as early as 1652, traditional groups such as the Nguni, Khoi-San and the Xhosa have been restricted from using the TRUP land. Today, these traditional groups still voice their claim to the land. The history and strong cultural heritage value of the land suggests that traditional groups are key stakeholders within this land-use planning process.

4.2.1.3. Pedestrians

Many commuters cross the site on foot – walking either between modes of public transport or from drop-off points and places of employment. The most common or high-usage corridor is between the M5 and Black River. These are informal routes, with no formal non-motorised transport routes or associated safety infrastructure available along this corridor.

4.2.1.4. Fishermen

The same sliver of land between the M5 and the Black River – which is used by the above-mentioned commuters – is also used by local fisherman. However, because of the heavily polluted nature of the Black River, only catfish are found in the water, which are likely contaminated with heavy metals that they have indigested from the historically polluted riverbed (De Groen 2017; WCG 2017a; Belcher 2016).

4.2.1.5. Academia

The University of Cape Town is also known to make use of the site. Various students use the site for *inter alia* conceptual designs, modelling, and sampling - the rivers and wetlands, seem to be of particular interest for research purposes. In this context, TRUP is used as a public open space, and no specific rights are granted for research or restrictions put in place to prevent it.

4.2.1.6. The destitute

A number of homeless people also make use of the space. The voices of homeless people have not been heard in the planning process – nor have they been recognised in the plans for TRUP. Therefore, there is limited understanding of the extent of their reliance on the site.

4.2.1.7. TRUP Association

In 2003 a Contextual Framework and Phase 1 of the Environmental Management Plan was published, with a long-term vision for TRUP as an urban park. This framework was developed through a seven-year co-design process between the local residents and the Department of Environmental Resources at CCT.

As an outcome of this plan, the TRUP Association was conceptualised as a broad-based voluntary stakeholder body. TRUP Association is representative of a partnership between the local authority, key stakeholders, environmental interest groups, and the local community. This Association includes the local ward council and various volunteers from the community (CCT 2003). Its overall responsibilities were to act as an advisory board or steering committee, and a role-player in management agreements between authorities; specifically, towards the realisation of the 2003 Contextual Framework and Phase 1 Environmental Management Plan.

In general, the progress against the realisation of the 2003 Contextual Framework has been slow, and has largely been hampered by the difficulty in raising funds. As a result, only clean-up projects and some riverine and wetland rehabilitation projects have been carried out.

Despite this seemingly slow progress, the community at large seems to hold a strong connection to the site – in particular with the open space, nature and biodiversity present in this space. As such, there is the will and agency to protect and rehabilitate this space. The emotion is strong enough to bring a fragmented and diverse community together, to not only fight for the preservation of TRUP as an urban park and for its rehabilitation, but also to plan and collaborate in a structured manner.

Other associations have also been formed through other processes, like the Friends of the Liesbeek which offers voluntary services to rehabilitate varied elements of the site. These associations have often worked in collaboration with the TRUP Association.

4.2.2. Summary of the characteristics of TRUP

The dynamics associated with TRUP are diverse and complex. From a cultural heritage perspective, the site is important for all South Africans. TRUP represents the coming together of our forefathers, and the beginning of a legacy that can never be forgotten. For the traditional groups whose forefathers suffered for many generations as a result of colonialism and apartheid, this land is their birth right. For many it is an important public open space, and ecological habitat which should be rehabilitated and enhanced for the benefit of all. It is also an important ecological infrastructure, as a space that floods – preventing damage to the surrounding urban infrastructure, and replenishing the local aquifer. While for others, it is an opportunity to develop connection, with the use of bridges and non-motorised transport to bring people into the space; but also across this space and more easily into the city. It is also an opportunity to provide much needed housing and job opportunities within the city. However, this site also has limited services available in the way of access to energy, stormwater, sanitation and potable water; and, the city has limited resources available to provide new developments with these services. The traffic in the area is already heavily congested, and there are many physical barriers which make the site inaccessible on foot and by vehicle. In summary, it is a valuable site for so many reasons, but it is also a difficult site to invest in.

The table summarise these characteristics based on a framework of spatial injustices:

Table 3: Summary of the characteristics of TRUP

	Identifying questions	Characteristics of TRUP
Spatial Claim	<ul style="list-style-type: none"> • Who uses the place, and why? • Who does not, and why? • How is the space used? • What is unique about the history and culture of the area? 	<ul style="list-style-type: none"> • Local residents use the space for recreation (birdwatching, walking of dogs, sports) • Traditional groups are largely excluded from the space, and the historical claim to the land • Although this is a public open space it is difficult to access, and therefore limited groups of people make use of the space • Various institutions are present on the site • Floods seasonally – green spaces offer important flood attenuation • Important site for biodiversity • Important cultural heritage value

	Identifying questions	Characteristics of TRUP
Spatial Power	<ul style="list-style-type: none"> • What qualities would you use to describe the place? • How are people able to practice, contribute and create here? • What messages and behaviour does the space suggest? • What prevents anyone from full participation in personal or public life? 	<ul style="list-style-type: none"> • Urban park, surrounded by urban environments • Fragmented and isolated • The site holds a sense of elitism, but also of neglect in some areas • Various public institutions contribute to the protection and maintenance of TRUP, although far greater investment and rehabilitation is required • Largely owned by government, with little opportunity for private investors unless the land is sold • Limited service capacities (water, sanitation, electricity) limits the amount of development which can take place on the site, without further investment in this infrastructure • Limited education facilities • Limited access to shops and associated facilities
Spatial Links	<ul style="list-style-type: none"> • What barriers exist in the physical environment? • What invisible, historical or social barriers divide people? • What historic memory exists in the place and the people here? • What connects this place to other places? 	<ul style="list-style-type: none"> • The rivers act as natural barriers • The M5 is a major barrier • There are few access points • Difficult to access via public transport, private vehicle or on foot • There are numerous fences • Significant cultural heritage value for all South Africans, from precolonial, colonial and post-colonial periods. There are tangible artefacts, and records of where artefacts used to be or where events took place.

4.3. Critique of the research and planning processes

4.3.1. Introduction

The consulting team was tasked with various responsibilities associated with research and plan for the development of TRUP in a sustainable manner; which not only respected the ecological value and memorialised significant heritage. But also, to provide sustainable forms of housing, commercial buildings, and supporting infrastructure associated with transportation, energy, sanitation, stormwater and potable water. The ToR called for a planning process which integrated all stakeholders to develop this proposal (Steenkamp 2018).

The intention of the project was to make available a 'basket of rights' for the proposed development of TRUP. Many specialist studies and planning exercises were previously undertaken for this site. The information generated from this research and planning exercises informed a general understanding of the many challenges associated with TRUP. This understanding was used to generate the scope of work specified in the ToR, for which the professional consulting team was appointed.

Originally, this project was structured as a land use planning process of negotiation, planning and acquisition of development approvals. However, approximately a year into the project processes, the CCT in terms of the CCT's new Municipal Planning By-Law, which speaks to the requirements of SPLUMA, decided that the 2003 Contextual Framework should be replaced not by a new Contextual Framework and Development Framework, but rather by a Local SDF. Much of the content that was originally required in terms of the deliverables as outlined for the Package of Plans that were originally intended to be followed, were still required but the new Contextual Framework and Development Framework had to now take the form of. A Local SDF focusing specifically on TRUP, with the rest of the deliverables to be informed by the Local SDF process (Steenkamp 2018).

A long list of deliverables was specified as this scope of work, in line with the requirements of the ToR:

- Review of the 2003 Contextual Framework, and supporting specialist studies and public participation which informed this plan;
- Undertake various specialist studies, including:
 - A Market potential study, to determine the type of development which should be accommodated and at what ratio (e.g. 80% housing and 20% office blocks), and for which income brackets;
 - A pre-colonial and updated heritage study;

- Floodline modelling of the current extent of flooding and future flooding scenarios based on the proposed development, and the modelling of potential flooding interventions;
- A biodiversity assessment, aquatic assessment and water quality assessment to inform the current condition and environmental sensitivity of the site;
- Prepare a spatial plan or concept (referred to by the team as the Local SDF) of TRUP, which informs the long term spatial development vision of the site, and therefore decision making by government officials regarding land use applications.
- Prepare precinct plans based on the findings of the review process and the various specialist studies. These plans must provide detail for each of the parcels of land including the phased release of land and catalyst developments intended to spark further socio-economic development within the area;
- Form a Heads of Agreement, to outline the necessary agreements and estimated costs of development which would need to be considered by potential developers; and lastly,
- Apply for all the necessary permits and licences (e.g. re-zoning, environmental impact assessment and water use licence). To facilitate this plan becoming a reality, the various permitting and licencing approvals would also be applied for. This would include a wide range of approvals from different departments relating to the rezoning of the land, water use, environmental impacts, heritage, traffic and even the allocation of services. But also, the compilation of a 'heads of agreement' for potential developers to commit to the realisation of the Local SDF, irrespective of whether these developers were private or public institutions.

Each of these deliverables required a specific method, which was largely pre-defined in the ToR. While the formal framework and methods to be used by the team or team members for the specific parcels of work were clear, the ToR was not clear how the various methods deliverables and the knowledge held by the various disciplines and stakeholders would be coordinated or integrated into development proposals; or how this information would be cross referenced between the various specialist studies. This alignment of deliverables and integration of knowledge, would typically be considered in a project programme prepared by the project manager and/or project lead.

Communications following the appointment confirmed that an integrated approach was required, based on systems thinking. To substantiate this request, the government officials wrote to the project manager: *"We have come to a conclusion about when we start the design discussion: Considering our position of 'listen to the river – it has all the answers' we cannot at this time head off on a design mission. The river and heritage studies as well as the hydrological assessment and all those critical unknowns must be concluded first. We have to agree that we will be taking our cues from the site information, not from what looks nice on drawings"* (Steenkamp 2018). Furthermore, later discussions with the government officials

revealed that it had been their intention that the workshops held with the public and various key stakeholders, were to allow for integration of knowledge, and the formation of development proposals, in a ‘systems thinking’ approach (Steenkamp 2018).

A systems thinking approach requires the various specialist studies to be undertaken, and the findings thereof to inform all planning processes and proposed interventions on the site. A project executed in this manner would bring the various forms of knowledge together, and an interactive, collaborative assessment of the impacts of the proposed interventions would take place to inform the development of proposals or interventions applicable to the problems experienced on the site. Therefore, the research and planning processes would acknowledge the complexity of the site, and test the proposed interventions with the knowledge held by the team and various stakeholders. As a result, a systems thinking approach would provide a holistic view of the site and the consequences of the proposed intervention (Nooteboom 2007).

A simple manner of explaining the scope of work is shown in Figure 4. First, research from multiple perspectives or disciplines should take place, including review of previous specialist studies and development proposals previously made for the site. This research should inform the proposed spatial concept. These proposals should be developed with all stakeholders (public, government, consulting team, etc); and then be tested (and amended) in an iterative manner to ensure that they are appropriate for the site, and the desired outcomes – this is document in a Contextual Framework and Development Framework for the site. Lastly, once a ‘suitable’ spatial concept and associated development proposals are agreed upon, the various legislated authorisations should be applied for, including a water use licence, environmental authorisation, heritage application, and rezoning – thus resulting in a ‘package of plans’ for the site, which would enable TRUP being developed in the desired manner.

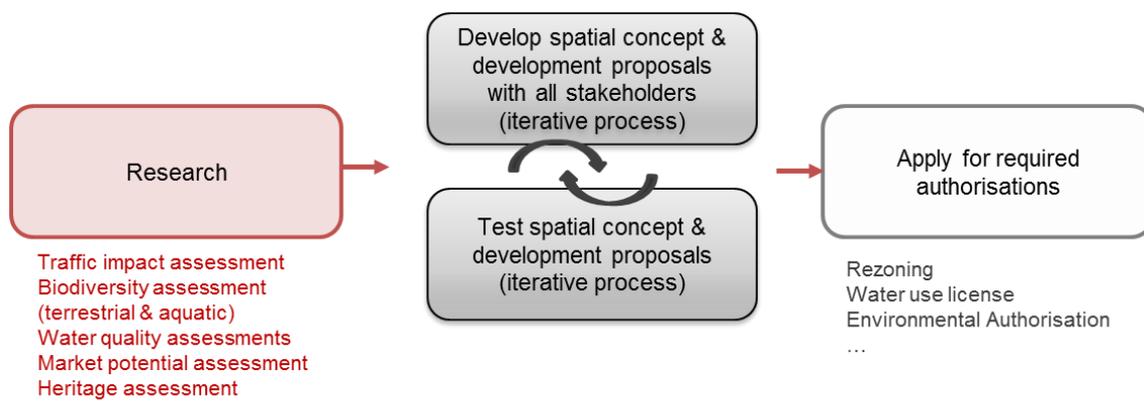


Figure 4: A simple example of a systems thinking approach of TRUP

However, this is not how the project was executed. The project was shrouded in a politically charged environment with many stakeholders and interested and affected parties, with competing interests, perspectives and even misconceptions about the site. This made it difficult to navigate through this project in a simple, step-by-step manner.

A methodology was presented to the responsible government officials, by the project manager, regarding how integration of the team would take place considering this requirement (Steenkamp 2018²). However, this methodology was not shared with the technical consulting team, nor was it the experience of the consulting team that an integrated approach was followed on this project – it is thus not clear if the methodology which was presented, is what was executed by the project manager.

Instead the decision made by the project manager was to follow a ‘design-led approach’ and not the systems thinking methodology as described here. This decision was made because some team members believed that it would be difficult to make different or new proposals for TRUP, because so much research and planning had already been done. This resulted in the team feeling rather overwhelmed and unsure about how to proceed. There were many lingering questions with regards to whether it would be best to simply review, critique and complete the work already undertaken? Or if the team should avoid reviewing the previous work, as it may taint our perceptions about the site (Steenkamp 2018³)? Furthermore, the design team believed that they were responsible for creating a sustainable future for TRUP, and that this could be achieved through innovative and creative design (Steenkamp 2018⁴). It was also believed that the technical team members such as the Engineers and Natural Scientists are inflexible, difficult to work with, and not creative; and, would therefore stifle the creative thinking of the team – which was not acceptable to the design team (Steenkamp 2018⁵). Disciplines such as Town and Regional Planners, Urban Designers and Landscape Architects always follow a systematic approach, and therefore this which would more suitable for the project. It would be the role of the technical team to find ways to support the vision created by the design team (Steenkamp 2018⁶).

² From journal notes, personal communication 4

³ From journal notes, personal communication 5

⁴ From journal notes, personal communication 5 and 6

⁵ From journal notes, personal communication 5

⁶ From journal notes, personal communication 5 and 6

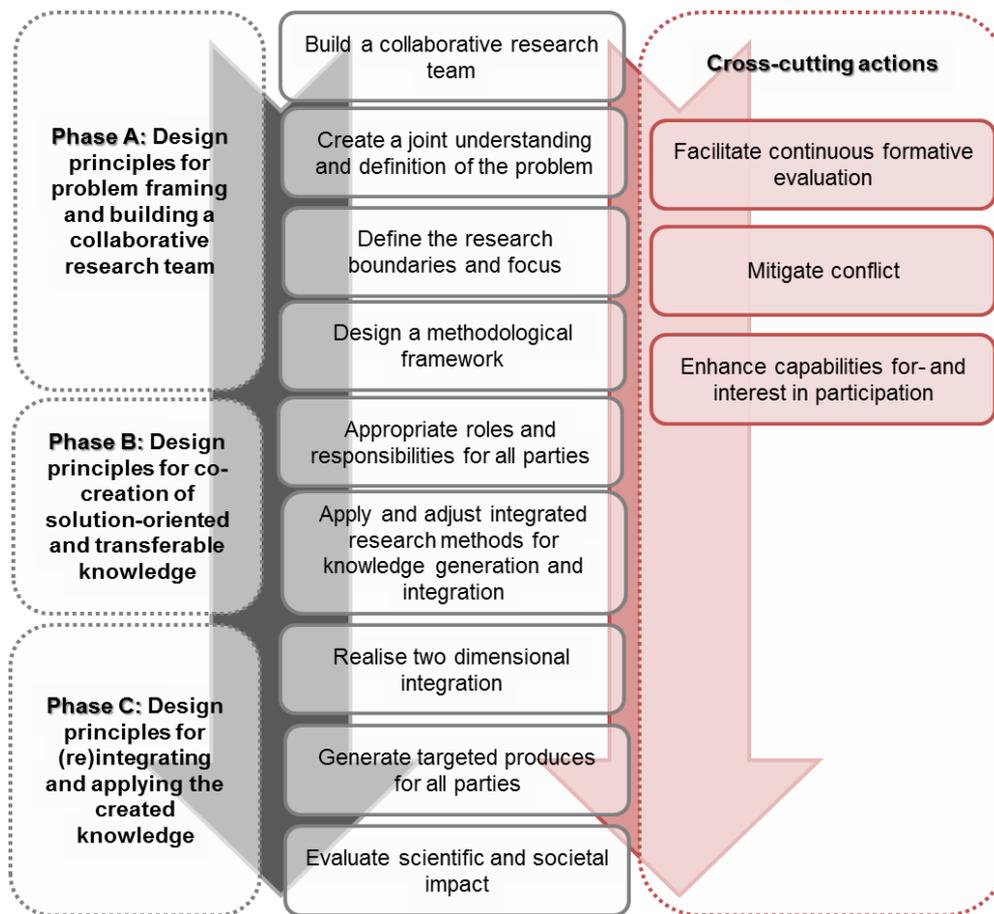


Figure 5: Transdisciplinary design principles for research and planning projects (Lang et al. 2012)

The observations and experiences of the research, throughout the duration of the project are described in this chapter. The intention is to highlight the research and planning processes employed by the team whilst undertaking this scope of work, and to determine the successes and failures of this approach towards realising a sustainable, inclusive society on TRUP, and in Cape Town.

To assist with this task, the findings are presented in the transdisciplinary design framework presented in Figure 5. Transdisciplinary research and planning practices focus on bringing diverse forms of knowledge from diverse groups together to provide sustainable solutions to social problems (Lang et al. 2012; Brandt et al. 2013). It is therefore fitting to compare the research and planning practices undertaken by the consulting team, to a framework of transdisciplinary design principles.

4.3.2. Phase A: Build a collaborative team

4.3.2.1. The professional consulting team

The professional consulting team was formed in line with the specifications in the ToR which were developed by WCG. These specifications included criteria in terms of the minimum years of experience, professional registration and type of expertise which was required.

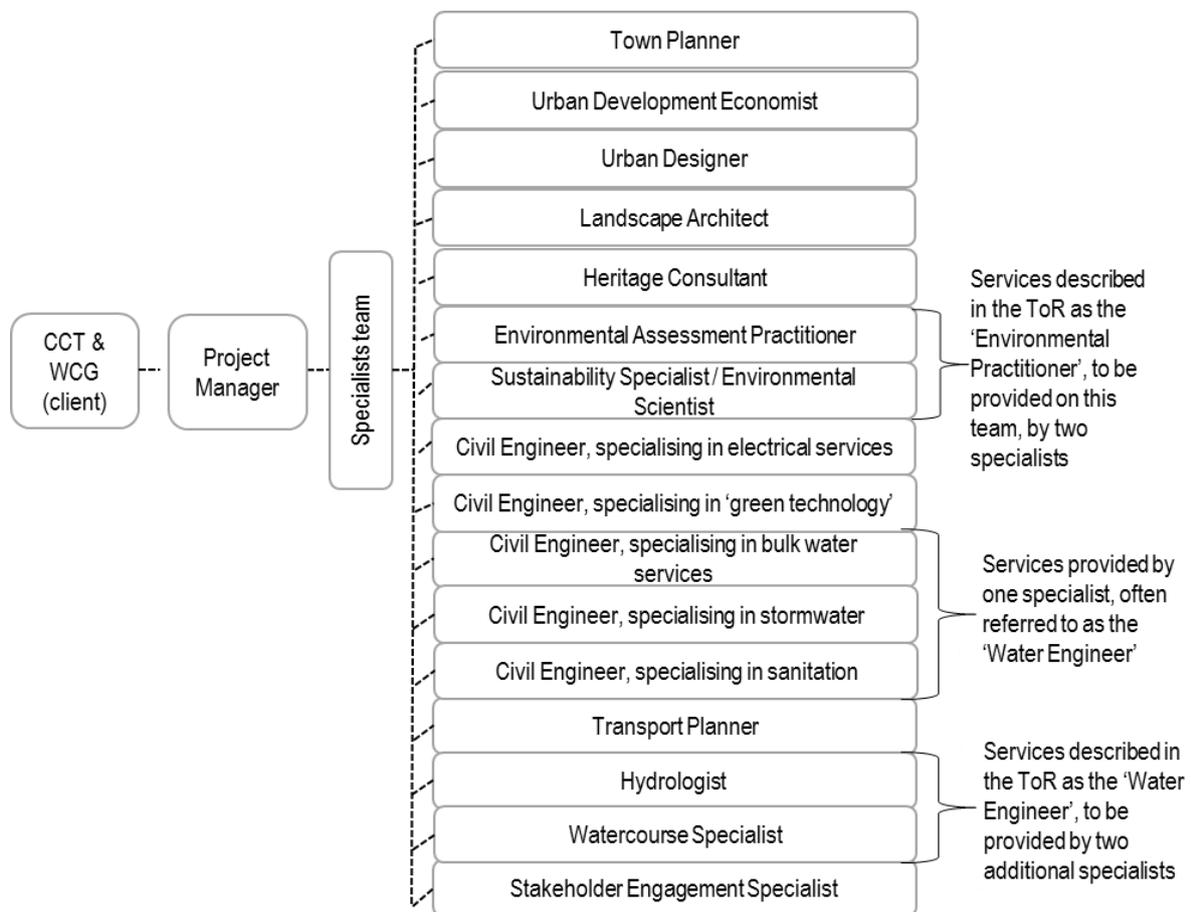


Figure 6: Team structure and hierarchy of the professional consulting team

In April 2015, the ToR was released to the public, inviting consulting teams to make proposals for appointment against this scope of work. Many teams competed for the appointment of this scope of work. However, the team which was appointed (the only team which met the technical requirements of the ToR), included an extensive team of professionals from a variety of different companies, who boasted many years of experience and various professional registrations. The team included: Town Planners, an Environmental Scientist and Sustainable Development Specialist, and an Environmental Assessment Practitioner, an Urban Designer, a Landscape Architect, an array of specialised Engineers, an Urban Development Economist, a Heritage Practitioner and a Stakeholder Engagement Specialist. Figure 6 presents the professional consulting team, as well as the WCG and CCT officials (as the client).

Because several companies represented the team, the professional consulting team was subcontracted to the project manager. The project manager held many responsibilities associated with the role of project management and technical lead of the consulting team. This included the setting up of all the sub-consultant agreements, payment of the sub-consultants, management and coordination of the team, integration of various deliverables and processes, development of the project programme and the development of an overarching methodology or process for the development of the project.

The transdisciplinary design principles indicate that an open and transparent engagement process should be held with the team, to ensure that all roles and responsibilities are clear to the team; and, for an agreement to be formed in terms of the team hierarchy and lines of communication. However, this engagement did not take place amongst the team. Furthermore, despite the ToR calling for a methodology which integrated the multidisciplinary team and stakeholder engagement process, the project manager separated the team into those who would lead the design processes (such as the Town Planner, Urban Designer and Landscape Architect), and those that would inform the design process (i.e. specialists). These two teams were often referred to as the 'design team' and the 'informants' or the 'technical team' (see Figure 7). Because the team was sub-contracted to the project manager, the division of the team was held in place by the hierarchical structure of the sub-consultant agreements, with little or no engagement allowed between sub-consultants and the client.

In addition to this, the 'design team' held existing relationships, from working together on previous projects. Therefore, there was a familiarity within this group, which was not established with the team at large. This entrenched the division in the team even further, and alienated the technical team from most decision-making processes. Forming a collaborative team through team building and open or transparent processes should have been an important step in the methodology. However, this was not deemed necessary by the project manager or design team, which had significant impacts on the team's performance later on in the project (Harris & Lyon 2013).

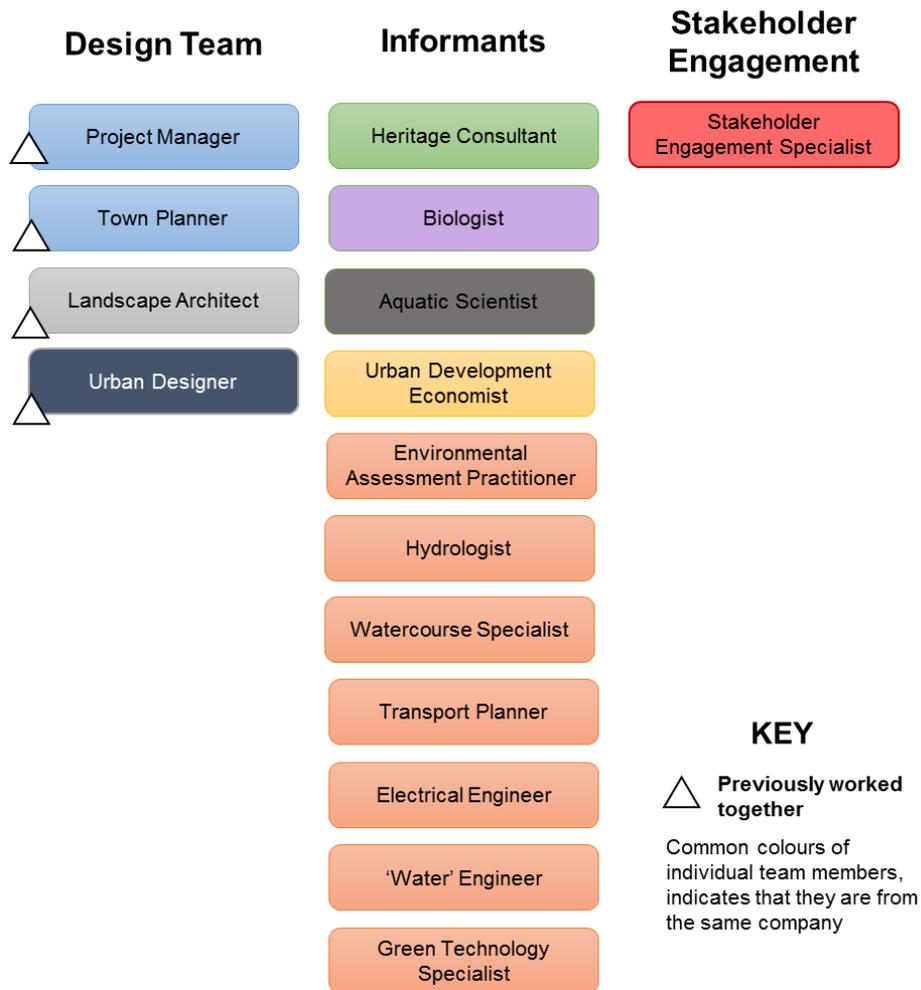


Figure 7: Division of the consulting team into the 'design team' and the 'technical team'

Several months after the team was appointed they were informed by the client, that they would be required to work with a 'Dutch team'. This appointment was made as a result of the relationship between the CCT and the Kingdom of the Netherlands, and was justified by the knowledge held by the Dutch with regards to developing within flood prone areas. The role of the Dutch team was to offer guidance and support not only to the team but also to the CCT in terms of their decision making.

As a result of this appointment, the professional consulting team was required to attend three workshops with the Dutch team, to enable engagement and collaboration. With the project programme, timeframes and budgets already determined prior to this appointment, it was not clear what role these workshops or Dutch engagements would play or how they could be carried out.

4.3.2.2. Stakeholder engagement process

The stakeholders consisted of the various interested and affected parties living and working within the boundaries of TRUP. This included groups such as the TRUP Association; Friends of the Liesbeek; Friends of the Black River; and, the local ward councillor; amongst other interested and affected parties who registered for this stakeholder engagement. Organisations such as the Cape Health Technology Park actively engaged in the meetings; and, various traditional groups. However, it was a full year before various traditional groups joined the stakeholder engagement process.

Stakeholder engagement took place as a series of co-design workshops, over approximately two years. During these workshops the community agreed to a particular structure and process for the workshops. Information was shared from various sources, including the specialist studies and the stakeholders themselves. Furthermore, the way forward was continually discussed and agreed to by the stakeholder's present. Sufficient time was made for sharing and engagement, through a facilitated process. The last of the workshops focused on the co-creation of development proposals, by the stakeholders.

4.3.2.3. Government

A number of CCT and WCG departments were key stakeholders throughout the duration of the project. For example, as landowners the CCT and WCG had to make important decisions regarding how the land will be released for development, or if government will act as the developer. Furthermore, various responsible departments must make critical decisions regarding the provision of services, such as transport infrastructure, bulk water, sanitation and electricity. These decisions are all influenced by sector and department visions and objectives, particular schools of thought, development ideologies, and legislation and policy imperatives. The structure of the government stakeholders was as such:

1. A memorandum of understanding was signed between the CCT and WCG, indicating the various roles between these two institutions, and the mutual benefit to be gained from carrying out this project together.
2. A memorandum of commitment was signed by all relevant CCT departments to assist the project team with decision making, and to guide the process.
3. A memorandum of cooperation signed between the CCT, WCG and the Kingdom of the Netherlands, whereby the technical expertise and experience was extended to the CCT and the WCG.
4. A project management team was formed to assist with managing the project process and its various deliverables, and ensuring that the commitments made by the various departments were honoured.

5. Various 'working groups' were formed, which included members from the consulting team and government officials. These working groups held various meetings during which the collaboration was intended to take place between the consulting team and government officials.
6. Review of the various reports were provided by the relevant government officials on each draft and final deliverable.

Each of these agreements was established at the onset of the project. Although, numerous shifts did take place. However, the necessary roles and responsibilities were always fulfilled.

4.3.3. Phase A: Problem framing and the development of a common understanding

Consensus on 'the problem' was not formally agreed upon with all stakeholders, or even amongst the professional consulting team. Although there were many opportunities to enable collaborative problem framing, this was not undertaken effectively by the team or as a specific step in the project methodology.

Site visits offered an excellent opportunity for stakeholders to frame the problem, define boundaries for the project and even to develop a common understanding and common language. A number of site visits took place – some were arranged with the consulting team alone, some with the stakeholders and even particular disciplines visited the site on their own, and throughout different seasons. However, the lack of consistent attendance of the range of consulting team members, the Dutch team, the public and government, this problem framing through site visits was fragmented.

The numerous workshops and meetings held with the public, the Dutch team and even government could also have been used for this purpose. Yet, because of poor leadership and a general lack of facilitation and engagement to enable collaboration of the broader team and co-creation of knowledge (including the consulting team, Dutch team, public and government), this step was not executed effectively. The first large stakeholder engagement workshop, which was attended by the public, government, the consulting team and the Dutch team did present some information on the opportunities and constraints associated with the site. However, the technical team had not yet undertaken the specialist studies, under instruction from the project manager. The information that was presented was therefore not complete, or necessarily as detailed as required. Furthermore, the lack of consistency of representation of the consulting team at the stakeholder workshops meant that the public and the consulting team did not create a common understanding from the onset of the project. In general, an explicit process was not undertaken whereby consensus was reached on the challenges

associated with the site, thereby creating a common understanding and starting point for the project.

The broad range of perceptions held by different groups regarding TRUP, and what should be done on this site, and for whom, were some of the greatest hurdles to overcome throughout the duration of the project. Due to space limitations, these diverse views are briefly summarised as:

- *The public* - In 2003 the *Two Rivers Urban Park Contextual Framework and Phase 1 Environmental Management Plan, Final Report* was accepted by government as the land use plan for TRUP. This plan was developed through seven years of public consultation (CCT 2003), and therefore is a strong representation of the views of the public, and their active engagement in planning for the area. The vision of this plan is: *“To rehabilitate, protect, secure and enhance the intrinsic ecological qualities of the area, to conserve the unique cultural heritage, to encourage environmental education, to maximise opportunities for all people, and to promote sustainable development”* (CCT 2003:5).
- *Traditional groups* – through the long history of conflict, forced removals and slavery, the KhoiKhoi, KhoiSan and Nguni (and possibly others), hold cultural heritage connection to TRUP. The First Nation, a group of KhoiSan, declared their claim and right to protect the land at a stakeholder engagement meeting. King Khoebaha Cornelius III, King of the First Nation in the Western Cape, explained the ancestral rights of the First Nation. He explained that as the first-born child of 16 generations, he is the legal custodian of all Khoisan land in South Africa. *“The history of the Khoisan has been handed down from generation to generation by the elders and the ancestors. We were told that the land does not belong to us – we belong to the land and you cannot separate the two of us, because we are one. The land was given to us as a gift from God to preserve, to live and to live from. But we have dehumanized it because the colonials came and took it away by force”* (SUN Development 2016:4). The King went on to explain his family lineage dating back to the first Khoisan who interacted with the Dutch settlers, as well as the role that he has played in protecting land within the Western Cape for his people, against those who wanted to develop it for their own gain. He ended with *“I don’t know what you are going to be doing with this land. I have to protect it. So, come talk to me”* (SUN Development 2016:6).
- *Government’s vision* - The current TRUP project was developed as one of DTPW’s strategic programmes, the WCG Regeneration Programme. In this regard, development of TRUP is intended to provide the following (DTPW 2016):
 - An open space to trigger social inclusion;
 - A new metropolitan tourism destination and to enhance ecological awareness;
 - Restoration and preservation of the ecological integrity of the site;
 - Development that ensures that the natural qualities of the site are protected and the Earth’s resources are protected;

- Sustainable modes of transport like walking, cycling and public transport will be promoted to enable less dependency on cars;
 - Provide medium density affordable housing, making use of the Live-Work-Play model;
 - Mobilise new investments, create jobs, and ensure that most of the business premises are affordable for small and micro-enterprises;
 - Provide government and public services closer to the people;
 - Develop an integrated space that responds to culture, heritage and memory of the site which will aid in undoing apartheid spatial planning;
 - Establish a social partnership that can address past inequalities and prioritise public interest amongst others; and,
 - Develop resource efficient sustainable technologies, where possible.
- *Professional consulting team* – the team was largely bound by the requirements of the ToR, which were shaped by the desired outcomes of the CCT and WCG, as described above. However, personal views, perceptions and value systems influenced not only the project process, but the decision making of the team, and therefore the project outcomes. Examples of some of the views which were voiced during the project are listed below (Steenkamp 2018):
 - Rehabilitation of the natural systems is paramount to bring people closer to the water's edge and into nature, and as the sanctuary for biodiversity.
 - The rivers are polluted and the “*wetlands are trashed*”. Therefore, we should be able to “*do whatever we want*” to the site – “*anything would be better than the current state*”.
 - Bringing people close to the water's edge and into nature is more important than preservation of portions of the natural habitat.
 - Conservation and public open spaces are not compatible land uses.
 - Conservation, with specific areas designated for public open space and recreation, is common practice in nature reserves and protected areas.
 - Historically, the Liesbeek River and Black River systems meandered across the landscape; with the mouth of the Salt River as an open estuary. Therefore, TRUP should be transformed back to this estuarine state.
 - The site holds no environmental value and the solution to the flooding and pollution problems is to canalise the rivers, and use various technologies to treat the polluted water.
 - Provision of as many homes and opportunities for sustained livelihoods is the most important factor; as well as, the use of TRUP as an opportunity to reconnect society.

- A bridge across the site is vital for the connection of local communities; and, the social value far outweighs the negative ecological impacts that this bridge might result in.
- There are technical solutions which could be used in the design proposals, which would make anything possible. It is the responsibility of the engineers to solve these technical problems.

Through the stakeholder engagement process it was recommended that a development manifesto be developed for all stakeholders to work towards. This manifesto would act as guide in decision making, and thus steering all stakeholders towards realising a common goal(s).

The following manifesto was developed at the onset of the stakeholder engagement process. It was presented to the professional consulting team and government, before being finalised as:

1. *“To develop a safe metropolitan urban park based on sustainable principles and responsible management practices that are founded on a partnership between local communities, different tiers of government and other partners willing to invest resources. To design the park as a truly shared open space, triggering social inclusion; a new metropolitan destination accommodating tourism; and enhancing ecological awareness.*
2. *To restore and preserve the ecological integrity of the site as a special physical and visual amenity. To limit new building coverage and avoid building within the flood plain, to make provision for water flooding, water cleansing and water storage in order to enhance the recreational quality and environmental value of the site.*
3. *To embrace a sustainable environmental approach that seeks to protect the natural qualities of the site and develop the precinct in a manner that respects the Earth’s resources as well as natural environments, and that is in keeping with national and international best practices; to re-activate landscape for water cleansing, regulating air quality and urban food production.*
4. *To promote the use of sustainable modes of transport (walking, cycling, public transport, etc.); to discourage the dependency on private vehicular movement, to encourage the use of public transport, as well as support and encourage non-motorised transport and pedestrian movement.*
5. *To provide dense mixed-use, mixed tenure urban environments, associated with the park that is holistic and sustainable, wherein people can safely live, work and play. In particular, to make provision for medium density affordable housing. To strive towards building a vibrant, safe, local resident community in which cultural diversity and tolerance could flourish.*
6. *To develop funding and local economic opportunities geared towards sustainable development. These are geared towards community, public and private partnerships as well as the involvement of institutional investors. To mobilize new investments,*

create jobs and ensure that a significant component of the business premises are affordable for small and micro- enterprises, enhancing human capital and supporting social entrepreneurship.

7. *To align the development and the preservation with clear management, administrative and institutional systems. To bring government and public services closer to the people, and where required, to reform legislation. To develop and find new ways and forms of entrepreneurship to ensure sustainability and sustain the quality of the public spaces in the TRUP through good urban and environmentally appropriate management.*
8. *To develop TRUP as an integrative space that responds to culture, heritage and memory of the site - a place that joins together this region of the city and its local communities, rather than continuing to serve as a 'barrier space' and therefore, assists in undoing apartheid spatial planning and attending to the needs of the current and future communities. This is to be implemented with sensitivity to the heritage of the site and be inclusive of the diverse cultural characteristics.*
9. *To establish a social partnership that can form the basis of cooperation between the various stakeholders, which can address the inequalities of the past, include the marginalized sectors of society, prioritize public rather than private interest as well as help build viable enterprises; to enhance existing communities (e.g. Maitland Garden Village), organizations and programs within the TRUP.*
10. *To develop, where possible, alternative systems of technology - resource efficient sustainable technologies - that are viable as well as financially feasible and which could demonstrate alternative modes of urban living. TRUP as showcase of sustainable living (zero waste, passive design, renewable energy, local materials, climatic responsive design, etc.)" (WCG 2017a:228-229).*

The manifesto proved to be an excellent tool for framing the boundaries of the project, setting a vision for the project, and for testing the proposed interventions. However, the manifesto alone was not sufficient to underpin a common understanding of the site. Without development of a common language and competency of all stakeholders, confusion, conflict and general communication failure were a common feature.

The methodology lacked a process to enable the team to share information easily, to challenge that information, and form an agreed upon understanding. Without a facilitated discussion or engagement which included all parties, the differing perspectives regarding the site, differing value systems, and even desired outcomes were therefore not reconciled (Lang et al. 2012; Brandt et al. 2013). Throughout the project duration the various rationalities continued to surface, causing ongoing conflict as the various groups continued to present and defend their opposing views. These oppositional views and arguments were particularly evident at stakeholder engagement workshops and professional consulting team meetings, where arguments were raised but not resolved (Steenkamp 2018). As a result, conflicting

rationalities hindered collaboration, and resulted in growing distrust and conflict within the professional consulting team, throughout the duration of the project.

In addition, it should be noted that the manifesto was compiled at the onset of the stakeholder engagement - the later part of 2015. At this point in time, the stakeholders did not include the traditional groups, or the general population within the Cape Town Metro. However, once the traditional groups began attending the stakeholder meetings this manifesto was not amended, nor is it clear if these groups were aware that such a manifesto was in place.

Furthermore, TRUP was considered to be an important asset to the wider population of Cape Town, and to hold heritage value of national and potentially international significance. Yet, the views of this wider population were not considered. This manifesto is therefore a representation of the views and preferences of a small group only.

4.3.4. Phase B: Co-creation of solution-orientated and transferable knowledge

4.3.4.1. Clear roles and responsibilities

The ToR was used as a general definition of the roles and responsibilities of each team member. In addition to this, little or no direction was provided to the technical team regarding the overarching methodology, or how the various methods and deliverables would be integrated – thus facilitating an understanding of roles and responsibilities within the overarching project approach.

No facilitation or team building was undertaken to create a platform for clarification of these roles, or to highlight the potential overlaps and conflicts of these roles and responsibilities. Without this foundation of understanding about the skills and expertise available to the team, the design team was often confused by the various technical team disciplines, and the expertise that they might offer, and at times even forgot that some specialists were available to the team.

In addition to this, the design team would select specific individuals to engage with, without establishing if this is the right specialist and/or the only specialist which should be included in the discussions. Thus, the design team developed their perspective of the site in a silo fashion, based on what they perceived to be valuable.

Furthermore, the role that the Dutch team would play was uncertain to most stakeholders. During private discussions the Dutch consulting team admitted that they were uncertain of their role or how they might offer value to this project. This was largely because they were not

familiar with site or South Africa; and, it was not clear how they fitted into the project programme as they were only involved at certain points of the project progress and not consistently. It was also not clear when they might have a specific role to play, despite receiving- and agreeing to a contract (which defined the scope of work) with the client (Steenkamp 2018⁷).

4.3.4.2. A design-led approach

The design-led approach was not discussed with- or agreed upon with the technical team. The technical team was simply informed that the project would follow a 'design-led approach'; and that their role was to act as 'informants' to the process, only. Therefore, it is difficult to provide a description of what was intended by this methodology.

From the experiences of the researcher the design team led the project through the development of spatial designs and development proposals. Design took precedence over all other forms of knowledge including the stakeholder information and the findings generated by the specialists. These spatial designs were originally developed in the absence of the technical team's specialist studies. Instead, the designs were based on their own research, and interpretations of the previous specialist studies which were undertaken for the 2003 Contextual Framework, as well as the preferences and pre-conceived ideas held by the design team.

The technical team was called on as-and-when the design team felt they required guidance and input into the design process. However, without first undertaking the necessary specialist studies (floodline modelling, biodiversity assessment, terrestrial assessment and water quality assessments) it was difficult for the technical team to provide adequate answers when they were called upon. Without a comprehensive understanding of the site or context of what the design team hoped to achieve, the responses were not comprehensive and only responded to the information provided.

Furthermore, because the team did not establish the boundaries of the 'problem' (as described in phase A of the transdisciplinary design principles) for the research, through collaborative discussions, the design team decided that it was pertinent to understand the dynamics of the Salt River Catchment and the metro, within which the TRUP site is located. As a result, the design team was overwhelmed by the challenges associated with the various environments

⁷ Notes from journal, personal communications 1, 2 and 3

surrounding the site, and understanding very technical problems and information which they would not otherwise have been confronted with. For example, the poor water management throughout the Salt River Catchment is the cause of high pollution levels within the Liesbeek and Black Rivers, which flow through the site. Adjacent to the boundaries of TRUP there are communities of varying economic status, disconnected from the CBD. In addition, the natural habitats are disconnected from other riparian and terrestrial habitats straining the movement of terrestrial species. As a result, many of the early spatial design proposals focus on the broader metropolitan social, ecological and water pollution dynamics, with very little design focus on the site itself. It was only when the client highlighted that the ToR only allowed for team to make spatial plans and development proposals within the boundaries of TRUP that the team turned its attention to how the site itself may have an impact on realising spatial transformation and sustainable forms of living.

Figure 8 to Figure 10 illustrate some of the concepts which were explored. Figure 8 contains the first 5 concepts that were used to frame discussions. The first image (map 1) is based on the 2003 Contextual Framework, which the design team considered to be a fragmented collection of spaces with high costs of maintenance associated with the public open spaces and conservation areas. Image 2 is a market-drive approach, where the design team imagined what would happen if the spatial framework is put in place and the site is developed in a piece-meal fashion. The maps describe the three main spatial concepts which were explored for TRUP. Images 3, 4 and 5 of Figure 8 are the same as maps a, b and c in Figure 9, and represent the design team's spatial concepts intended to bridge the social divide and reconnect the ecological corridors in the city.

As shown in Figure 9, scenario 'a' considers the possibility of TRUP becoming a wide riverine park. In this scenario the rivers and a series of wetlands are the focus. The Salt River, which flows out to sea, is re-established as an ecological corridor, which at the moment is canalized and hardened infrastructure. The site is also reconnected in an east-west direction towards Table Mountain and reconnects the vlei which runs along the coast line (north-east direction on the maps). Densification is focused along the edges of the park, and public transportation is focused along the edges of the site but also across the site. Map b or scenario b was titled 'green rooms' as it was envisioned to be a series of connected parks, with a continuous riparian corridor, with the same densification and public transport recommendation. The last scenario, map c, was considered to be an extended park with 'green figures' extending north, south, east and west, as a means of reconnecting people along non-motorised transport routes, and biodiversity along ecological corridors (Steenkamp 2018).

Through various engagements, including the workshops these concepts and scenarios were developed further (as described under 'Workshops with the Dutch team'). This resulted in the draft landscape master plan, which was proposed by the design team (see Figure 10). However, this landscape master plan ignored many of the discussions which took place at the workshops, public meetings and team engagements, as well as the specialist findings. Some of the aspects of concern center around the bridge which was proposed across the middle of the site. Various biodiversity and environmental specialist from government and the consulting team explained that this bridge would have a significant impact on the biodiversity of the site by further fragmenting the site, and destroying the most sensitive (and conservation worthy) terrestrial and aquatic habitats (refer to the critical biodiversity areas (CBAs) illustrated on the map in Annexure B). There were also concerns around the obstruction that this bridge would cause to view lines. Furthermore, the footpaths that allowed access to all ecologically sensitive habitats (entire wetland edges, islands within the Liesbeek and within the Raapenberg Bird Sanctuary, for example) compromised important foraging, nesting and breeding sites which would most likely result in negative impacts to the biodiversity with increased accessibility to the site. While the lack of a legend to clearly define the draft landscape master plan there were also many aspects of the map which were uncertain, and therefore a cause for concern. However, the landscape master plan did respect the full extent of the flood zone, and leave ample space for conservation, public space, and even the development of additional wetlands (Steenkamp 2018).

Throughout this process the confusion and frustrations of the technical team increased. Several requests were made to the project manager, to clarify roles and responsibilities, the project methodology and the associated programme. This included requests for the programme to include discussions and workshops to assist the team with sharing and integrating knowledge, and decision making. However, these requests were not indulged by the project manager (Steenkamp 2018⁸).

Efforts made by the technical team to develop an understanding of how each step in the project may be integrated, and to develop a logical programme to ensure that this takes place, were disregarded by the project manager (Steenkamp 2018⁹). There either was no clear methodology or the project manager was not willing to communicate it. The explanations which were provided described the project methodology as 'iterative', 'too complicated to explain'

⁸ From journal notes, personal communication 7

⁹ From journal notes, personal communication 7

and 'growing organically' (Steenkamp 2018¹⁰); and that 'information would be provided on a 'need-to-know-basis' to the technical team (Steenkamp 2018¹¹).

Preliminary Development Footprints

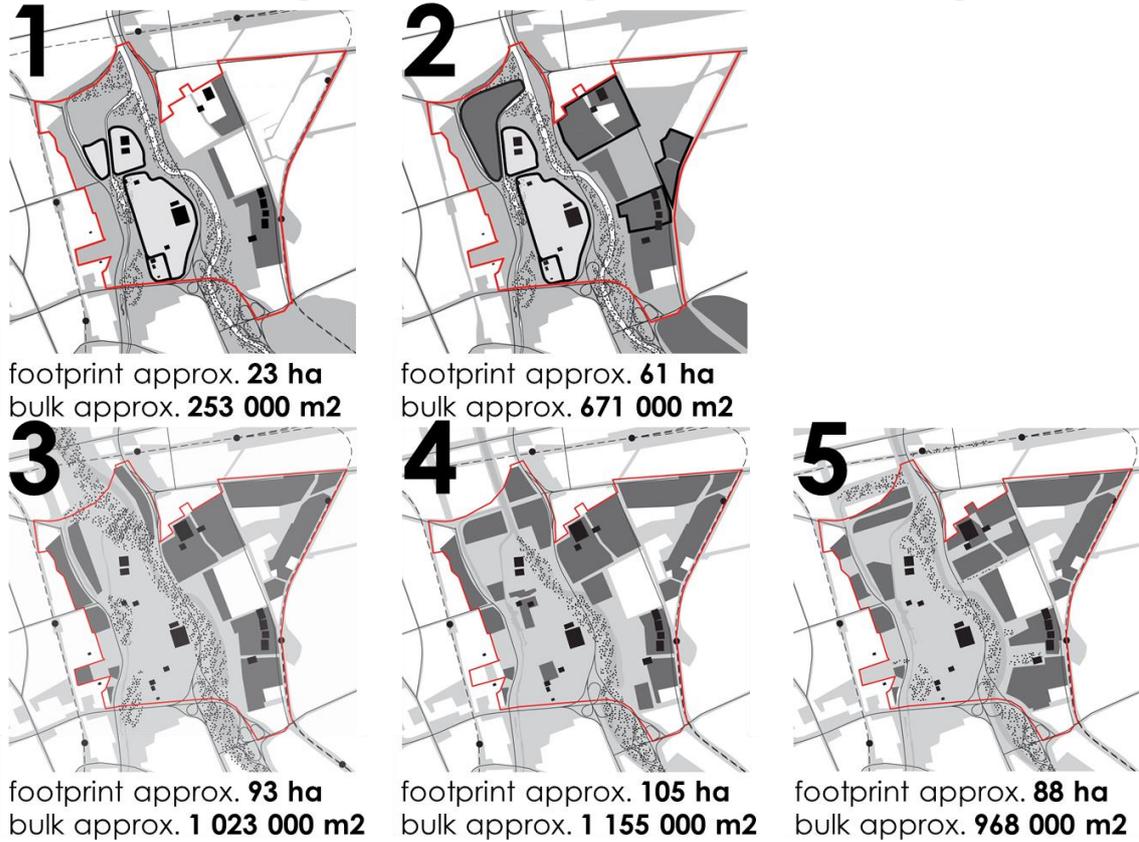


Figure 8: Preliminary development footprints which were considered for TRUP (Workshop presentation, as cited in Steenkamp 2018)

¹⁰ From journal notes, personal communication 8

¹¹ From journal notes, personal communication 9

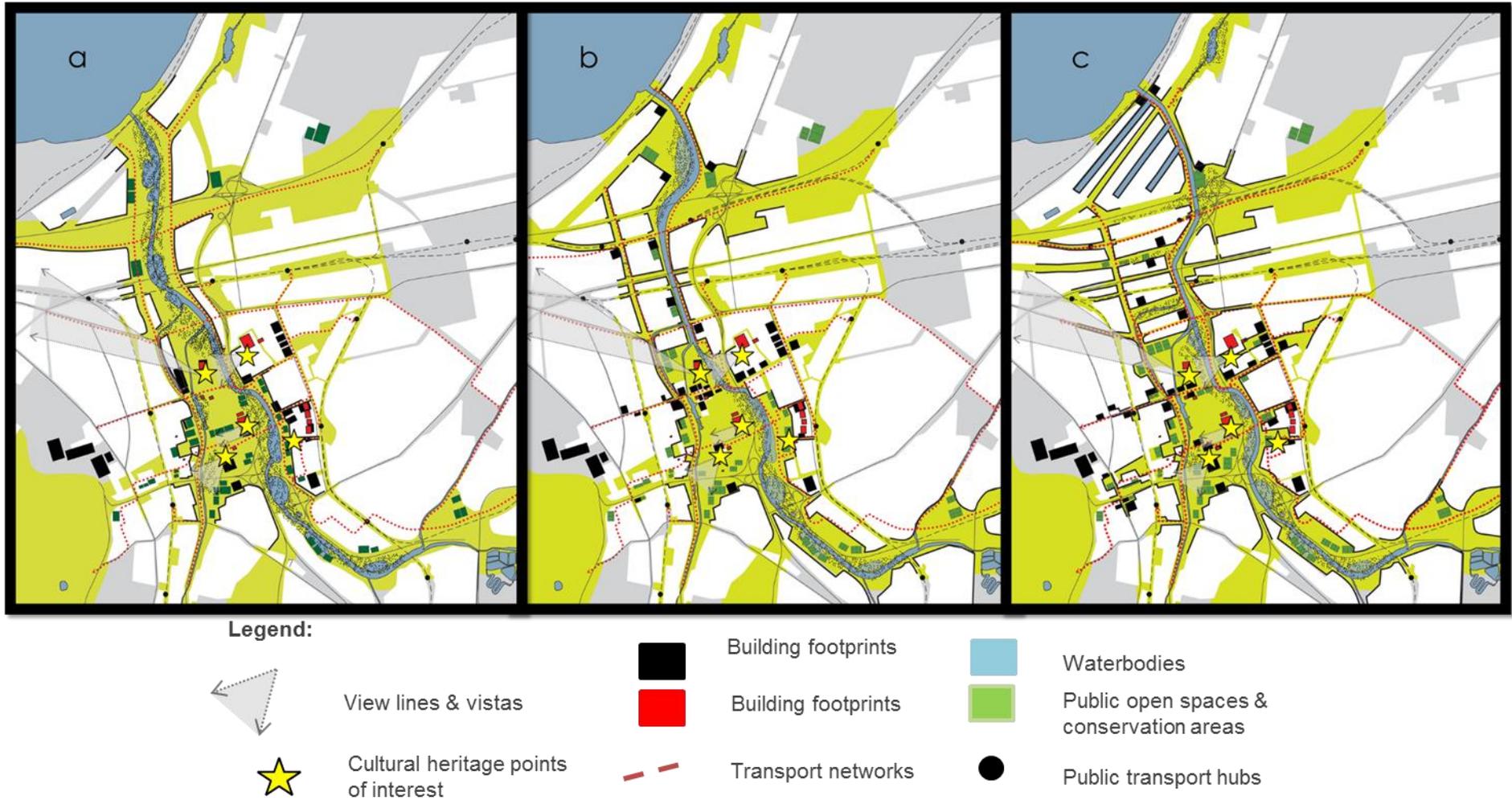


Figure 9: The three spatial concepts which were used to guide decisions around the future of TRUP (Workshop presentation, as cited in Steenkamp 2018)



Figure 10: Draft landscape master plan (WCG 2016c:133)¹²

Figure 11 illustrates the complexity and interrelated nature of the project deliverables. From this illustration it becomes clear that a co-ordinated approach, which considered this complexity was required for the project to be successful. Yet, this diagram does not consider broader aspects like team dynamics, stakeholder engagement, and the highly charged political environment within which this project was executed – which all add to the difficulties of coordination, decision making and timeframes.

¹² No key was provided with this map, and therefore a key cannot be provided in this research

The approach that was used to engage with the technical team, and the lack of adequate time for the team to engage and integrate their knowledge, made it difficult for the technical team to understand the project, the timeframes, the various roles and responsibilities, and how to integrate with their colleagues. Numerous specialist reports were interrelated, and in many instances, it was not possible to move forward without considering the outcomes of other deliverables. For example, the engineering service model could not be completed without understanding the number of proposed units for development, and the split of residential and commercial. Yet, this could not be determined without the market potential study, and understanding the current land use and environmental sensitivity so that the development footprint could be determined, whilst the development densities which can be supported on the site, needed to be informed by the engineering service model. The lack of an integrated process to facilitate the consulting team with developing a common vision or goals; a common understanding of the site; and, working together to solve perceived problems, disempowered the team as a whole.

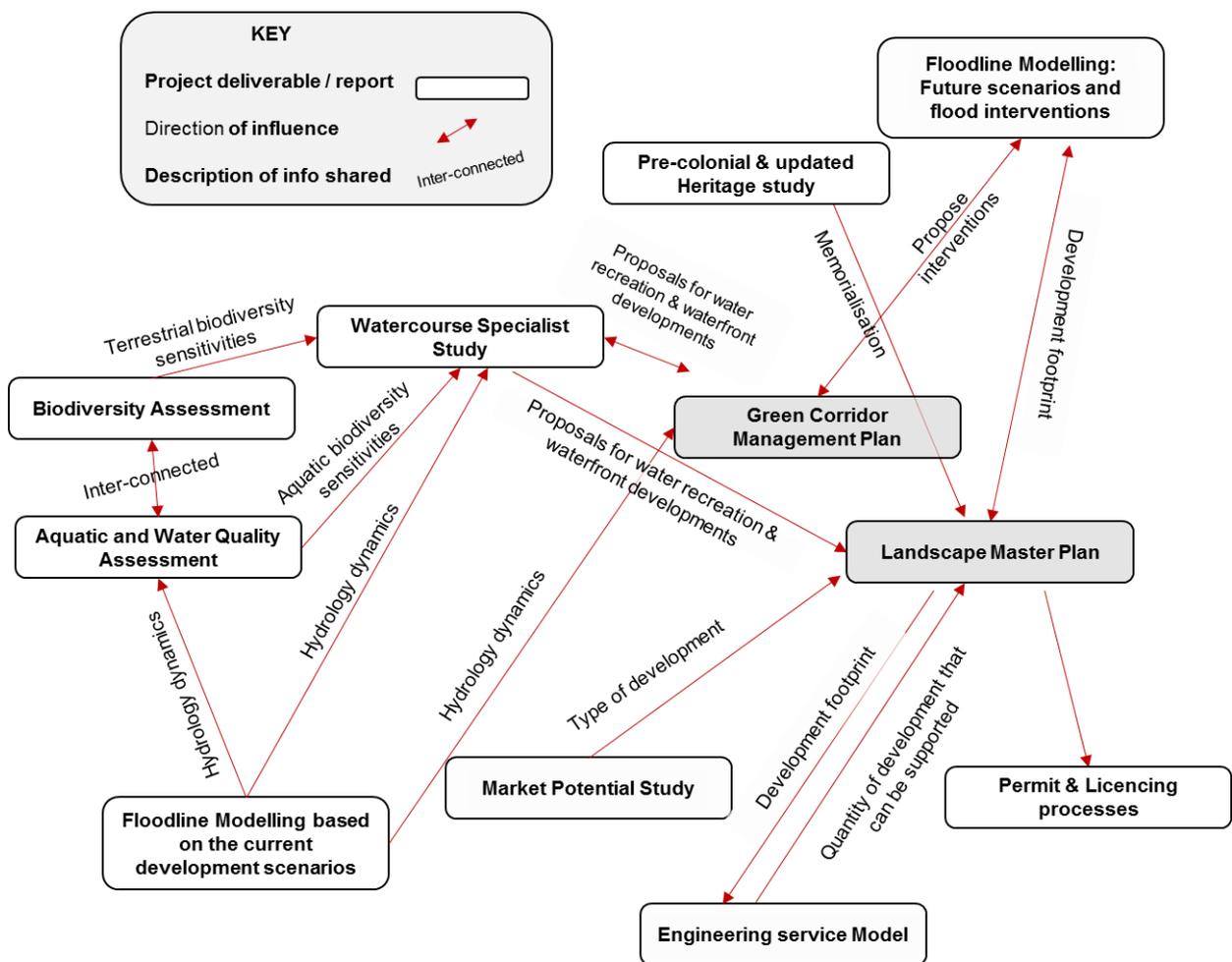


Figure 11: Interconnected nature of the various research and planning documents associated with the TRUP project

4.3.4.3. Stakeholder engagement

As described earlier in this chapter, stakeholder engagement took place as a series of co-design workshops, over approximately two years. One of the processes which the stakeholders undertook early in the process was to share knowledge about the site. This included framing of what the public perceived to be the problem. It also included the development of a mandate for sustainable development of an urban park which respects the natural environment, heritage and recreational value of the site. This manifesto was intended to guide all parties working on the project, towards developing a desired outcome for the site – a sustainable urban park, which memorialises the cultural heritage value of the space (as described in 4.3.3 Phase A: Problem).

Although the specialist studies were presented at the workshops, this took place just under a year after the commencement of the project when the specialist studies were completed. Furthermore, the government officials, technical team and the design team did not attend all the workshops. In addition, the consulting team and government officials did not design development proposals or spatial plans with the public stakeholders. The processes of planning and design of proposals was done in parallel – the stakeholders developed their own design proposals for the site, and the consulting team developed proposals for the site. Very little cross pollination of ideas, knowledge and concerns took place throughout the duration of the project. Comparison of design proposals between the stakeholders and the consultants was only done at the very end of the planning process. However, as described earlier in this chapter, this was not the intention of the agreed upon scope of work between the consulting team and government, which called for integration of all stakeholders and processes associated with the project.

Blatant statements were made by the public that the work of the professional team was not integrated with the stakeholder engagement process, and that it appears as though government has already made up their mind regarding what they want on the site (Steenkamp 2018¹³). Concerns were also raised by various consulting team members that the process had not incorporated the concerns and inputs of the public (Steenkamp 2018¹⁴). Yet, the approach and design proposals were not amended.

¹³ Notes from journal, personal communication 10

¹⁴ Notes from journal, personal communication 11 and 12

There are three main reasons for this. Firstly, after more than a year of working on the design of TRUP, the professional consulting team was reluctant to amend or adapt the proposals. Instead, it was the view of individuals within the consulting team that through careful presentation of the available information the public could be led to realise that the proposals put forward by the consulting team were the superior plans (Steenkamp 2018¹⁵). This is a common reaction of practitioners to stakeholder engagement where there is a fear that the stakeholders will demand that logic of decision making be explained, and re-explained, without progress. There is a preconceived idea that practitioners will be able to make more informed and relevant decisions, which they would rather avoid having questioned (Audouin & De Wet 2012; Lang et al. 2012).

Secondly, towards the end of 2016 and early 2017, concern arose amongst the government officials that the stakeholder engagement process had been ‘hijacked’ by one individual from the TRUP Association; and, as such, that the proposals and views put forward were not an accurate or wide representation of all stakeholders (Steenkamp 2018¹⁶).

Lastly, a very strong view was held by the government officials that sufficient consensus had been acquired through the stakeholder engagement process. Sadly, the responsible government officials were not made aware of the lack of alignment between the stakeholder engagement process and the professional consulting team’s design process. It was therefore assumed by these officials that the findings of the specialist studies were carried into the co-design process held by the public; and, that the voice of the public was carried into the professional team’s design proposals. Therefore, provided that the processes are adhered to, and the land use proposals are defensible, full consensus, while ideal, was not always possible (Steenkamp 2018¹⁷).

4.3.4.4. Workshops with the Dutch team

The relationship between the Kingdom of the Netherlands, and the CCT and WCG, although seemingly a positive contribution with the Dutch offering technical support, guidance and expertise, contributed to the confusion and tensions within the consulting team process. Much time passed before the Dutch team understood the complexity of TRUP, enabling the Dutch team to define their role in the larger spatial and land use planning process. With no prior

¹⁵ Notes from journal, personal communication 12

¹⁶ Notes from journal, personal communication 13

¹⁷ Notes from journal, personal communication 13

understanding of the context of the site, the project history or current intention, it was unrealistic to expect these individuals to provide expertise. However, it must be acknowledged that once the Dutch team were able to grasp the complexity of TRUP, their critique of the proposals put forward by the local consulting team were valuable.

By the time that the first workshop was scheduled, the technical team had not yet undertaken the required specialist studies. It therefore became extremely difficult to provide meaningful information. The Dutch led this workshop, with a diverse group of stakeholders including government, public and the consulting team. The workshop was structured to allow stakeholders' to share knowledge of the site according to various themes, and explore how this knowledge might be used in the design of the site. Sadly, the professional consulting team found no value in this workshop and it was not clear how any of the outputs could be taken forward (Steenkamp 2018¹⁸).

The design team led the second stakeholder engagement workshop. Fortunately, by this stage some baseline studies had been completed, but not all of the specialist studies. At this workshop, the design team presented three high level spatial designs or plans for the site. Following numerous brainstorming sessions on diverse themes related to the site, the stakeholders (including academia, government, consultants and the Dutch team) were asked to either select their favourite design or elements from each of the designs which could be taken forward. The stakeholders agreed to a design proposal which preserved the central area of TRUP, between the rivers and wetlands as 'green space' to be reserved for conservation and public open space. The outcomes of this workshop were to be refined by the design team with further detail added to the proposals, and specific land use proposals.

At the last stakeholder engagement workshop, the public, officials, private developers, other interested parties, and the professional consulting team came together to test the separate proposals put forward by the professional consulting team and the public (see Figure 12); to compare these proposals; and test them against the manifesto and government policy. This was a cumbersome and elaborate processes, which was difficult to follow and impossible to complete within the allocated timeframes.

¹⁸ Notes from journal, personal communication 14



A
 What if TRU-Park...
 is part of a continuous wide
 riverine park reconnecting the
 city to the coastline,
 re-establishing the lost wetland
 estuary.



B
 What if TRU-Park ...
 extends into its urban
 surroundings, intertwining
 the natural and urban
 environments, therefore
 introducing a transition zone to
 reduce the impact of the
 surroundings on the riverine
 system.



C
 What if TRU-Park ...
 is recognised and upheld as
 the last large green natural
 area close to the city. The
 continuity of the natural
 system is re-established, by
 preserving all green open
 areas within the floodplain.

Figure 12: The three land use development proposals which were put forward at the last stakeholder engagement workshop (A & B were amended from workshop presentations and C is a photograph taken by the researcher at a workshop, as cited in Steenkamp 2018)

The engagements which did take place highlighted some similarities, such as the east-west transport connections and the development footprints. However, the displeasure of the public to the proposals made by the consulting team with regards to the proposed high densities, the public open space and the natural areas, was evident with the some public representatives declaring that the proposals were not in line with the manifesto, would cause degradation and was generally not ecologically sustainable – statements which were in line with those of the various environmental specialists from both government and the professional consulting team.

The government officials and some members of the professional consulting team felt that the workshop had yielded positive results. In particular, it was thought that it had highlighted the commonalities in the various visions for the site, and the proposals put forward and presented a foundation of which to take the process which would include a formal public participation process in terms of the actual proposed Local SDF and further formal public participation in

terms of the rezoning and EIA applications to follow (Steenkamp 2018¹⁹). While, for others, particularly those concerned with the environmental impacts, no resolution was found at this workshop (Steenkamp 2018²⁰).

4.3.4.5. Engagements with government

The agreements held by the government departments suggest that a well-structured and engaging relationship was formed between these various departments and the consulting team – but sadly this was seldom the case. Issues relating to the lack of a comprehensive programme, that respected the complexity of the project, were compounded by the additional departments that needed to be engaged with. In addition to this, an excessive amount of meetings took place which could be characterised as: 1. Too many departments present, with varying interests and agendas, for meaningful discussion to take place; 2. Although representatives from WCG and the CCT were present at each stakeholder workshop, not all government departments which held a stake in the project were represented, these officials also did not design future scenarios with the public; 3. Progress by the consulting team was so slow, that the same work was presented at numerous meetings, over a number of months.

As a result, it was not always clear why meetings were arranged, with no real progress taking place on the project. Various consulting team members, particularly from the engineering team, therefore attended countless meetings where the findings of the engineering service model were presented repeatedly, but no analysis or meaningful engagement took place at these meetings to contribute to the design proposals.

This is not to suggest that engagement was not necessary - engagement was absolutely necessary. Progress could not be made without engaging with the CCT departments, in particular because of their role as service providers as the local municipality. However, it was only once the project had made significant progress, and was able to provide the findings of the various specialist studies, that this engagement became possible and was able to result in meaningful outcomes.

Meaningful, progressive discussions were required to assist both the relevant government officials and the consulting team to push the boundaries on current practices and policies. The city is a complex system, in constant flux. With each new development which is established, a host of shifts must take place - like a large, complex puzzle, constantly in transition as the

¹⁹ Notes from journal, personal communication 15

²⁰ Notes from journal, personal communication 16

needs of the people change, and the opportunities offered by science, the availability of resources and technology change. In order to begin the shift towards a more sustainable Cape Town, each development proposal must begin to test the applicability of the current practices. However, in testing these practices, service provision enters unknown territories.

Furthermore, these alternatives become islands within a greater network of old technology and infrastructure, which in itself offers challenges. The capital costs must be balanced against service costs; as well as efficiency, the needs of the proposed development, and longer-term plans for the Cape Town's growth and development.

In this shifting process, the CCT as service providers must manage the successes and failures of each development, against the longer-term vision. Ensuring not to lock service delivery into an unsustainable path, or hinder other projects which may yield more desirable outcomes.

Discussions with the relevant government departments were essential, as only the CCT officials from the various departments would understand the dynamics of the CCT plans, longer-term visions, and what investments the CCT is willing to make. It is these decisions which strongly shaped the technology and service related infrastructure proposals of the site; which in turn determine what density and type of development can be supported by the available service.

The guidance offered by the CCT was also essential in keeping the project on track. In addition to the above-mentioned responsibilities, it was also in instances where the project deliverables offered by the consulting team were of an unacceptable quality that these departments, through the review and commenting process, could show their disapproval and demand changes or revisions.

4.3.5. Phase C: Re-integration of- and applying the created knowledge

4.3.5.1. Review of research and planning outcomes

The transdisciplinary design principles recommend that review processes are developed in a dualistic manner. Revision of deliverables should be undertaken by all team members. This should be followed by a team review or workshop, where explanations are provided and criteria are used for evaluation. This approach ensures that all team members actively partake in the knowledge generation and testing (Lang et al. 2012).

The spatial plans or designs which were established during the early phases of the project were presented to the professional consulting team. It is not certain what the intention of these team engagements were because these designs were developed before the technical team's

specialist studies were undertaken. When concerns were raised by the technical team about the quality of the work presented and the assumptions made, these concerns were not addressed. As a result, no form of rigorous review and testing actually took place.

Furthermore, when the specialist studies were completed the team was not convened to review and discuss the findings. Therefore, a common understanding was not established amongst the team members.

Instead discussions regarding the findings of the specialist studies took place in small groups, called for by the design team. These discussions were repeated several times, as these findings were continuously overlooked by the design team, who allowed their perceptions of the site to inform the design proposals.

It was only through the formal review processes by the various government departments, that the specialist studies were actively critiqued. This also resulted in strong criticism of the design proposals and substantiating documents which were put forward by the team. This led to many tense engagements between specialists and the design team, and instructions from various government departments to amend the spatial designs and development proposals to be in line with the findings of the specialist studies.

4.3.5.2. Develop 'products' relevant for all parties

Specialist reports and associated models, maps and shape files were provided for each of the deliverables which the consulting team was appointed for. This included a stakeholder engagement report based on the stakeholder engagement process, an Engineering Service Model which evaluated for alternative services (energy, water, transport, stormwater and sanitation) to support the development proposal, and so on. In addition, many presentations were made to government departments and the stakeholders, explaining the findings of the specialist studies in layman's terms. However, various versions of these reports for the different stakeholders were not compiled.

The development of public documents or even integrated documents of the specialist findings, would have been time consuming, and would have required generalisation of some of the details and technical requirements. However, this would have enabled knowledge development of the entire team, and consequently would have made the co-production of knowledge and solutions more possible.

Considering the challenges that the design team and even some government officials had in understanding the various deliverables from both the design team and technical team, it

seems that the development of various forms of reports for specific stakeholders would have been valuable. For example, a technical version of the engineering service model and a public version which explains concepts and the consequences of the design proposals for the provision of engineering services could have been useful.

With regards to the engineering service model, the design team attempted to compile an interpreted version of the report for the client. However, they produced this report without consultation with the engineering team, and therefore the report was riddled with misinterpretations and misleading statements, and was rejected by the client. When the engineering team learnt of this 'incorrect interpretation' of their work they were insulted and refused to acknowledge the report, or even attempt to respond to the numerous queries which were raised by the client.

The impact that these interpretations had on design were obvious considering the disconnect between the findings of the engineering reports and the design proposals with regards to the development capacity. The limited capacity of service related infrastructure for transportation, sanitation and electricity were limiting factors for the density of development that the site can support. Despite investigations into alternative technologies and renewable energy, the available capacity was still particularly limiting with regards to energy unless further investment in infrastructure was made. An estimated 300 housing units were proposed based on the valuable capacity, with alternative technologies, based on this limitation. With further investment resulting in approximately 1 million m² of floor space made available in the long term. However, the proposals made by the design team estimated 2 million m² of floor space in the long term – significantly increasing the number of dwelling units that would be made available. Despite several discussions, over many months, these proposals were not reconciled (Steenkamp 2018). However, it is not clear if better reporting or reporting specific to the design team, or if the design team produced specific reports for the engineering team, that this would have resulted in a different outcome.

A similar experience took place with regards to the biodiversity and aquatic reports, whereby the design team attempted to interpret the work of the specialists by reproducing the information presented in the specialist reports in their own reports. This resulted in a host of inconsistencies and misrepresentation of facts. This greatly offended the specialists with some of the specialists believing that it was an intentional attempt to misrepresent their work, to justify the design proposals which were not deemed to be appropriate for the site, by the environmental specialists.

Despite an abundance of documents and presentations, an excessive amount of email conversations and telephone calls, and far too many meetings, there was still a lack of meaningful engagement. Engagement specifically intended to facilitate knowledge sharing and development was absent from the project methodology. As a result, knowledge development and a mutual understanding amongst the team of the available information were largely absent.

The technical team openly accused the design team of not engaging with the specialist findings; whilst the design team often expressed that they did not understand the technical information, making it difficult for them to comprehend and respond to the challenges of the site. This lack of knowledge sharing and development influenced all stages of the project because of the complex nature of the site, and the overlapping and integrated nature of the specialist studies. This made it increasingly difficult for the design team to align and integrate all of these findings, and interpret the potential impacts of development proposals on their own.

Development of the 'public documents' could be developed based on the common language established by the team and/or contribute to this common language, with the technical reports still produced for the relevant bodies and decision makers. These public documents may even allow for better understanding of the technical reports by the team at large, depending on the extent of knowledge formation and reflexive learning.

4.3.6. Cross-cutting principles

4.3.6.1. Continuous evaluation

The manifesto was intended to guide all team members in the development of proposals for TRUP. In this manner, the manifesto was a set of broad principles for the Local SDF and associated development proposals.

Principles labelled 4, 5 and 6, refer to the development of TRUP in a manner that promotes and enables non-motorised transport and public transport, and provides a dense development mix of housing and economic opportunities, in a manner which contributes to the creation of a vibrant, safe, and diverse local community. To enable this vision, the consulting team structured the development proposals in line with transit orientated development, with densification of both housing and office space, supported by public transport and non-motorised transport networks. This was an excellent measure to determine the densities required to make the investments in public transport networks financially feasible.

The other principles associated with the development of an urban park, based on environmental sustainability and sustainable forms of development were not as prominent in the team discussions. The project manager left the task to the team to ensure that the proposals would be in line with the manifesto. For example, the project manager's pre-existing relationship with various team members led to the assumption that they would act professionally and in an environmentally conscious manner (Steenkamp 2018²¹). Therefore, this assumption extended to the belief that any proposal made by the design team would be environmentally sensitive and sustainable. Unfortunately, the design team was not as environmentally conscious or open to the guidance of the environmental specialists as the project manager had perceived.

The lack of problem framing, clear roles and responsibilities and general breakdown in communications, meant that many of the earlier design proposals for TRUP were based on misunderstandings of the environmental and engineering information, and misconceptions or pre-conceived ideas. For example, in earlier designs, the design team proposed numerous pathways and bridges along the most sensitive of wetland environments, and allowing access of the public into environmentally sensitive habitats which are used for breeding and nesting purposes. The design team considered this access to natural habitats to be pertinent to bring people closer to nature, and considered this approach to be conservation. Despite many engagements with specialists, the design team struggled to understand that this unfettered access would result in the disturbance of various species and potentially even damage to nesting sites. This would likely result in further degradation and loss of sensitive species, instead of preservation and conservation, and enhanced biodiversity associated with TRUP.

Furthermore, because the team's progress was not consistently reviewed, analysed and critiqued against the manifesto in an open and collaborative manner, it was only at the end of the stakeholder engagement process when the development proposals and interventions were tested against the manifesto. The result was an overwhelming objection to many of the landscaping and development proposals by the public and environmental practitioners from both the public and private sector.

Had a continuous process of open discussions and evaluation against the manifesto taken place, it is possible that more appropriate, and possibly even more creative and innovative proposals could have been made much sooner in the project. Instead, a remarkable amount of time and effort was lost to inappropriate design proposals, because of the silo'ed nature of

²¹ Notes from journal, personal communication 17

the project team and the inability of the technical team to easily engage with and influence the design team.

4.3.6.2. Encourage and facilitate engagement

Meetings and workshops were a common feature in the project. However meaningful engagement through a facilitated process was absent. At times there were more meetings than real progress on the project, and as a result the same work was repeatedly presented at a number of meetings. As a result, the team was not able to build knowledge and capacity in a collaborative form, communication was hampered, and this impacted negatively on the progress of the team in terms of compiling robust and well-rounded design proposals.

The lack of meaningful, facilitated engagement not only hampered information flow from the technical team to the design team, but between the technical team members as well. The vastly interrelated nature of the various specialist reports (see Figure 11) required many of the technical team members to share their findings, and also have an understanding of how various proposals may influence other disciplines and *vice versa*. This also required the design team to work closely with the technical team, so that design proposals may be developed which were not only cognisant of the specialist findings and recommendations, but conscious of the potential impacts of the proposed designs and interventions for the site.

Pre-conceived ideas and misconceptions were therefore a huge stumbling block throughout the project duration. Without facilitated engagement these pre-conceived ideas and misconceptions were difficult to address and overcome. Numerous engagements took place with escalating conflict as numerous specialist felt that they were not being heard, before designs were forced to be changed – not because the specialist's findings were embraced by the design team, but because the relevant government departments indicated that the designs needed to be in line with the specialist findings and recommendations.

The stakeholder co-design process was however the exception - the public stakeholders formed their own knowledge, built capacity amongst themselves, set structured roles and responsibilities and even criteria to guide the type of development that they would like to see on TRUP. This was a missed opportunity for the consulting team, which could have contributed to the knowledge generated during this co-design process, not only in terms of presenting the work undertaken (as was done), but to be actively part of co-generation of knowledge and co-creation of solutions.

4.3.6.3. Mitigate conflict

Conflict was a permanent feature throughout the duration of the project. However, conflict resolution and mediation was absent. Often the project manager ignored conflicts altogether, along with the underlying problems. As a result, the 'working environment' was tense with ongoing confrontation, which was at times unbearable.

Some of the conflicts focused on the views held by the technical team and government officials that there was poor leadership and project management on the project. The project manager expressed that the technical team was focused on precise project management, with the end goal of making money. Whereas, the design team believed that they are more orientated towards serving the public; and, therefore they were willing to continue working on the project, irrespective of how many iterations were required, and the financial success of the project. However, all members of the consulting team suffered financial losses, with very little to show for the sacrifice.

During a team meeting the Urban Designer raised concerns with the project manager regarding the project management which resulted in a heated engagement, and the Urban Designer resigned from the team thereafter. However, the concerns raised were not addressed, and the rest of the team continued to struggle with the project management of the project.

Other conflicts arose as a result of disagreements about interpretations of specialist findings. The specialists and some members of the technical team felt that their concerns were not taken seriously by the design team, which lead to some team members becoming concerned about the implications for the researcher's professional registration, because of manipulation of their findings by the design team. Concerns about the interpretations were repeatedly highlighted by the technical team, yet many of the disagreements could not be resolved.

The project manager did not acknowledge the shortcomings in terms of leadership, project management and the methodology. Instead the consulting team were described by the project manager as difficult, and reluctant to 'do as they were told' and undertake the work which they were appointed to do. As conflicts escalated, the team and the project were described as 'untenable' by the project manager (Steenkamp 2018²²).

²² Notes from journal, personal communication 18

The hierarchy of the team also dictated that all communication with the client be directed via the project manager. Furthermore, the sub-consultants and the client were formally instructed by the project manager that they may not communicate directly. The constraints on communication made it difficult to shift the power dynamics. As a result, the project unfolded in a haphazard manner, which exacerbated tensions, distrust, a lack of respect for the different disciplines, and a breakdown of relationships.

Trust and open communication, critical dynamics within a team, were not fostered by the consulting team. This general breakdown in the team dynamics prevented the team from having rich and meaningful engagements, with shared learning experiences towards the creation of integrated, sustainable solutions (Harris & Lyon 2013).

4.4. Summary discussion of the research and planning processes

In summarising the experiences of how the research and planning processes were executed on this project, it is clear that transdisciplinary processes were not followed. But also, that the project was not successful with the methodology that was implemented. The team did not effectively carry out some vital steps during the initiation of the project. As the project unfolded the problems associated with missing these key steps escalated. This was compounded by the poor leadership and the segregation of the team into a design team and technical team.

This research did not critique each of the specialist methodologies and the technical quality of work, but only how the team interacted. However, it is clear from the narrative which has been presented that the team was divided and unable to effectively engage, which influenced the quality of work delivered by the team.

The approach which was executed was designed to divide the team and not unify the team and the various stakeholders, so that they may effectively collaborate and co-create solutions for TRUP. Instead, the design-led approach alienated the technical team and stakeholders. It placed great responsibility on the design team to lead all decision making, and to define solutions or interventions for the challenges currently experienced on TRUP through the compilation of the Local SDF and associated development plans. As a result, the project process or overarching methodology was not sufficient to ensure sustainable solutions to various societal problems, experienced on TRUP. This project approach was not designed to accommodate, integrate or align the diverse perspectives, value systems and world views (or rationalities). Without acknowledging the diversity of rationalities and planning for it in the project execution, the project was not able to adequately respond to the needs of the associated communities.

Table 4 presents a summary of the research and planning processes employed by the consulting team, compared against the guidelines presented for transdisciplinary projects.

Table 4: Summary of the research and planning processes, compared to the transdisciplinary design principles

	Guidelines	Summary of findings
Phase A: Design principles for problem framing and building a collaborative research team	<p>1. Build a collaborative research team:</p> <p>Identify relevant stakeholders who have expertise, experience or any other relevant stake in the pre-identified problem. Apply transparent criteria and justifications for this selection.</p> <p>Facilitate explicit team-building processes.</p> <p>Establish an organisational structure within which responsibilities, competencies, and decision rules are clearly defined. This should be balanced across all levels, towards joint leadership.</p> <p>Develop a common language through building of capacity. This is important to facilitate common understanding and avoid misunderstanding and roadblocks for collaboration.</p>	<p>ToR provided clear and transparent criteria for the various professionals required for the team. The team was formulated according to the ToR requirements.</p> <p>No team building took place – this caused deep divisions in the team which was deepened by the team structure.</p> <p>No organisational structure was discussed or made explicit to the team, other than the decision taken by the project manager that the team would be split into the ‘design team’ and the ‘technical team’.</p> <p>The ToR was assumed to be the point of reference for the team with regards to the team structure. Although, the ToR did not specify the details as suggested here. It was the responsibility of the team to define these details.</p> <p>Responsibilities, competencies and decision-making rules were not discussed as a team. Without an open discussion about the various roles and responsibilities of the team members, there was confusion regarding overlapping work, and some team members even forgot who else was on the team.</p> <p>Joint leadership was not possible with the silo approach of the team structure.</p> <p>A common language was not developed. As a result, the design team in particular, found it difficult to understand the specialist studies and struggled to translate the specialist findings into their designs.</p>
	<p>2. Create a joint understanding and definition of the problem:</p> <p>Define the sustainability problem as a societally relevant problem which implies and triggers further research questions.</p> <p>Ensure all role players are involved in defining the problem, in an integrated and balanced manner.</p>	<p>Problem framing did not take place as a team. Although several team meetings were held, and presentations were done by some team members, a team discussion did not frame the boundaries of the problem, and nor were the boundaries of the problem agreed to as a team.</p> <p>The ToR and the project programme were assumed to be the point of reference for the team with regards to the scope of work. However, the ToR specifically indicated that it is the responsibility of the project manager to integrate the team; and, it was the responsibility</p>

	Guidelines	Summary of findings
		<p>of the team to propose research and planning processes for the project.</p>
	<p>3. Define the research boundaries and focus:</p> <p>Collaboratively define the boundary of the research and research objectives, as well as specific research questions and success criteria. This requires accounting for all the different actors' interests.</p> <p>Set specific research questions within the boundaries of the project, and research objectives.</p>	<p>The boundaries of the research and research objectives were not openly discussed with the team.</p> <p>Research questions and objectives were not discussed by the team, or set.</p> <p>The manifesto could be interpreted as guiding principles or criteria.</p>
	<p>4. Design a methodological framework:</p> <p>Agree on methods to be applied in Phase B, including evidence based templates for collaboration and common orientation for all team members from the beginning. The method(s) should enable knowledge production and integration, and co-creation.</p>	<p>The various methods carried out by the specialists were not discussed by the team. Had this been done, the complexity and interrelated nature of the deliverables could have been planned for.</p> <p>The ToR was the point of reference for the scope of work. It was assumed that each specialist would carry out their scope of work effectively.</p> <p>The design-led approach was not discussed with the team. Despite the need to integrate the various deliverables, phases of the project and stakeholders, this was not discussed as a team so that a uniform approach could be developed.</p>
<p>Phase B: Design principles for co-creation of solution-oriented and transferable knowledge</p>	<p>5. Appropriate roles and responsibilities for all parties:</p> <p>Assign appropriate roles and responsibilities, accounting for reluctance and structural obstacles.</p> <p>Ensure facilitation that allows compliance with the assigned roles and responsibilities.</p> <p>Leadership for team coordination, information exchange, procedural matters and conflict resolution.</p>	<p>The team identified in step one, as per the ToR, is how the specified team remained. No further discussion was held with the team to understand all the role players and their responsibilities.</p> <p>Because the various roles and responsibilities, and the overlap thereof, was not understood by the team, no facilitation took place. Instead, the team stumbled through the various deliverables and contacted each other when they identified a potential need for more information.</p> <p>There was poor leadership of the team. The project management was focused on timeframes and enforcing the design-led approach.</p> <p>Conflict resolution, although required, was largely overlooked. When issues were raised by the technical team they were ignored by the design team, which only escalated matters.</p>
	<p>6. Apply and adjust integrative research methods for</p>	<p>Numerous workshops and meetings were held throughout the duration of the project. However, because there was poor coordination of the various deliverables and poor alignment of</p>

	Guidelines	Summary of findings
	<p>knowledge generation and integration:</p> <p>Use tools to support team work and collaboration, and inter- and transdisciplinary quality control.</p>	<p>information, these workshops and meetings often did not enable further decision making.</p> <p>Additional tools to support team work and collaboration, and inter- and transdisciplinary quality control were lacking altogether.</p>
Phase C: Design principles for (re-)integrating and applying the created knowledge	<p>7. Realise two-dimensional integration:</p> <p>Review and revise the outcomes generated in Phase B, separately and within as a collaborative review process. Different criteria may be required to facilitate this such as quality criteria or practical applicability.</p>	<p>Although the manifesto was agreed to by the whole team, problem framing, and the development of objectives did not take place. The lack of problem framing and objectives, seemed to be the cause of some of the team member focusing on very different boundaries. For example, the design team focused on a catchment scale analysis for many months, but largely neglected the site level detail which was supposed to be provided by the specialists on the team.</p> <p>The specialists on the team did their best to comply with the objectives set in the manifesto. However, because the design team operated separately to the technical team and struggled to understand the specialist findings and recommendations, there was a disconnect between the technical team's recommendations and the design team's outputs.</p> <p>Periodic evaluation against the manifesto was not undertaken, and therefore this disconnect was only corrected towards the end of the project – resulting in the design's being amended.</p> <p>No other quality criteria or practical applicability criteria were set or evaluated. Although numerous complaints were held across the team, about the quality of work and poor interpretation and even incorrect interpretations and representation of information.</p>
	<p>8. Generate targeted 'products' for all parties:</p> <p>Provide all actors or parties with appropriate products that present and translate the results of the project in a way that they can make use of the information.</p>	<p>All reports and presentations were prepared to be readable for the general public. However, the design team expressed that they still struggled to understand the content of the specialist studies.</p> <p>Separate documents for different audiences were not generated. However, presentations were provided by the technical team and the design team, to a variety of stakeholders, to explain the findings and proposed interventions.</p>
	<p>9. Evaluate scientific and societal impact:</p> <p>Evaluate the project at different stages after completion of the project to</p>	<p>Unfortunately, this was not yet relevant. The case study only covered the research and planning phase of the project.</p>

	Guidelines	Summary of findings
	demonstrate the impact and generate lessons learned for future projects.	
General Design Principles (cutting across the three phases)	<p>10. Facilitate continuous formative evaluation:</p> <p>Through an extended peer group, formulate continuous evaluation which allows for reviewing of the progress and reshaping the subsequent project steps and phases if necessary.</p>	<p>The Dutch team acted as a peer reviewer of the proposals made by the consulting team for TRUP. However, this only took place at the end of the project.</p> <p>Although continuous evaluation or peer review would have added value to the project, throughout the duration of the project the Dutch team was not familiar with the site. The team was also not familiar with South Africa, and challenges / opportunities relevant to the country. It was only towards the end of the project that the Dutch team was informed of the site, by the consulting team, and was therefore able to critique the work put forward.</p> <p>The Dutch team was appointed because of their expertise in developing in areas prone to flooding. However, they were not able to provide significant input or guidance, which benefited the project in this regard. This was largely attributed to the lack of understanding of the site.</p>
	<p>11. Mitigate conflict constellations:</p> <p>In order to avoid conflicts, reflexive meetings, open discussion forums, explicit and mediated negotiations, and adaptation of agreements should be allowed for. This requires the transdisciplinary project to be carefully designed and followed.</p>	<p>No reflexive meetings, open discussion forums or even adaptation of agreements took place within the consulting team.</p> <p>Conflict was a constant feature in this project. This conflict arose because of a number of aspects related to the lack of understanding of the roles and responsibilities of the various team members, a lack of understanding of the project approach and associated programme, a lack of understanding of the various specialist inputs – each of these aspects could have been avoided if the steps in phase A and B were fulfilled appropriately.</p> <p>Furthermore, when conflict did arise no mediation took place. Issues were largely ignored, particularly if they were raised by the specialist team with regards to the design team's proposals. At times the consulting team dynamic was rather hostile as a result of this.</p>

	Guidelines	Summary of findings
	<p>12. Enhance capabilities for- and interest in participation:</p> <p>Select locations that are easily accessible for stakeholders.</p> <p>Schedule meeting times that allow maximum participation;</p> <p>Facilitate discussions in several languages, if necessary;</p> <p>Allow participants not only to articulate their perspectives but also to engage in meaningful discussions, deliberation and negotiations, and to incorporate visual aids or representations.</p>	<p>The consulting team was particularly large, and therefore team meetings took place where there was a boardroom large enough to accommodate everyone. However, when smaller meetings took place, these were arranged based on convenience.</p> <p>Discussions held by the consulting team were not facilitated. However, the entire stakeholder engagement process was facilitated.</p> <p>Meetings and workshops took place in English only; however, it did seem as though this was sufficient.</p> <p>Meaningful discussions were not a major feature in the consulting team as a whole. Because of the various conflicting perceptions, dominant design process, and the lack of facilitation, the voices of the technical team were not largely heard in this project – except to provide their findings.</p>

The experiences of the researcher, which is presented in this chapter, highlight that purposeful facilitation and engagement were not designed into the project methodology. Collaboration, shared knowledge and learning are critical factors for transdisciplinary research and planning processes. Without purposeful design of engagement which enables collaboration, the team is likely to be overwhelmed by the challenges associated with the team dynamics, before being able to address the challenges associated with bring about spatial transformation in a complex world (Lang et al. 2012; Brandt et al. 2013).

The way the design-led approach was implemented did not allow for collaborative decision making on many aspects: framing of the problem and the boundaries of the research; agreement on the project methodology; development of a common language and criteria suitable for all aspects of the project; and, ongoing evaluation and adjustment of the project deliverables and methods. Without strong leadership, able to identify the necessity for these steps, and adjust the methodology when challenges arose, the conflict and distrust continued to escalate throughout the duration of the project.

Furthermore, without facilitated engagement the team was unable to develop knowledge in a collaborative manner. This lack of shared knowledge and understanding further disempowered the team, as they were not able to adequately engage with the findings of the specialist studies and translate these into spatial plans and development proposals. In addition, the specialists or technical team struggled to guide the design team, without understanding the decision-making processes employed by them. This greatly hindered the

ease with which proposals and interventions were developed, and resulted in numerous reiterations.

The lack of integration and collaboration between government, the consulting team and the stakeholders allowed the pre-conceived ideas and differing value systems to remain as a dominant point of conflict throughout the duration of the project. This resulted in the consultants and the public developing different spatial plans for the site, and attempting to reconcile these at the end of the process; as well as ongoing criticism of the spatial plans within the consulting team and by government. While the draft Local SDF appears to enable spatial transformation, it is impossible to know what the draft Local SDF may have looked like if it had been developed in a more collaborative manner.

4.5. Critique of the project outcomes

The draft Local SDF, which was prepared by the consulting team, made provision for 1.9 million m² of floor area to be developed in phases over the next 10 to 30 years. This floor area would be shared as: commercial 14.4%; institutional, including schools 14.5%; residential 57%; utility 12.1% and structured parking 3.9%. The core of the site would remain as an urban park and conservation areas, including the creation of additional wetlands along the Black River and Liesbeek Rivers (see Figure 14). In total it was estimated that TRUP would accommodate 41 000 new residents in 12 600 new dwelling units (WCG 2017c). This would be achieved with building heights ranging between 2 and 7 storey buildings, and densities of between 36 and 197 dwelling units per hectare (du/ha), whilst still accommodating important views and vista. Table 5 contains the details of the residential units; Figure 13 shows the associated development footprint; and Figure 14 the spatial concept.

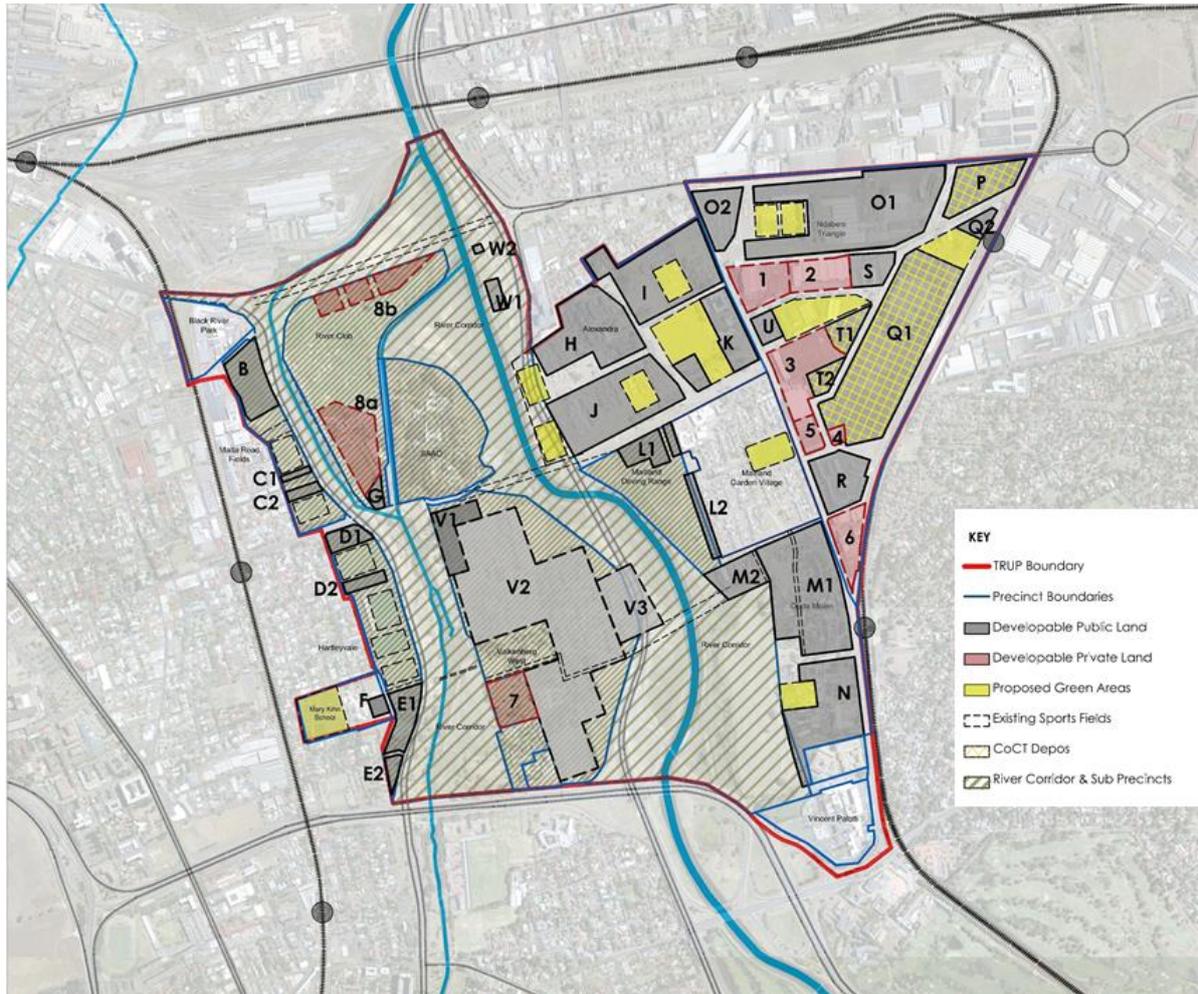


Figure 13: Proposed development footprint (Consulting team, as cited in Steenkamp 2018)

Table 5: The proposed ratio of housing types proposed by the Local SDF for the TRUP (WCG 2017c)

Housing type	Monthly income	Value of house	Percentage (%)	Size of units (m ²)
Social	R 3 501 - R7 500	Up to R 300 000	20%	40m ²
Affordable	R 7 501 - R 15 000	Up to R 700 000	24%	58m ²
Student	-	-	6%	70m ²
Market	>R 15 000	>R 700 000	50%	80m ²

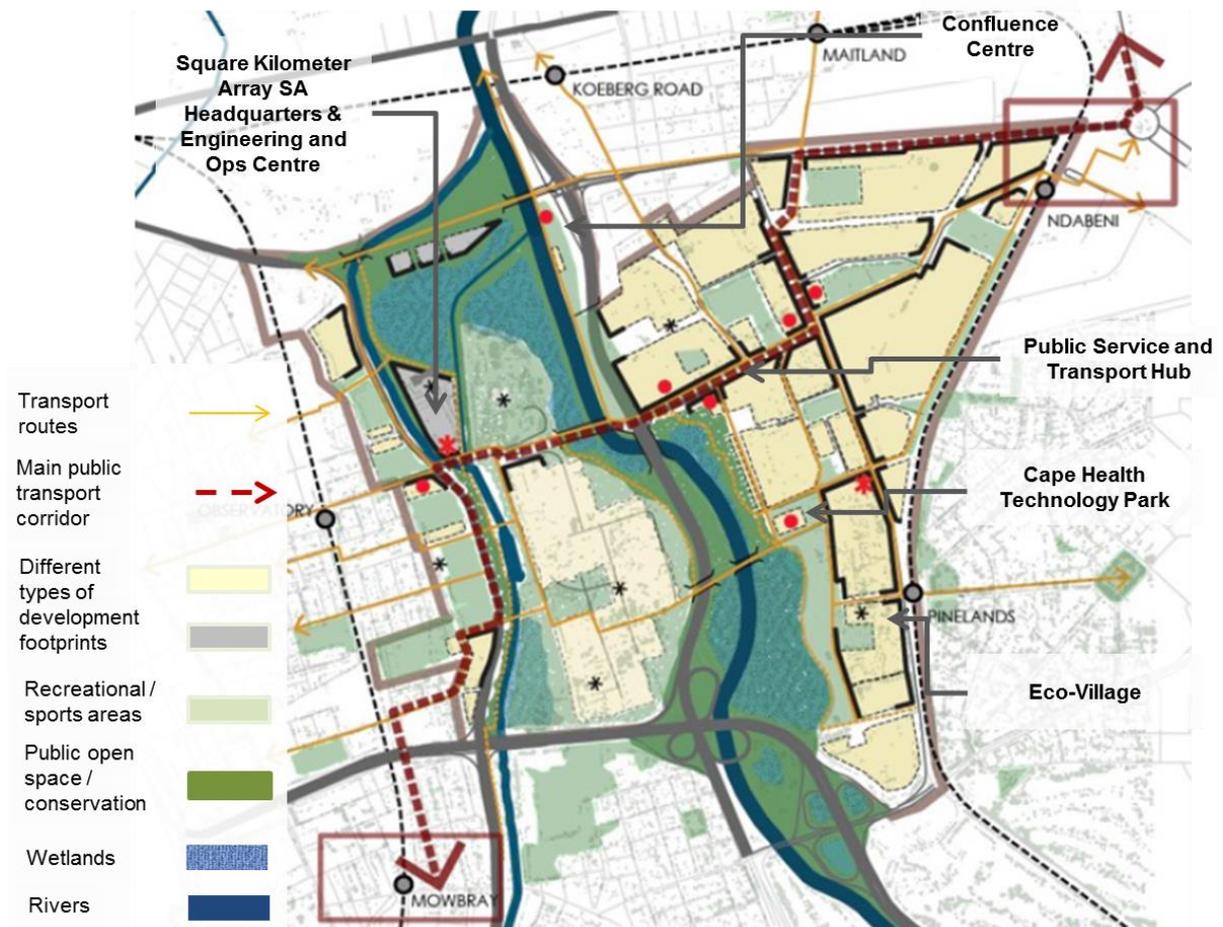


Figure 14: Draft Local SDF for TRUP (WCG 2017c:58)

However, because of the numerous obstacles as described earlier in this chapter, the Local SDF and the associated ‘basket of rights’ was not completed by the consulting team. This follows more than two years of work completed by an extensive multidisciplinary consulting team, many government departments, an international team of Dutch experts, and various members of the public.

Furthermore, three specific uncertainties meant that further development of the site would be risky. This included: (a) The drought in Cape Town, and the concern regarding the allocation of potable water resources; (b) the economic sustainability, and self-sufficiency of the development proposals without key institutions invested in the site; and, (c) the lack of an overarching, management entity to ensure that the spatial concept would be enforced over time.

In 2017, Cape Town was declared a disaster risk area as a result of the drought. This brought into sharp focus the need to share water resource more equitably. Traditionally, bulk water services were allocated to property developments based on the available infrastructure

capacity, and not on the availability of this finite resource. Furthermore, these rights are allocated on a 'first-come-first-served' basis. With many developments planned by government, and various private developments taking place, there is competition for the remaining capacity. Capacity which the CCT has come to realise they cannot allocate based on the available infrastructure capacity alone. The availability of resources (i.e. the availability of potable water) must be considered in the allocation of rights for use.

In the case of the development of TRUP, the proposed development of this site must be considered along with the many other large mixed income development proposals now being made within the boundaries of the Metro. This includes the old Conradie Hospital redevelopment, Somerset Hospital precinct redevelopment, Athlone Power Station redevelopment, the Bellville hub and the Voortrekker Road Corridor, and many others. The allocation of not only water resources, but all services must be matched against the growth of the city.

This requires the CCT defining new 'development contributions policy' and enabling co-operative governance structures. Unfortunately, such policy and structures were not in place when the planning for the development of TRUP was underway. Thus, it was difficult for the CCT officials and the consulting team to reach agreement regarding the service provision and alternative technologies to be incorporated in the TRUP development proposals.

The available capacity to the TRUP site for bulk water, stormwater, electricity and even traffic was very limited, with electricity as the main constraining factor. This opportunity could have enabled an incremental approach to the development of TRUP. The first phase of development would therefore have been restricted to the densities of development which could be supported by the available capacity, i.e. approximately 300 units depending of the property size, type and location. With further infrastructure upgrades, more properties could be developed, thus contributing over time towards the longer-term vision as proposed in the Local SDF.

The intention was for Oude Molen, the old Abattoir site, the Square Kilometre Array offices and the Cape Health Technology Park to be developed during the first phase. The Square Kilometre Array did not accept the particular portion of land which was offered to them, while the Cape Health Technology Park also did not receive the required financial support for development, mostly as a result of the excessive delays in the project planning phases. The proposed development of the River Club alone, by private developers, exceeds what was proposed by the consulting team. So much so, that should the River Club developers be granted authorisation for development of the land, this allocation of services would deplete the

available capacity - preventing any other development taking place without upgrading the infrastructure allocation for services.

Furthermore, to ensure the successful development of the area, the Local SDF suggests phased release of the land for development. This includes the establishment of 'catalytic developments' to assist with the success of each phase or precinct. Without developments such as the Cape Health Technology Park and Square Kilometre Array, there are major gaps in the proposed development plans, which were intended to spark further economic growth and development in the area.

These service constraints, and the associated timing and coordination of the project, have therefore made it unfeasible to proceed with the current development planning proposals as they have been packaged. This will therefore, need to be re-evaluated going forward.

Lastly, to ensure the operational success of the development of TRUP, it was decided that a section 21 entity would be established. This entity would manage the phasing of development, the day-to-day operations, and maintenance of TRUP as a whole. This entity would also fulfil an important managerial function, enabling the subsidising of Affordable Housing to ensure an equitable standard of living within TRUP, with housing typologies which are all more or less the same. It would allow for funding and management of the rehabilitation of ecological areas, including maintenance of these areas and the public open spaces. But, also important was the establishment of a community based on principles of sustainability, equity and a sense of awareness, thus ensuring that the long-term vision of the site is achieved and maintained. However, this entity had not yet been established, at the time of finalising this publication, with no indication if such an entity would be established as a result of the numerous challenges experienced.

The draft Local SDF and associated plans will be completed by government, informed by the specialist studies generated during this project. At this stage, the responsible government officials consider the work to be in its early stages, and they have not commented on- or approved the draft Local SDF as presented in this research.

Despite this, for the sake of understanding the implications of this planning project, the draft Local SDF has been analysed in this chapter. However, at this stage, the details of this spatial plan and the associated development proposals are not available. Therefore, it is difficult to make definitive statements about whether the draft Local SDF has responded to the spatial injustices and complexity of the site. Nonetheless, the discussion presented here critiques of the draft Local SDF with regards to whether this proposal offers the intended spatial

transformation, and if the spatial planning methodology employed enabled the multidisciplinary team through the various research and planning phases to develop a successful plan.

The draft Local SDF, as presented in Figure 14, appears to make provisions for the realisation of 10 points presented in the manifesto. A safe park is created through densifying the edges of the park; buildings overlooking the public open spaces; and, increased mobility through non-motorised transport networks and public transport infrastructure and services. This also creates a space which may enable social inclusion, tourism and ecological awareness.

Through the addition of wetlands, and urban development on the edges of the site, this spatial plan adheres to the requirements of the manifesto to preserve the recreational value, as well as ecological integrity and ecological goods and services which this space offers. It also responds to the need to create an integrated space of culture and heritage, and the memory of the space through the preservation of the core areas of the open space on TRUP.

The proposed densities and mix of housing and commercial properties are certain to add to a dense mixed-use urban environment, which makes provision for affordable housing and therefore contributes to the creation of a diverse and vibrant community. It was also clear, that to be able to support this high density of development alternative technologies and sustainable lifestyles would be necessary. The required development typologies and technologies which would no doubt be outlined in the supporting document, drawing from the recommendations put forward by the engineering team in the Engineering Service Model.

However, the consulting team was not able to fulfil the need to develop a social institution to manage the site, its funding, local economic opportunities and the co-ordination of the various key stakeholders. The Local SDF therefore responds to the majority of the points listed in the manifesto, but not the administrative functions which would be vital for the realisation of this spatial plan.

The manifesto did not however, reflected the rights of traditional groups. It is therefore no surprise that the draft Local SDF does not explicitly respond to the claims of the traditional groups. The draft Local SDF has demarcated the core of TRUP as public open space and conservation, thus responding in part to the concerns of the First Nation that the land should be protected and not developed.

In addition, this spatial plan attempts to memorialise the space, whilst still excluding those who hold ancestral rights to the land. This is however, a challenging aspect to respond to. This space is the cultural heritage of all South African's as the place where colonialism began in

the country. Therefore, it is not only the traditional groups and the local communities which hold a claim to TRUP, but all South Africans.

Another means of critiquing the draft Local SDF is to compare it to other development precincts within Cape Town. A concept plan, put forward by the Department of Transport and Public Works (DTPW), for TRUP in 2012 did a comparison of scales of land area to floor space between TRUP, the CCT city centre, V&A Waterfront and Century City. This comparison is shown in Table 6. However, it should be noted that development rights and densities have most likely changed since this work was done in 2012. Although, as an anecdotal comparison this is still relevant as it provides prospective of the scale and density of the development proposals, which are otherwise difficult to conceive.

The 2012 Concept Plan proposed 1 251 693 m² of floor space to be developed over 116 ha on TRUP. While the draft Local SDF proposes almost 2 million m² of floor space, it is not clear over what area of land, although the draft SDF does indicate that the development will be concentrated on the edges of TRUP, outside of the floodplain. In comparison to these proposals, the Century City development has made 204 ha of land available for approximate 1.3 million m² of floor space to be developed. So, by comparison, TRUP would in fact be more densely developed than Century City.

With multi-storey buildings for shopping and residence, and wide roads to accommodate the traffic, the hard infrastructure is the dominant feature of Century City, with the large wetland system which forms part of the sewer and stormwater infrastructure, largely lost amongst the development. This brings into question what is being valued in TRUP - are the natural environments and public open spaces considered as central features, or as an afterthought when attempting to maximise development? This comparison suggests that the draft Local SDF is proposing a boundary of hard infrastructure around a green core, with high density multi-storey buildings towering over the green space.

The open spaces and spaces of ecological value on TRUP are already the 'left over spaces' – the land which is difficult to develop because of the regular flooding. Instead of celebrating this space and using it as an opportunity to reconnect with our roots, one another and other forms of life, the draft Local SDF seems focused on maximising development. This is largely because of a planning approach which was focused on establishing the maximum development potential of the site.

Table 6: Scale comparison (adapted from DTPW 2012:24)

Development precinct	Land area (ha)	Floor space proposed (m ²)	Floor space developed as of 2012 (m ²)	Floor space approved (m ²)	Floor factor ²³
TRUP development proposal, 2012	116 ha	1 251 693 m ²	-	-	1.1
TRUP development proposal, 2017	Approx. 120ha	1 900 000 m ²	-	-	-
City centre	-	-	-	-	3.7
V&A Waterfront	88 ha	-	347 640 m ²	603 859 m ²	0.69
Century City	204 ha	-	463 040 m ²	1 340 140 m ²	0.66

The ToR did not necessarily specify this development focus as the scope of work for the consulting team. However, the ambiguous reference to 'sustainable forms of development' left the ToR open to this interpretation. Furthermore, it was the vision of some team members to bring about spatial transformation, and make allowances for housing and economic opportunities long into the future. This perspective did not challenge what the right threshold of development for this site might be, based on its attributes of ecological and cultural heritage importance. It was a strong social vision, which valued development. Based on these observations and critiques of the draft Local SDF, it appears that this spatial plan would have brought about the required spatial transformation, which is so desperately needed by the local communities and the citizens of Cape Town.

While this plan does not completely disregard the heritage and ecological value, it seems to disregard its significance. If this space was any other open space, I may feel more inclined to accept the strong development logic which was used to inform these plans. I acknowledge that development in the area is required and in particular, development which enables spatial transformation is required. Better access and a network which enables non-motorised transport and public transport are essential. The local communities also required a range of development including access to markets, schooling and even job opportunities. The site

²³ Floor factors is used to calculate the maximum floor space of a building or buildings which are permissible on a unit of land. It is expressed as a factor of 1, which is multiplied by the area of land or land unit (SANS10400 2017). This measure provides a perspective of the density of the proposed development – the higher the ratio, the higher the density of development.

would also be able to support the development of further housing opportunities. However, the excessive densities proposed by this spatial plan does not memorialise this space, it sharpens the contrasts of the fractured history of this space.

4.6. Conclusion

Cape Town is developing at a rapid rate, with a focus on densification within the Metro's urban boundaries and the provision of housing opportunities to a range of income bracket households. The intention is not only to develop more inclusive societies and address inequality, but also to make use of resources more efficiently. While absolutely necessary to ensure a sustainable future for the city and a spatially transformed society, this is not an easy task. It requires careful planning and allocation of resources, such as water and electricity, and the development of infrastructure within the boundaries of efficiency and financial feasibility.

To understand this dynamic, the case study focused on a current spatial and land use planning exercise - the development of a Local SDF for the area known as TRUP, by a multidisciplinary consulting team on behalf of government. Unfortunately, the project will not be completed, making it difficult to fully assess the implications of the proposed spatial plans. However, from the experiences of the researcher the methodology could be assessed against a framework of transdisciplinary research and planning practices.

The draft Local SDF offers great potential for the spatial transformation of TRUP and its surrounds. This is mostly achieved through the densification of residential and business opportunities for a range of incomes, and improved mobility networks. Furthermore, the development plan requires the use of alternative technologies and building designs, to ensure a sustainable development form and efficient use of resources. In addition to this, the draft Local SDF proposes rehabilitation of the site and the development of further wetlands. Thus, the draft Local SDF supports the long-term vision of a spatially just and inclusive society, experiencing equal opportunities, and developed on principles of sustainability.

However, this plan was not achieved through transdisciplinary research and planning processes, built on facilitation, engagement, collaboration and reflexive learning processes. The manner in which the design-led approach was executed largely alienated the technical team members, the public and even the government officials. What was lacking in the project was a process that enabled the consulting team to work collaboratively. There are numerous tools and methods such as transdisciplinary design principles, co-design and design thinking practices, and articles critiquing such tools and methods, available to practitioners to guide

how they execute projects, and engage not only with one another, but with the public as well (Lang et al. 2012). Yet, from the experiences in the case study, it appears that it was far too easy to use jargon or terminology, such as co-design or a systems thinking approach, without being held accountable to deliver against these promises, for example the execution of a design-led approach which silo'ed the team and purposely avoided collaboration and co-creation of solutions.

Despite the good intentions of the consulting team, they rushed ahead with a design process without establishing a baseline of understanding, which acknowledges this complexity. For example, issues that needed to be explored included understanding why the previous projects failed to become a reality; understanding the dynamics of the site, the spatial injustices which define it; the value or potential value, and for whom this site might be valuable now and in the future. Instead, the baseline which was established was superficial and tainted by the value systems of only a few team members. In addition to this, the design-led approach placed responsibility on only a few of the team members. This approach therefore greatly underestimated and undervalued the social ecological complexity of the site, and the complexity of the various aspects of infrastructure planning, and their interrelatedness with land use or spatial planning.

As a result, the approach failed to critically and collaboratively firstly evaluate if development should take place within this space, and if so, what should characterise this development. It was stipulated within the ToR that a mixed-use, medium to high density development should be proposed which sparks further socio-economic opportunities. Recreation, tourism and even agricultural potential was to be explored. However, these opportunities should have been explored against the context of the value of this space, as a large open space with the metro which holds invaluable heritage and ecological value.

In addition, it should be contextualised against the needs of the city, and its long term vision of creating a better life for all. The draft Local SDF does this by proposing approximately two million m² to be developed within this space, but this should also have been considered in relation to the large number of other densification projects underway in Cape Town, and explored whether these other developments possibly offer better potential for further densification elsewhere in the city, on land which holds less ecological and cultural heritage value.

The consulting team dynamics were not the only challenge. The deliberations over service delivery of water, sanitation, stormwater, energy and transport infrastructure between the consulting team and the various CCT departments was particularly challenging. The need to

make provisions for a sustainable development based on alternative technologies challenged existing CCT policies and decision-making processes.

In addition, the drought brought into focus the need for the CCT to change how it makes decisions on the allocation of services to developments across the metro. This was not a challenge which the consulting team could have foreseen. However, it is an important shift in decision making and governance by the CCT. The provision of services can no longer be based on the available capacity of infrastructure, and on a 'first-come-first-served' basis. Service provision must be based on the availability of resources, and the long-term development plans of the CCT, to prioritise service deliver to all citizens. This highlights that the transformation of particular development ideologies (and the rationalities that inform them) is already taking place in practice.

5. Conclusion and recommendations

5.1. Research aim and objectives

The intention of this research was to understand the challenges of achieving spatial transformation in South Africa, and to explore if the planning processes or methods used by practitioners from different disciplines are adequate to respond to these challenges. The following objectives were explored under this topic: understand the historical land use planning in South Africa, with reference to the laws and policies of the past and the legacies of these policies; determine what spatial transformation means in the South African context, and what is required to transform post-apartheid cities into spatially just and inclusive cities; and, the document the planning processes or method(s) used by practitioners that work in multidisciplinary teams to bring about spatial transformation, and document the successes and failures of these methods. Each of these research objectives will now be discussed; and, based on the insights gained through this study, recommendations for further researched and/or possible changes to planning approaches or policies are made.

5.2. Historical land use planning

A summary of the historical land use practices in the country is presented in Chapter 2, to understand why spatial transformation is important to the country, and the various efforts that have been made to develop a legislative framework which enables spatial transformation. In this chapter the challenges of achieving spatial transformation was explored in terms of the spatially unjust legacy, poverty and equality, a degraded natural environment and the impacts of climate change, and the need to develop new forms of knowledge and practices, against embedded forms of knowledge and power.

From the findings of this chapter it is clear that the complex history of oppression in South Africa, and the impact of this, should not be oversimplified or generalised (Miraftab 2012). More than 300 years of discriminatory land use planning and related practices have shaped the spatial form of the country through uneven urbanisation, wealth, power and politics (Van Wyk 2012b; Miraftab 2012; SACN 2016b; SAHO 2017b) - a legacy which is still deeply entrenched in the spatial patterns, education system, and even social structure.

The mammoth task of unravelling this vast and complex legacy is the responsibility of all of South Africans. New 'ways' or 'means' of developing South Africa are being explored by redefining the legislative framework, and the policies and guidelines which inform decision making. Two decades of democracy this has finally resulted in the development of a legislative

framework which has been unified under SPLUMA (Barnes & Gerber 2016), although significant work is still required to align policy and practices. Significant progress must still be made to create an enabling environment where all South African's may contribute (SACN 2016d). Our local development epistemology must be expanded to encompass the diversity of African histories, culture and knowledge. To develop managerial capacity, skills, knowledge, policies and practices that adequately address the challenges experienced in South Africa, so that we may provide for the needs of all citizens (Williams 2000, 2001; SACN 2016d). These are all challenges which will take many more decades to address, with great commitment from all South Africans as we share the lessons of our successes and failures, and continue to invest in the required social and infrastructural networks.

5.3. Spatial transformation

Spatial injustices are rooted in the social and physical infrastructure of South Africa (Miraftab 2012; Bassett 2013; Turok 2016), exaggerated through the long history of racial segregation, the capitalist imperative of accumulation, slavery and the migrant labour system which provided cheap and controlled labour (Soni 1998; Miraftab 2012). This has created an inextricably connected relationship between land, urban processes, economic productivity and the political dynamics of the country (Miraftab 2012).

Consequently, South African cities are some of the most unequal in the world in terms of income disparities, health care, education and crime. These cities are also highly inefficient in their use of energy and natural resources with low density sprawling development, traffic congestion, and excessive spending on transport by households and government (Pieterse 1998; Turok 2016). They are also plagued with environmental degradation and the impacts of climate change (Sachs 1990; CoJ 2011), gangsterism, crime and violence; degradation of the social fabric (Robins 2002; NPC 2011a, 2011b, 2011c), and corruption also continue to undermine progress in the country (NPC 2011c; Borat et al. 2017) – all of which threatens the economy, livelihoods and food security (Sachs 1990; CoJ 2011). In addition, these are some of the fastest growing cities in the world (CoJ 2011; SACN 2016b, 2016c; WCG 2017c), which has unfortunately exacerbated spatial injustices in many areas (Barbes & Gerber 2016; SACN 2016b, 2016c).

The term spatial transformation broadly defines the major urban change or restructuring which shifts the current status quo of cities (Turok 2016). The development of just spaces requires the transformation of physical infrastructure which is inefficient and related to social exclusion, and inefficient and unequal resource consumption (Turok 2016). This can only be achieved through complex processes, which includes new legislation and design interventions such as

the development of compact cities, densification, mixed use developments, and transit orientated development, and by using innovative participatory processes for research and planning of development such as transdisciplinary design principles.

A vast paradigm shift in legislation, policy and practice has been required to unravel and realign the social relations of power which gave rise to the patterns of uneven development in South Africa (Williams 2000). It has taken two decades to establish a planning legislative framework which enables coordinated change throughout all sectors of South African society (Van Wyk 2012a 2012b; Barnes & Gerber 2016; SACN 2016b). This is a framework centred on spatial planning and land use planning practices, because of the interrelated and complex nature of the relationships between settlement patterns, poverty and inequality, access to opportunities (education, healthcare, work), vulnerability to the impacts of climate change, and the sustainable use of resources, amongst other things.

Design interventions such as compact cities, densification, mixed use, transit orientated development, amongst others, therefore are intended to bring about the various principles of associated with the development of spatially just and inclusive societies, through the development of compact or dense cities where citizens have access to a range of opportunities (CoJ 2011; NPC 2011b; Barnes & Gerber 2016; Du Plessis 2016; SACN 2016b).

However, the institutional, administrative and cultural aspects of the country must also be transformed if this system is to be successful (Williams 2000; Barnes & Gerber 2016; SACN 2016b). Incisive questioning, learning and reshaping of ideologies, rationalities and governmentalities, are essential for these shifts to take place (Williams 2000; Kane 2010; SACN 2016d). It is through these shifts that the power dynamics and resistance to change will be overcome. Therefore, it is essential that research and planning techniques be developed and implemented that elucidate the spatial injustices, the complexity of systems, and the power dynamics (Basette 2013; Preiser et al. n.d.). Furthermore, that research and planning practices use careful and deliberate design of engagement to ensure collaboration of multiple actors in all processes, which enable reflexive learning and co-creation of solutions (Lang et al. 2012).

5.4. Research and planning processes used by professionals

The intention was for a variety of specialist studies to be undertaken with regards to TRUP – heritage, aquatic, biodiversity and water quality assessments, as well as floodline modelling and investigations regarding the existing service capacities for traffic, stormwater, potable water, sanitation and electricity. These specialist studies were to inform an integrated planning process for the development of a Local SDF with detailed precinct and site plans. This approach would have been in line with systems thinking and focus strongly on informed decision making, integration of knowledge and the co-creation of sustainable designs for the future of TRUP.

The experiences of the researcher illustrate that professionals in multidisciplinary teams, carrying out research and planning practices, are still grappling with the implementation of appropriate methodologies or approaches that facilitate collaboration and the co-creation of solutions. While terminologies and jargon, such as co-design, systems thinking, integrated or integration, are used freely, these methods are only partially implemented in practice, if at all. As a result, misconceptions and conflicting value systems, and even conflicting governmentalities, are difficult to address in practice. Knowledge is still accumulated in silos, and because of the lack of processes to facilitate engagements to address these conflicting rationalities meaningful collaboration and co-creation of solutions does not take place.

Furthermore, there is a general lack of accountability when practitioners do not fulfil the promised methodologies. This reinforces the conception in industry that professional conduct, transparency, authentic engagement, the integration of knowledge and the co-creation of solutions are not that important – that it is acceptable to simply make use of the latest buzz words without delivering on these promises. This reinforces the ‘bad behaviour’ of practitioners, and the poor performance of research and planning practices based on inappropriate processes or methods; and, the resulting impacts that this has on development of the country.

5.5. Recommendations

5.5.1. Design of holistic projects

Like sustainable development, spatial transformation requires innovation, through reflexive learning processes. This requires methods or approaches that not only highlight and respond to the complexity of the development site, but also provide mechanisms to respond to the diversity of rationalities and governmentalities. If adequate solutions are to be developed to bring about spatial transformation in this complex world, then adequate research and planning processes or methodologies and methods must be developed and implemented.

Mechanisms must be put in place with regards to the development of projects and the associated ToR under which consulting teams are appointed, to ensure that appropriate methodologies, such as transdisciplinary design principles, are made use of. This may require explicit descriptions of the methodologies to be used, and not simply the general use of terminology. Furthermore, this may require in addition to a project manager (whose focus is on timelines, coordination and budgets) a dedicated and experienced ‘facilitator’ to ensure integration and lead team members to work in an integrated way.

5.5.2. Accountability

Practitioners must be held accountable for the work which they undertake, and in particular to make use of appropriate methodologies and methods in research and planning practices. This includes practitioners from all institutions – government, academia and the consulting industry.

A supportive culture must be developed within the industry to ensure that practices are improved. But, also to ensure that when there are transgressions, such as the manipulations of teams and methodologies, that there is also a strong culture of accountability amongst peers.

5.5.3. Authentic participation

Collaboration and co-creation requires the continuous participation and reflexive learning of all stakeholders. Government officials cannot assume that consulting teams will fulfil the mandate of government, through research and planning processes that they are absent from. Consultants cannot assume that they understand the challenges and needs associated with communities that they do not form part of. Public stakeholders must learn to actively engage in research and planning practices in a manner that is inclusive of all party’s needs. If collaborative methods are to be implemented, such as the transdisciplinary principles explored in this research, then this requires all actors to be present and to actively partake in facilitated

engagement, reflexive learning and co-creation of solutions, throughout the duration of the project. Furthermore, if all actors are present and actively partake in all stages of the project, then it may be easier for government to guide the spatial transformation agenda through these projects.

By being actively involved, it will also be easier for all parties to hold each other accountable throughout the project, rather than at the end.

Lastly, this will allow for capacity development of practitioners in various disciplines, and allow for continual learning and improvement throughout the industry.

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²⁴ The research presented in the case study has been gathered through ethnographic research methods, as described in the methodology. The research journal includes notes from the researcher's experiences, an extensive record of e-mails, and a record of personal communications as cited in this document. These records are not available to the public, but has been made available to my supervisor, Ms Anneke Muller at the School of Public Leadership at Stellenbosch University, to whom motivated requests for access to this information can be made.

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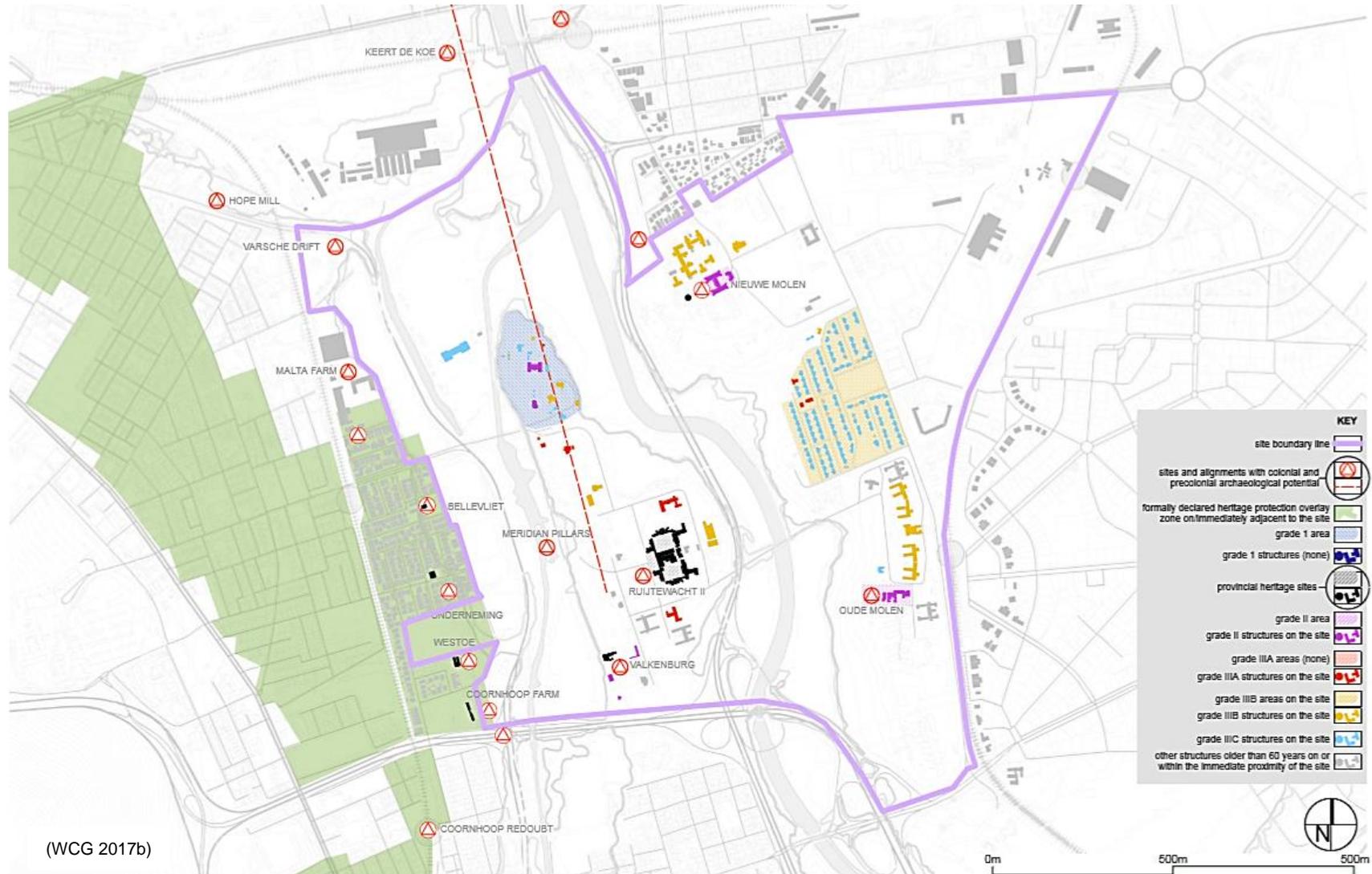
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7. Annexure A: Map of cultural heritage sites and potential sensitivities of TRUP



8. Annexure B: Map of the ecological value of TRUP

